Journal of American Science

Websites:
http://www.jofamericanscience.org
http://www.sciencepub.net

Emails:
editor@sciencepub.net
sciencepub@gmail.com

MARSLAND PRESS
Multidisciplinary Academic Journal Publisher

System stability, optimization and dynamic control principle ——Analysis and cognition of higher-order equations in "0 to 1"

Wang Yiping [1], Li Xiaojian [2*], He Huacan [3]

1 Researcher, Senior Engineer, Quzhou City Elderly Science and Technology Workers Association, wyp3025149@163.com; Zhejiang324000;
2* Professor, Ph.D. North China University of Technology Corresponding author: lxj1166@qq.com; Beijing 101144;
3 Professor, Ph.D. Supervisor, Northwestern Polytechnical University, hehuac@nwpu.edu.cn; Xi'an 710072

Abstract The principles of stability, optimization and dynamic control of complex multi-body systems are proposed. Distinct with any element in infinity and clustering Combinatorial and set and controllable reciprocity features, improve calculus and pattern recognition, optimize composition "without derivatives, limits, logical symbols" The higher-order equation of "number". It has closed, multi-system, multi-parameter, heterogeneity, covariance, unit probability, and isomorphic topology. The advantages such as stability, center-zero symmetry, etc., are mapped to "irrelevant mathematical type, no specific element content", controllable three-dimensional stereo height. Dimensional basic space, called "group combination-circular logarithm-neural network", with zero error between place-valued {0 or (0 to (1/2) to 1) or 1}Difference arithmetic logic calculation. Additional examples: application examples of mechanical engineering, numerical examples of higher-order equations and explanations of experimental examples.

[Wang Yiping. Li Xiaojian. He Huacan. **System stability, optimization and dynamic control principle——Analysis and cognition of higher-order equations in "0 to 1".** J *Am Sci* 2022;18(4):1-106]. ISSN 1545-1003 (print); ISSN 2375-7264 (online). http://www.jofamericanscience.org. 1. doi:10.7537/marsjas180422.01.

Key words: Complex multi-body system; Calculus and pattern recognition; Higher-order equations; Three-dimensional solid high-dimensional space; Group combination-circular logarithm-Neural

---

Note: The original manuscript of this article was expanded and supplemented on the basis of winning The first prize of Theoretical Innovation of the Chinese Society for Artificial Intelligence in December 2021, and systematically expounded the theory of group combination-circular logarithm-neural network.

Guided reading:

- **System stability, optimization and dynamic control principle——Analysis and cognition of higher-order equations in "0 to 1"**
- **Wang Yiping [1] Li Xiaojian [2*] He Huacan [3]**
- **Wang Yiping**1 Researcher, Senior Engineer, Quzhou City Elderly Science and Technology Workers Association, wyp3025149@163.com; Zhejiang 324000;
- **Li Xiaojian** 2* Professor, Ph.D. North China University of Technology Corresponding author: lxj1166@qq.com;Beijing 101144;
- **He Huacan** 3 Professor, Ph.D. Supervisor, Northwestern Polytechnical University, hehuac@nwpu.edu.cn; Xi'an 710072;

Dear leaders:

More than 2,000 years ago, the ancient Chinese mathematics history recorded a systematic higher-order equation - the germinative concept of calculus. Since the establishment of the discipline of analysis in the 17th century, European mathematicians have made continuous efforts to explore and improve the development of calculus equations-pattern recognition cluster sets, which are widely used in mathematical engineering-scientific engineering-artificial intelligence engineering, but they have not reached the end. where?

The theory of "group combination-circular logarithm-neural network" is proposed. The first complete proof of mathematics "multiplication and addition, multiplication and division, addition and subtraction reciprocity rules". The continuous "calculus equation" and the discrete "pattern recognition clustering set" are integrated into a unity, which becomes a "higher-order equation" of complex systems. The optimization group is "eigenmode" (multi-variable median and inverse mean function) (including multi-parameter, heterogeneity, multi-level, multi-dimensional) and "discriminant" supervised learning rules, which are mapped to "irrelevant mathematical models without specific element content". ", a controllable and stable circular logarithmic-neural network, in the closed {0 or [0 to (1/2) to 1] or 1}, achieving a center-zero relative symmetry expansion and zero error of place values Cognition and Analysis of Arithmetic Logic.

We are familiar with junior high school algebra that the quadratic equation in one variable is "the sum of the squares of two values", and the cubic and quartic equations are also calculated. For equations of the fifth degree and above, except for the discrete symmetry logic calculation, the calculation of the asymmetry has not been satisfactorily solved so far. Using the circular logarithm algorithm, any S times can be analyzed by one method. It is called group combination-circular logarithm-neural network equation: any complex function is simplified here, which reflects a famous Chinese saying: "The great road leads to simplicity".

$W= (1-\eta^2)^K W_0^{K(Z)/t}$;

$(1-\eta^2)^K=\{(^{KS}\sqrt{D})/D_0\}^{K(Z)/t}=\{0 \text{ or } [0 \text{ to } (1/2) \text{ to } 1] \text{ or } 1\}$;

In the formula: unknown and known functions (network nodes) W, W_0; $(^{KS}\sqrt{D})/D_0\}^{K(Z)/t}$, D_0 continuous multiplication function and continuous addition function; $(1-\eta^2)^K$ controllable circle logarithm or perfect circle mode;{0 Or 1} mode (real infinity) jump transition; [0 to (1/2) to 1] mode (latent infinity) continuous transition, power function K(Z)/t=K(Z±[S±Q±M]±(N=0,1,2)±m±q)/t: function properties (K=+1,±1±0,-1); infinite arbitrary finite elements (Z±S); action area [S±Q±M]; dynamic mode (N=0,1,2): 0th order, static; 1st order: momentum, velocity, linearity, probability; 2nd order: kinetic energy, force, acceleration, surface, topology); (±m) Upper and lower bound clock arithmetic calculation range of element combination, element (q=0,1,2,3...) combination form; (/t) one-dimensional time and order synchronization change.

Why do circular logarithms have such powerful magical properties? It luckily focused on solving a series of century-old mathematical puzzles to form the Fundamental Theorem of Circle Logarithms. For example, simple to complex polynomials use a "time calculation" to solve the P=NP problem; the integer expansion of polynomials involves Hodge's conjecture, and the subterms of polynomials involve the reciprocal theorem of "multiplication and addition"; probability-topological symmetry expansion involves Riemann The central zero theorem for the critical point of a function. Engineering application examples: Maxwell's electromagnetic equations; Einstein's gravitational equations, biomechanics, gauge fields, and the evolution of the universe have all become circular logarithmic unity. Univariate higher-order equations, the principle of circular logarithmic dynamic control, and computer algorithm theory, in a 3D/2D manner in a perfect circle mode: from the center to the surrounding, or from the surrounding to the center, multi-directional, multi-parameter, fast synchronization Neural network information transmission and image (including audio, video, language, text, password and other highly parallel functions) zero error, high efficiency, high computing power, etc., are closely related to the "circular logarithm".

Based on the fact that the logarithm is a novel, groundbreaking and independent algorithm system, our logarithm research team composed of more than 20 people has limited capabilities and is inevitably incomplete and not rigorous. It is expected that domestic and foreign research institutions, experts, scholars and teachers will actively participate and work together to strive for substantial progress in contemporary mathematics. (End) The entire text is about 100,000 words.

0. Preface

More than 2,000 years ago, the ancient Chinese mathematics history recorded a systematic higher-order equation - the germinative concept of calculus. The concept of mathematical analysis began to be established in Europe in the 1660s. For hundreds of years, mathematicians have been striving to explore, improve and develop, and overcome many mathematical crises. Mathematical analysis has greatly promoted the development of science. Its representative disciplines are calculus equations, which have a colorful history of development and a bizarre prehistory. history.

From Newton, Leibniz, Bernoulli, Euler, Cauchy, Riemann, Lebesgue..., from finite to infinite, from discreteness to continuity; from superficial appearance to profound abstract essence , to the zero-error dynamic control principle of artificial intelligence high-level systems, showing the rough development of the history of mathematics. The current traditional mathematical analysis has encountered difficulties in the recognition and analysis of the higher-order equations of the multi-body complex system-neural network, and how to achieve stability, optimization, zero error and dynamic control. It means that the development of mathematics has not reached the end. Where is the end?

In the 1940s, category theory provided a formalized logical language for expressing and solving problems in complex scientific fields, describing discrete interactions between objects, and became the theoretical basis for discrete computers in current artificial intelligence. The next step in the development What kind of mathematical model is this pointing to the continuous activities of artificial intelligence that imitate the thinking of the human brain?

Chinese mathematician Xu Lizhi's "Selected Lectures on Mathematical Methodology", Wu Xuemou's "Pan-system Theory and Mathematical Methods", Zhong Yixin's "Paradigm Revolution: The Only Way to Innovate the Source of Artificial Intelligence Theory", etc., proposed novel mathematical methods and logical paradigms, deepening artificial intelligence logic theory. At the same time, it also points out the direction for new development: "Logical arithmetic, arithmetic logic", creating conditions for creating a new generation of mathematical foundations.

In May 2021, the operation case of the Second Hospital of Zhejiang University was to use a 0.1 mm surgical robot to place 100 electrode needles on two 4 mm × 4 mm chips, and send them to the fifth layer of the brain deep in the brain. Established cellular locations surrogate the control of the human brain.

In August 2021, British scientist Brett Kagan published the "Cybot Brain" experiment, proving that "using the dish-shaped brain system, the single-layer cerebral cortical neurons cultivated can automatically participate in the simulated game world. Organizing and exhibiting intelligent, sentient behavior". Its information transmission and control capabilities far exceed the current mathematical model.

These scientific experiments have stimulated the active pursuit of efficient mathematical models, and speculations about what they should be like?

Put forward the concept of "group combination-circular logarithm-neural network", which has "discreteness and continuity", "arithmetic and logical calculation in one", "irrelevant mathematical model", "no specific element content", Mathematical models "without derivatives, limits, logical symbols" are optimized to higher order equations, mapped to arithmetic computations in the range {0 to 1} with controllable bit values.

Specific methods: expand the traditional continuous calculus "single-variable" model to a "multi-variable" model of complex multi-body systems, and expand the "ellipse model" to a "perfect circle model". Class integration of higher order equations. Based on the reciprocity rule of "multiplication and addition, multiplication and division, addition and subtraction" and the basic definition theorem of circular logarithm, which is the first complete discovery of the mathematical basis, the establishment of calculus multivariate characteristic modes (positive and inverse mean function) and discriminant become the supervision Learning and searching for learning rules, optimizing the calculus element-pattern recognition cluster set into a unified higher-order equation, mapping it to a stable and controllable circular logarithm-neural network, in the closed only place value {0 or In the interval [0 to (1/2) to 1] or 1}, realize the recognition and analysis of zero-error arithmetic logic.

"Group Combination-Circular Logarithm-Neural Network" inherits and expands the experience and achievements of previous mathematicians for hundreds of years. It is a novel and independent mathematical framework, which becomes the circular logarithm theorem by solving a series of century-old mathematical problems. It has: simple, reasonable proof, rigorous structure, reliable and controllable, solid foundation, and has the advantages of high algorithm, high computing power, unity, security, credibility, universality, and zero-error calculation. The whole result not only belongs to China , and also belong to the whole world.

Finally, I would like to thank the more than 20 members of our circle logarithm research team for their long-term exploration and selfless dedication. After decades of hard work, this new mathematical system has been gradually formed. Thanks to the long-term attention and support of the old science and technology association of Quzhou City, Zhejiang Province, and published nearly 1,000 scientific and popular science articles on the Sina blog under the signature "Explore the Free Sky klx0570". Thanks to Wu Shuiqing, former editor-in-chief of Modern Physics, Chinese Academy of Sciences, Chinese Academy of Management (granted special prize in 2012), China Scientists Forum (granted first prize in 2015), Chinese Society for Artificial Intelligence (granted first prize in 2021), and American Science Journal of Mathematics and Statistical Sciences (JAS) and American Journal of Mathematical and Statistical Sciences (JMSS), who first discovered the meaning and value of circular logarithms, and gave them support and encouragement. Thanks to Northwestern Polytechnical University of China, Northwestern Polytechnical University of China, and Southwest Jiaotong University of China for their support and guidance. Thanks to all members of

the "Circle Logarithm 0 to 1 Mathematics Group" for their active participation and guidance. Thanks to many netizens on Sina and other websites for their enthusiastic guidance, support and encouragement.1. Basic definition of circular logarithm

There are many names in the history of mathematics that are similar to "circular logarithm", including: principle of relativity, Veda's theorem, least squares method, principle of least action, error approximation, distance, difference, geodesic, topology, vector paradigm, information transmission principle , Einstein's special theory of relativity, Jacobi elliptic function, Lebesgue polynomial measure, modular form, objective function, perfect circle mode, neural network... . The connotation of these names is to express the "gap" between functional elements, geometric spaces, arithmetic numbers, and groups. But the disadvantage is that they have not clearly pointed out their "reciprocity", which has become a congenital defect of traditional mathematics. In the face of the current difficulties in mathematics, many mathematicians have speculated: Perhaps the biggest, most difficult and final natural rules that humans have not discovered so far, where will they be?

So far, the true connotation of the above-mentioned "circular logarithm" has not been completely discovered in mathematics. Uncover their true veil perhaps: any function with "resolution of 2", two related asymmetric groups (function, space, numerical value, group theory)" can be converted into each other, and the decomposition of reciprocity is carried out. Or combination; it is "multiplication and division, multiplication and addition, addition and subtraction, perfect circle and ellipse, equality and inequality", symmetry and asymmetry, sparse and dense, fractal and chaos, and polynomial "root and coefficient" in the foundation of mathematics. "Reciprocity rule; it is the multi-parameter, heterogeneity, multi-level stability, optimization, and control characteristics of complex multi-body systems, forming higher-order equations - the basis of basic mathematics for the cognition and analysis of neural networks. . Called "group combination-circular logarithm-neural network" theory.

"Group Combination-Circular Logarithm-Neural Network" is proposed in the form of simple, abstract, controllable, reliable, and zero-error accuracy: combining two asymmetric events (point, line, surface, volume, multi-body, space, etc.) , group) in a "quadratic" state, which is transformed into a relatively symmetrical synchronous expansion of reciprocity. Optimized for Higher Order Equations - Neural Networks with {0 or 1} Jump Transitions in Controllable Circle Logarithms, and {0 to (1/2) to 1}, and {(-1) or (+1)} and {(-1) A gap pattern of reciprocal continuous transitions to (0) to (+1)}. Almost all mathematical analysis, statistics, cognition and analysis are included. The round logarithm hides a magical charm.

1.1. Basic Definition

Definition **1.1.1**: Element (·): Element is a unit that is intuitively real and formed in a certain sequence, called function, element, number, and space. There are differences in properties, element properties: K=(+1) represents a positive number, and K=(-1) represents a fraction. There are also two kinds of content: numerical value and place value, which represent the content of entity elements: mathematical set, cluster, and threshold value; physics quantum particle; celestial body galaxy motion; life science gene, neuron synapse; statistical science numerical analysis, etc.

Elements can be "continuous and discontinuous, symmetrical and asymmetrical, uniform and inhomogeneous, sparse and non-sparse, random and regular, discrete and entangled" and other multivariable sets of functions, group combinations, and clusters composed of a single unit. . The dynamic differences of systems, properties, regions, levels, and calculus are reflected in the power function.

(1.1.1) $\sum_{(I=Z\pm S\pm N)}\prod_{(I=q)}[x_a{}^K, x_b{}^K, \ldots, x_p{}^K, \ldots, x_q{}^K)]\} \in \{X\}^{K(Z)/t}$;

Definition **1.1.2**: Element (·) combination: multi-element multiplication is a non-repetitive combination of infinite program integers, from the form of the number of combinations (q)=0-0, 1-1, 2-2, ..., P-P, The combined state of …. It is called the combination of any finite element K(Z)/t in infinity (including the generalized numerical values of Russian nesting dolls: N∈N (natural number), Z (integer), Q (rational number), R (real number), C (complex number).

In the formula: set of elements: $\{X\}^{K(Z\pm S\pm N)/t}$ power function: K(Z)/t=K(Z±S±N±q)/t; infinite elements; (Z)/t infinite program; any finite power dimension in infinity: (Z±S) (+S integer, -S fraction); integer order value combination of calculus: (±N) (differentiation+N), (integral-N); item order P, (P-1)=the number of combined elements is the integer sub-item of the combination; function properties: K=(+1,±0±1,-1); {…,…} infinite set; {…} a finite set.

Note: Superscript: the power function of the combination of elements and the set, subscript: the location of the combination of elements. (the same below).

Definition **1.1.3**: Combining Elements - Spatial Properties

(1), Defining a combined element: an element-number-space-group of an intuitive entity, described by abstract place values or algebraic numbers.

Such as: univariate $(a)^K$; multivariate value $(aa\ldots a)^K$,, group combination $\{a\}^K=(a_Sa_Q\ldots a_M)^K$;

(2), Define the properties of combined elements: the property function is marked K=(+1,±0±1,-1), K=(+1) (positive power function, convergence function); K=(-1) (negative power function, diffusion function); K=(±0) (central function, neutral function, transfer function); K=(±1) (balance function is a collection of positive and negative power functions);

(3), Defining function properties: the mathematical model established by the balance, constraint, transformation and controllable relationship between known and unknown multivariables (called group combination).

Such as: $W=\sum_{(i=S)}\{X\}^{K(S)}$, $W=\prod_{(i=S)}\{X\}^{K(S)}$, $W=\sum_{(i=S)}\prod_{(i=S\pm q)}\{X\}^{K(S)}$,

$W=\prod_{(i=S)}\sum_{(i=S\pm q)}\{X\}^{K(S)}$, $W=\sum_{(i=S)}\sum_{(i=S\pm q)}\{X\}^{K(S)}$, $W=\prod_{(i=S)}\prod_{(i=S\pm q)}\{X\}^{K(S)}$, ……;

(4), Define the property of element-value-space reciprocity:

Such as:$(a)^K$: integer$(a)^{(K=+1)}$; fraction $(a)^{(K=-1)}$; positive term $(a)^{(Kw=+1)}$; negative term$(a)^{(Kw=-1)}$, Center term$(a)^{(Kw=\pm1)}$;

Reciprocity: $(a)^{(K=\pm1)}$ (representing balance)$=(a)^{(K=+1)}\cdot(a)^{(K=-1)}=(a)^{(K=\pm0)}$(representing conversion);

(5), Define the multi-element-value-space combination of the same level:

Such as: three variables $(aaa)=(a)^{K(3)}$, S variables$(a_1a_2a_3\ldots a_s)=\{a\}^{K(S)}$

For example: Real number: $(a^S)^{(K=+1)}\cdot(a^Q)^{(K=+1)}\cdot\ldots\cdot(a^M)^{(K=+1)}=\{a\}^{(K=+1)(S+Q+\ldots+M)}$;

For example: Score: $(a^S)^{(K=-1)}\cdot(a^Q)^{(K=-1)}\cdot\ldots\cdot(a^M)^{(K=-1)}=\{a\}^{(K=-1)(S+Q+\ldots+M)}$;

(6), Define the multi-element multiplication of the system multi-body (element), and use the set symbol {a} and the power function to represent the set of regions:

For example: Positive system function: $(a_1^S)^{(K=+1)}\cdot(a_2^Q)^{(K=+1)}\cdot\ldots\cdot(a_P^M)^{(K=+1)}=\{a\}^{(K=+1)(S+Q+\ldots+M)}$;

For example: Inverse term system function: $(a_1^S)^{(K=-1)}\cdot(a_2^Q)^{(K=-1)}\cdot\ldots\cdot(a_P^M)^{(K=-1)}=\{a\}^{(K=-1)(S+Q+\ldots+M)}$;

For example: Balance number: $(a_1^S)^{(K=\pm1)}\cdot(a_2^Q)^{(K=\pm1)}\cdot\ldots\cdot(a_P^M)^{(K=\pm1)}=\{a\}^{(K=\pm1)(S+Q+\ldots+M)}$;

(7), Define the center zero point function: multi-element-value-space represents the neutral function and the conversion between the positive term and the negative term.

Such as: Conversion system function: $(a_1^S)^{(K=\pm0)}+(a_2^Q)^{(K=\pm0)}+\ldots+(a_P^M)^{(K=\pm0)}=\{a\}^{(K=\pm0)(S+Q+\ldots+M)}$;

Definition **1.1.4**. Group combination (multi-variable element, set): The combination of variable elements with multi-region, multi-level, multi-parameter and heterogeneity in infinity is called group combination. Group combinations are contained in variable elements for multi-parameter, heterogeneous features, represented by element {X}K(S) or element average {X0}K(S). It is composed of multi-level, complex multi-body (group combination), and the group combination retains the multi-parameter, heterogeneity and other characteristics of the variable elements, and becomes a three-dimensional high-dimensional high-order circular and radial intersecting neural network and neural network Node, for multi-directional information transmission. The advantages of multi-directional fast transmission of group combination are brought into play. That is to say, the more network node elements (neuron synapses) of the neural network, the higher and faster the transmission efficiency. [S]=[S±Q±…±M];

(1.1.2)

$\{X\}^{K(Z\pm[S])/t}=\{x_1x_2\ldots x_S\}^{K(Z\pm S)/t}$, $\{x_1x_2\ldots x_Q\}^{K(Z\pm Q)/t}$, … , $\{x_1x_2\ldots x_M\}^{K(Z\pm M)/t}=(X_1^S)^{(K=\pm0)}+(X_2^Q)^{(K=\pm0)}+\ldots+(X_P^M)^{(K=\pm0)}=\{X\}^{(K=\pm0)(S+Q+\ldots+M)}$;

In the formula: [S]=[S±Q±…±M]; it represents the composition of many bodies of the system.

Definition **1.1.5**. System·Function W(·): The continuous multiplication of infinite elements, the non-repeated combination of continuous addition and the set representation level, form the state of calculus order and level, called the higher-order element $\{X\}^{K(Z\pm S\pm N\pm q)/t}$, the function composed is called higher order equation or high pattern recognition cluster set. The system [S]=[S,Q,M…] has the interaction between multiple variables or functions, calculus, hierarchy (±N=0,1,2), (±N=0) means static, original function level. (-N=1) means the first-order differential, velocity, momentum level, (±N=2) means the second-order calculus, acceleration, energy, force level: {q}=(0,1,2,…S) means The combination of multivariate elements within the region.

The function W(·) represents: polynomials, calculus equations, high-power, high-order, high-clustering and dynamic equation mathematical models of pattern recognition clustering sets. called higher order equations,

Calculus dynamic control, power function increase and decrease order (N=±0,1,2,…P) (differential: -N; integral: +N),

Among them: Differential (N=-1,2,...n)/t replaces dx/dt, dx/dt, $\partial^n x/dt^n$ symbol; the power function is K(Z±S±(N=-n)±q)/t;

Integral (N=+1,2,…P)/t replaces ∫dx , $∫^n dx^n$ symbols; the power function is K(Z±S±(N=+n)±q)/t;

In this way, the labeling method can satisfy the dynamic control of one-dimensional time following the synchronous change of the calculus order value, and avoid the disagreement of whether the time is one-dimensional or multi-dimensional in the form of calculus (dt^n) or $∫^n dx^n$.

Such as:

S area, level, calculus: $\{X\}^{K(Z±S)/t} \to \{X\}^{K(Z±S±(N=0,1,2))/t} \to \{x_1x_2\dots x_S\}^{K(Z±S±(N=0,1,2)±q)/t}$;

Q area, level, calculus: $\{X\}^{K(Z±S±(N))/t} \to \{X\}^{K(Z±Q±(N))/t} \to \{x_1x_2\dots x_Q\}^{K(Z±Q±(N=0,1,2)±q)/t}$, …;

M area, level, calculus: $\{X\}^{K(Z±S)/t} \to \{X\}^{K(Z±M±(N))/t} \to \{x_1x_2\dots x_M\}^{K(Z±M±(N=0,1,2)±q)/t}$,

[S] System: $\{X\}^{K(Z±[S]±(N=0,1,2)±q)/t} = \{x_1x_2\dots x_{[S]}\}^{K(Z±[S]±(N=0,1,2)±q)/t} = \{x_1x_2\dots x_{[S]}\}^{K(Z±[S]±(N=0,1,2)±q)/t}$,

(1.1.2)

W(·)

$= \{X\}^{K(Z±[S]±(N)±q)/t} = \sum_{(i=S)}\prod_{(i=[S]±q)}\{X\}^{K(Z±[S]±(N=0,1,2)±q)/t}$

$= \sum_{(I=Z±[S]±N)}[\prod_{(I=q)}x_a^K + \prod_{(I=q)}x_b^K + \dots + \prod_{(I=q)}x_q^K)]^{K(Z±[S]±(N=0,1,2)±q)/t}$;

Definition **1.1.5**. Element-clustering: Element-clustering is a system with multiple weight parameters $\{ω_i\}=(ω_αω_βω_γ\dots)$ (including vector direction, angle, performance); polyheterogeneity (the distance between elements $\{R_K\}=(r_αr_βr_γ\dots)$; element-cluster $\{x\}^{K(Z±[S]±(N)±(q))/t} = \{x_jω_iR_k\}^{K(Z±[S]±(N)±(q))/t}$;

(1), The element-cluster combination function of high parallel group combination is expressed in the group combination unit.

(1.1.3)

$\{x_jω_iR_k\}^{K(Z±[S]±(N=0,1,2)±q)/t} = \{x_jω_iR_k\}\}^{K(Z±[S]±(N=0,1,2)±q)/t}$
$= \sum_{(I=Z±[S])}[\{x_jω_iR_k\}^S, \{x_jω_iR_k\}^Q, \{x_jω_iR_k\}^M]^{K(Z±[S]±(N=0,1,2)±q)/t}$;

(2),The element-cluster combination mean value function of the highly parallel group combination represents the mean value unit of the group combination.

(1.1.4)

$\{x_{0j}ω_{0i}R_{0k}\}^{K(Z±[S]±(N=0,1,2)±q)/t} = \{x_{0j}ω_{0i}r_{0k}\}^{K(Z±[S]±(N=0,1,2)±q)/t}$

$= \sum_{(I=Z±[S])}\{x_{0j}ω_{0i}r_{0k}\}^S,\ \{x_{0j}ω_{0i}r_{0k}\}^Q,\ \{x_{0j}ω_{0i}r_{0k}\}^M]^{K(Z±[S]±(N=0,1,2)±q)/t}$;

Definition **1.1.6**. Systems and higher-order equations

System refers to the interaction of infinite elements-clusters in multi-region, multi-parameter and multi-heterogeneity of multi-body systems, forming infinite programs "continuous and discontinuous, symmetric and asymmetric, sparse and dense, fractal and chaotic...", That is, the combination of group combinatorial interactions. The power function is based on the unity of the eigenmodulus and circular logarithm. The infinite calculus equation and pattern recognition clustering are combined into a whole, and optimized as a higher-order function $\{X\}^{K(Z±S±Q±\dots±M±(N)±(q))/t}$. When there are two or more asymmetric functions composed of unknown functions and known functions, it meets the requirements of the discriminant and becomes a higher-order equation.

(1.1.5)

$[\{x_jω_iR_k\} ± \{^{K(Z±[S])}\sqrt{D}\}]^{K(Z±[S]±(N=0,1,2)±q)/t} = [\{X\} ± \{^{K(Z±[S])}\sqrt{D}\}]^{K(Z±[S]±(N=0,1,2)±q)/t}$;

Definition **1.1.7**. Tree coding (path integral exp): The multi-region, multi-level, multi-parameter, and heterogeneity of the system is represented by the power function, which means that the multi-element of the neural network node becomes the neuron multi-synaptic node $\{X\}^{K(Z±S±Q±\dots±M±(N)±(q))/t}$, for information transmission or interaction. Among them, through the multi-level circular neural network and radial neural network of the neural network, as well as the multi-synaptic node of the neuron between the two nodes, the logarithm of the center zero point circle (proved later) is converted. According to the principle of center-zero symmetry and symmetry replacement, bifurcation, sub-region and sub-level are performed to form tree coding (path integral) power function form [S]=[S±Q±…±M] , high-order power function: K(Z)/t=K(Z±[S±Q±M]±(N=0,1,2)±m±q)/t=K(Z±[S]±(N)±q)/t

(shorthand, elements can be increased or decreased in the power function, the same below).

(1.1.7)

$\{X\}^{K(Z±[S]±(N))/t} = \{X\}^{K(Z±[S±Q±\dots±M]±(N=0,1,2)±q)/t}$

$= \sum_{(Z±[S]±(N))}[\prod_{(Z±[S]±q)}\{X_S\}, \prod_{(Z±[Q]±q)}\{X_Q\}, \dots \prod_{(Z±[M]±q)}\{X_M\}]^{K(Z±[S]±(N))/t}$

$= \sum_{(Z±[S]±(N))}[\prod_{(Z±[S]±q)}\{X_S, X_Q, \dots X_M\}]^{K(Z±[S±Q±\dots±M]±(N=0,1,2)±q)/tK(Z±[S]±(q))}$;

In the formula: unknown and known functions (network nodes) {X} $\{X_0\}$; $(^{KS}\sqrt{D})$, D_0 continuous multiplication function and continuous addition function; $(1-η^2)^K$ controllable circle logarithm or perfect circle mode; Jump transition in {0 or 1} mode (real infinity); continuous transition in [0 to (1/2) to 1] mode (latent infinity), power function K(Z)/t=K(Z±[S±Q±M]±m±(N=0,1,2)±q)/t=K(Z±[S]±(N)±q)/t:

function properties (K=+1,±1±0,-1); infinite arbitrary finite elements (Z±S); action area [S±Q±M]; Dynamic mode (N=0,1,2): 0th order, static; 1st order: momentum, velocity, linearity, probability; 2nd order:

kinetic energy, force, acceleration, surface, topology); (±m) The arithmetic calculation range of the upper and lower bounds of the element combination, the element (q=0,1,2,3…) combination form; (/t) One-dimensional time and order synchronization change.

Definition **1.1.9**. Time series: The comparison based on the unitary group combination $\{^{KS}\sqrt{D}\}$ (the square root of the multi-element multiplication) or $\{D_0\}$ (the mean function of the multi-element continuous addition) becomes the "logarithm" (time series power function, path integral), become integer time series, exponential function, power function, path integral and other functions, including multi-system [S]=[S±Q±M]. The time series K(Z)/t controls the dynamic control, depth and breadth of multivariables (functions, spaces, values, groups) of complex systems. Integer expansion of time series and power functions:

(1.1.18)

$K(Z)/t=\{^{S}\sqrt{X}\}^{K(Z\pm[S]\pm(N=0,1,2)\pm m\pm(q=0,1,2,3\ldots))/t}/\{^{S}\sqrt{X}\}^{K(Z\pm[S]\pm(N=0,1,2)\pm m\pm(q=0)/t}$

$=\{X_0\}^{K(Z\pm[S]\pm(N)\pm m\pm(q=0,1,2,3\ldots))/t}/\{X_0\}^{K(Z\pm[S]\pm(N)\pm m\pm m\pm(q=1)/t}$

$=\{^{S}\sqrt{X}\}^{K(Z\pm[S]\pm(N)\pm m\pm(q=0,1,2,3\ldots))/t}/\{X_0\}^{K(Z\pm[S]\pm(N)\pm m\pm(q=1)/t}$

=K(Z±[S=S±Q±…±M]±(N=0,1,2,3…)±m±(q=0,1,2,3…))/t;

In the formula: [S]=[S±Q±…±M]; (±N=0,1,2,3…); (±q=0,1,2,3…), which are all natural numbers, Integer expansion of real numbers. The convergence of the function is controlled by the property (K=+1,-1).

Based on the time series (power function, path integral), the integral expansion of the characteristic modular power function without "error accumulation" is composed. Ensure stability, reliability, controllable circular logarithm-neural network hierarchical composition tree coding, with zero-error arithmetic logic calculation and controllable depth and breadth.

Definition **1.1.10**. Clock arithmetic calculation(±m**)**: In the infinite element concatenated multiplication and concatenated exponentiation functions, all elements participating in the combination within the closed range have upper and lower bounds(±m**)**, and the logarithmic factor of the circle formed according to The upper and lower sequences are arranged cyclically, just like the clockwise calculation of a clock. If it is a combination of prime numbers, it is called "P base". For example, the clock is arranged by numbers in 12 positions, and 12 and 0 are superimposed. The hour hand loops once, at 6 counted as time 18 o'clock.

Definition **1.1.11**, Eigenmode (positive, medium and inverse mean function) (K=-1,±0±1,-1))

The mean function is the entry point of higher-order calculus equations, and the single variable is not suitable for the concept of clustering, the combination element of the multi-body system group.

Neutral power (zero point, equilibrium) mean function (propertyK=±1±0, or Kw=±1±0,q=±1±0);

(1.1.8)

$\{X_0\}^{K(Z\pm[S]\pm(N)\pm(q)/t}=\sum_{(Z\pm[S])}\{(1/C_{([S]\pm N\pm q)})^K[\prod_{(Z\pm[S]\pm q)}\{X\}^{K}+\ldots]^{K(Z\pm[S]\pm(N)\pm(q=0,1,2,3\ldots P)/t}$

$=\{X_0\}^{K(Z\pm[S]\pm(N)\pm(q=0)/t}+\{X_0\}^{K(Z\pm[S]\pm(N)\pm(q=1)/t}+\ldots+\{X_0\}^{K(Z\pm[S]\pm(N)\pm(q=P)/t}$;

Positive power mean function (property K=+1,or Kw=+1, q=+1);

(1.1.9)

$\{X_0\}^{K(Z\pm[S]\pm(N)+(q)/t}=\sum_{(Z\pm[S])}\{(1/C_{([S]\pm N\pm q)})^K[\prod_{(Z\pm[S]\pm q)}\{X\}^{K}+\ldots]^{K(Z\pm[S]\pm(N)+(q=0,1,2,3\ldots P)/t}$

$=\{X_0\}^{K(Z\pm[S]\pm(N)+(q=0)/t}+\{X_0\}^{K(Z\pm[S]\pm(N)+(q=1)/t}+\ldots+\{X_0\}^{K(Z\pm[S]\pm(N)+(q=P)/t}$;

Negative power mean function (property K=-1,or Kw=-1, q=-1);

(1.1.10)

$\{X_0\}^{K(Z\pm[S]\pm(N)-(q)/t}=\sum_{(Z\pm[S])}\{(1/C_{([S]\pm N\pm q)})^K[\prod_{(Z\pm[S]\pm q)}\{X\}^{K}+\ldots]^{K(Z\pm[S]\pm(N)-(q=0,1,2,3\ldots P)/t}$

$=\{X_0\}^{K(Z\pm[S]\pm(N)-(q=0)/t}+\{X_0\}^{K(Z\pm[S]\pm(N)-(q=1)/t}+\ldots+\{X_0\}^{K(Z\pm[S]\pm(N)-(q=P)/t}$;

Definition **1.1.12**. Combination coefficient

(1.1.11)

$(1/C_{(Z\pm[S]\pm(N)\pm(q))})^K=\{[(p-1)(p-2)(p-3)!\quad]/[(S-0)(S-2)\ldots3\cdot2\cdot1!]\}^K$;

In the formula: the combination coefficient ($C_{(Z\pm[S]\pm(N)\pm(q))}$) is the number of any finite element-cluster non-repetitive combination forms, and the P term order (including the element combination form q=(P-1), S dimension, !factorial. The combination coefficient satisfies the regularization rule of Yang Hui-Pascal triangular distribution.

(Note: The original traditional combination coefficient is written as C^n_m to expand the scope of application, indicating the area, level and element combination form of system element action, Its function remains unchanged. It is marked with subscripts).

Definition **1.1.13**. Complex system element-cluster combination: through element interaction or asymmetric distribution, a circular logarithmic-neural network corresponding to the form of a coding tree is formed, including the system characteristic mode (positive and negative mean).

(1.1.12)

$\{X\}^{K(Z\pm[S]\pm(N)\pm(q)/t}=(1-\eta^2)^K\{X_0\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$;

(1.1.13)

$\{X\}^{K(Z\pm[S]\pm(N)\pm(q))/t}$

$=\prod_{(Z\pm[S]\pm q)}\{X_S,X_Q,X_M\}$

$=[\sum_{(Z\pm[S]\pm q)}\{X^S,X^Q,X^M\}]/t$,

$=(1-\eta^2)^K\{X_0\}^{K(Z\pm[S]\pm(N)\pm(q))/t}$;

(1) ,The numerical arbitrary function of the element-clustering center zero point is expanded to the two-sided symmetry with the center zero point.

(1.1.14) $(1-\eta^2)^K=\{(1/2)\}^{K(Z\pm[S]\pm(N)\pm(q))/t}$,

(2), The discrete function of any function jumps and transitions outside the group combination,

(1.1.15) $(1-\eta^2)^K=\{0 \text{ or } (1/2) \text{ or } 1\}^{K(Z\pm[S]\pm(N)\pm(q))/t}$;

(3), Arbitrary function entanglement function transitions continuously within the group combination.

(1.1.16)

$(1-\eta^2)^K=[\{0\leftrightarrow(1/2)\leftrightarrow1\} \text{ or } \{-1\leftrightarrow(0)\leftrightarrow+1\}]^{K(Z\pm[S]\pm(N)\pm(q))/t}$;

Among them: $(1-\eta^2)^K$ or $(\eta)^K$ is an arithmetic logic calculation without specific elements and numerical content. Ensure the uniqueness and zero error of the calculation (provided later), (the same below).

(4), Arbitrary functions "jump-continuous" in the group combination unit to become a three-dimensional high-dimensional vortex, a neural network space.

(1.1.17)

$(1-\eta^2)^K=\{0 \text{ or } (0\leftrightarrow(1/2)\leftrightarrow1) \text{ or } 1\}^{K(Z\pm[S]\pm(N)\pm(q))/t}$;

Definition **1.1.14**. Discriminant: The discriminant is used to judge whether the system equation has a root solution, and to satisfy the closed combined polynomial balance and solution conditions to ensure the stability, optimization and controllability of the equation.

(1.1.19)

$(1-\eta^2)^K$

$=[{}^{[S]}\sqrt{\prod\{X_S,X_Q,X_M\}}/[\sum(1/[S])\{X_S+X_Q+X_M\}]^{K(Z\pm[S]\pm(N)\pm(q)/t}$

$=[\{{}^{K[S]}\sqrt{X}/X_0\}]^{K(Z\pm[S]\pm(N)\pm(q))}\leq\{1\}^K$;

Definition **1.1.15**. Optimality: The "calculus element-cluster set" equations in the system are combined and optimized into higher-order equations with "no derivatives, limits, and logical symbols", where the higher-order equations pass through known conditions: dimension times, boundary conditions, polynomial coefficients and discriminants, two asymmetric continuous calculus elements and clustering sets of pattern recognition are optimized and integrated into a novel equation written into one, which is conveniently and uniformly mapped to the abstract circle logarithm -Neural Networks.

Definition **1.1.16**, Stability: All group combination elements of any function in the system - set class, power function, encoded according to the tree form, which satisfies the optimized higher-order equation, where the higher-order equation passes: known "boundary conditions$({}^{KS}\sqrt{D})$, polynomial coefficients (including mean function D_0)" and equivalently permutable circle logarithms $(1-\eta^2)^K=({}^{KS}\sqrt{D})/D_0$, dealing with the relationship between the three factors, if any two factors are known, the third factor can be accurately determined, which is a stable, controllable and reciprocal circle pair Number-Neural Networks, Arithmetic Analysis with Zero Error Between $\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}^K$.

1.2. Define circular logarithm-neural network:

The circular logarithm-neural network is a dimensionless place value composed of the principle of relativity, and reflects the relationship between the numerical value, probability, topology, difference, distance, etc. The connotations of the principle of relativity in the history of mathematics include: Veda's theorem, least squares, principle of least action, error approximation, distance, gap, geodesics, topology, vector paradigm, information transmission principle, Einstein's special theory of relativity, Jacobi Elliptic function, Lebesgue polynomial measure, ellipse and perfect circle, modular form, objective function, perfect circle model, neural network, ….

The division here represents the difference between the two functions. Extended function: The circular logarithm has the function of converting any two or more asymmetric functions into a logarithm with a shared relative symmetry function as the base, which is called the eigenmode (median inverse mean function). Once the circular logarithm is withdrawn, the asymmetry of the original two functions is restored. The eigenmode becomes the node of the neural network, and the logarithm of the circle becomes the information transmission line of the neural network. The central zero point between the two nodes is the information transmission exchange, conversion (resonance) point.

Definition **1.2.1**. The principle of relativity and comparison: make a meaningful one-to-one comparison of the range of the same type and the same area, and become a dimensionless circle logarithm. For example: "small and big - short and long - low and high, ..." is the comparison of intuitive images, cold and hot is the comparison of temperature, sesame and watermelon are the comparison of volume, cat and tiger are the comparison of body size, ...; any Comparisons of inequality functions have deterministic numeric and place-value expansions. The result of the relative comparison of the logarithms of the circle, there is a deterministic bit value for arithmetic calculation.

Definition **1.2.2**. Geometry-function comparison: any geometric figure (multi-body, multi-dimensional space, three-dimensional basic four-dimensional-five-dimensional-six-dimensional-high-dimensional vortex space), convert the geometric space figure into a perfect circle space figure (It is called the perfect circle mode) and the center point that can be superimposed, and the periodic synchronous expansion to the surrounding symmetry is carried out.

In particular, the algebra of the perfect circle function is the mean value function, and the geometric figure is a perfect circle. For example, the eigenmode of the algebraic equation becomes the boundary of the perfect circle, and the center point of the set is the center of the perfect circle. The perfect circle has the angle and boundary curve, and the surface has the functions of synchronization and isomorphism, so that the calculation process and computer program can be greatly simplified, and it also has the accuracy of zero error. This is a feature that other arbitrary curves, surfaces, and surface bodies do not have.

(1.2.1)
$(1-\eta^2)^K=A/B(\text{surface})^{K(1)}=\{A/B\}^{K(2)}(\text{body})=\{A/B\}^{K(2)}$(曲面)$=\{A/B\}^{K(3)}$(体)
$=\{A/B\}^{K(S)}$(three-dimensional high-dimensional space)
$=\{A/B\}^{K(Z\pm[S])}$ (system infinite arbitrary finite high-dimensional space);

For example: axis: any finite line segment L, select the center point $R_0^K=[(1/2)^K(A^K\pm B^K)]^K$.

Describe the difference in the distance between any straight line and curve to the center point($A\geq B$).

(1.2.2)
$(1-\eta^2)^K=(R_0-B)/R_0=(B-A_0)/R_0$
$=(A-B)/(B+A)=\{0 \text{ to } 1\}$：:

For example: plane and curved surface surrounded by any closed curve: select the geometric center point $\sum_{(i=2\pi)}(1/2)(A^2+B^2)=R_0^2$,

(1.2.3)
$(1-\eta^2)^K=[(R_0^2-B^2)/R_0^2]^K=[(A^2-R_0^2)/R_0^2)]^{K(S)}$
$=[(A-B)/(A+B)]^{K(2)}=\{0 \text{ to } 1\}$:

Describe the difference between the area of any plane and surface to the geometric center point and the closed plane and surface of a perfect circle.

For example: a solid space surrounded by any closed surface: select the geometric center point $\sum_{(i=2\pi)}(1/3)(A+B)+C)=R_0$,

(1.2.4)
$(1-\eta^2)^K==[(R_0^S-B^S)/R_0^S]^K=[(A^S-R_0^S)/R_0^S)]^{K[S]}$
$=[(A-B)/(A+B)]^{K(S)}=\{0 \text{ to } 1\}$:

Describe the high-dimensional difference between any three-dimensional solid space to the geometric center point and the three-dimensional solid space enclosed by a perfect circle.

For example, the continuous superposition of logarithms of circles in any dimension is related to the starting and ending points, and has nothing to do with the intermediate process, but any intermediate process can be arbitrarily selected:

(1.2.5)
$(1-\eta^2)^{K(Z)/t}=(1-\eta^2)^{K(S=\pm1)/t}+(1-\eta^2)^{K(S=\pm2)/t}+\ldots+(1-\eta^2)^{K(S=\pm S)/t}$
$=[(A_1-B_1)/(A_1+B_1)]\cdot[(A_1+B_1)/((A_2+B_2))]\cdot\ldots\cdot(A_{(S-1)}+B_{(S-1)})/(A_{(S)}+B_{(S)})$
$=(A_1-B_1)/(A_{(S)}+B_{(S)})$
$=(1-\eta_{[1-S]}^2)^{K(Z)/t}$:

Center-zero symmetry:

(1.2.6) $\sum(-\eta)^{(KW=-1)(Z)/t}=\sum(+\eta^2)^{(KW=+1)}$;

(1.2.7) $\sum(-\eta)^{K(Z)/t}=(-\eta_1)^K+(-\eta_2)^K+\ldots+(-\eta_S)^K$;

(1.2.8) $\sum(+\eta^2)^{K(Z)/t}=(+\eta_1^2)^K+(+\eta_2^2)^K+\ldots+(+\eta_S^2)^K$;

The above describes the superposition of arbitrary high-dimensional functions, only under the condition of a perfect circle, the logarithmic factor of the circle is in the range of {0 to (1/2) to 1} or {-1 to **0** to +1}, at the center point($O=O_1+O_2+\ldots+O_S$) superposition (coincidence), which is expressed as the vertical or horizontal gap between the starting point (A) and the ending point (B) of the total superposition of events. Like: the same "concentric circles" with different border radii, or "sugar gourd strings" with the same border radius).

In particular, in addition to the perfect circle function, any other function, including the elliptic function that is currently the master of mathematics, cannot achieve the synchronous change of "the change of the angle (angular momentum, kinetic energy) of the center point and the boundary curve (arc momentum, kinetic energy)". The circle logarithm adapts to the perfect circle function of any high-order form in space, and the algebraic polynomial equation is called isomorphic and consistent computing time.

1.3. Series and logarithms

Arbitrary series (Taylor series, Fourier series, Fourier series, Newton's binomial, Riemann function, Lebesgue measure, norm of a vector, ...), the representative is Lebesgue measure, Lebesgue measure The Berg measure is a standard method of assigning a length, area, or volume to a subset of Euclidean space. It is widely used in real analysis, especially for defining Lebesgue integrals. A set that can be given a volume is called a Lebesgue-measurable set;

The volume or measure of the Lebesgue measurable set A is denoted $\lambda(A)$. If A is an interval [a,b], then its Lebesgue measure is the interval length (b−a). The length of the open interval (a,b) is the same as the closed interval, because the difference between the two sets is the zero-measured set.

A Cantor set is an example of an uncountable set with a Lebesgue measure of zero. Also the Lebesgue integral includes the Riemann integral. Briefly, the Lebesgue-measurable subsets of R form a (σ) algebra containing all intervals and their Cartesian products, and λ is the only complete, translation-invariant, satisfying measure over it. The Lebesgue measure is a finite measure of σ.

In layman's terms, it is the expansion of the subset of any finite function in infinity composed of asymmetry. Among them, the symmetry is called "zero measure set", and the asymmetry is called "Lebesgue measure".

Known: Boundary function of series or equation $({}^{K[S]}\sqrt{X})=({}^{K[S]}\sqrt{D})$, eigenmode (multivariate median and inverse mean function) $\{X_0\}=\{D_0\}$, any equation subterm =(combination coefficient)·(mean function)

$\{X\}^{K(Z\pm[S]\pm(N)\pm(q)}$
$=\sum_{(Z\pm[S]\pm(N)\pm(q=p)}[(1/C_{([S]\pm(q))})^K({}^{K[S]}\sqrt{\{X\}}]^{K(Z\pm[S]\pm(N)\pm(q)}$
$=(1-\eta^2)^K\cdot\{X_0\}^{K(Z\pm[S]\pm(q)}$;

Compose circular logarithms and power functions of any finite function, and the extended discriminant handles the relationship between roots and coefficients well. The element combination forms of the corresponding sub-items are (q=0,1,2...P). That is to say, for the polynomial, series, etc. of any function, the coefficients contain its known combination form and known eigenmodes(K=+1,±0±1,-1) median and inverse mean function).

1.3.1. Taylor series-circle logarithmic expansion:

(1.3.1)
$\{X\}^{K(Z\pm[S]\pm(N)\pm(q)}$
$=\sum_{(Z\pm[S]\pm(N)\pm(q=p)}[(1/C_{([S]\pm(q))})^K({}^{K[S]}\sqrt{\{X\}}]^{K(Z\pm[S]\pm(N)\pm(q)}$
$=(1-\eta^2)^K\cdot\{X_0\}^{K(Z\pm[S]\pm(q)}$;

1.3.2. Fourier series-circle logarithmic expansion:

(1.3.2)
$\{X\}^{K(Z\pm S\pm(q)}$
$=a(\cos x)^{K(Z\pm[S]\pm(q=0)}+b(\cos x)^{K(Z\pm[S]\pm(q=1)}+\ldots+p(\cos x)^{K(Z\pm[S]\pm(q=p-1)}$
$=ax^{K(Z\pm[S]\pm(q=0)}+bx^{K(Z\pm[S]\pm(q=1)}+\ldots+px^{K(Z\pm[S]\pm(q=p-1)}$
$=\sum_{(Z\pm[S]\pm(q=p)}\{(1/C_{([S]\pm(q=p))})^K({}^{K[S]}\sqrt{X})\}^{K(Z\pm[S]\pm(q)}$
$=(1-\eta^2)^K\cdot\{X_0\}^{K(Z\pm[S]\pm(q)}$;

Formula (1.3.2) Fourier series adapts to Euclidean space, and its (cosx)=x or x=arcx sum of perfect circle angles is (2πk) adapts to plane circle space.

1.3.3. Non-Euclidean space-circle logarithm

The non-Euclidean space is a closed circle whose sum of angles is $(\cos x_F)=x or x=arcx_F$, and the sum of its circles: greater than or less than the sum of angles of a circle (2πk) , $(\cos\{x_F\})=[(\cos[(1-\eta_F^2)^K\cdot x]$; $x=(1-\eta_F^2)^K\cdot(2\pi k)$ adapting to (center and inverse) surface circle space. It is called Riemann integral non-Euclidean-circle logarithmic space.

(1.3.3)
$\{X\}^{K(Z\pm S\pm(q)}$
$=a(1-\eta_F^2)^K(\cos x)^{K(Z\pm[S]\pm(q=0)}+b(1-\eta_F^2)^K(\cos x)^{K(Z\pm[S]\pm(q=1)}+\ldots+p(1-\eta_F^2)^K(\cos x)^{K(Z\pm[S]\pm(q=p-1)}$
$=\sum_{(Z\pm[S]\pm(q=p)}(1-\eta_F^2)^K\{(1/C_{([S]\pm(q=p))})^K({}^{K[S]}\sqrt{X})\}^{K(Z\pm[S]\pm(q)}$
$=(1-\eta^2)^K\cdot(1-\eta_F^2)^K\cdot\{X_0\}^{K(Z\pm[S]\pm(q)}$
$=(1-\eta_F^2)^K\cdot\{X_0\}^{K(Z\pm[S]\pm(q)}$;

The normal Cartesian coordinates (i, J, K) of the surface are used, and the corresponding surfaces are [Zy],[Zy],[xy] and [MN],[NL],[LM], which satisfy the "Hamiltonian" The surface circle logarithm$(1-\eta_{ijk}^2)^K$ of the triangle notation". Among them: $(1-\eta_{ijk}^2)^{(K=+1)}$ is an elliptical surface body, a parabola; $(1-\eta_{ijk}^2)^{(K=\pm1)}$ is a perfect circular surface body; $(1-\eta_{ijk}^2)^{(K=-1)}$ is a double Curve, Elliptic Surface Body, Unity

(1.3.4)
$(1-\eta_{ijk}^2)^{(K=\pm1)}=(1-\eta_{ijk}^2)^{(K=+1)}\cdot(1-\eta_{ijk}^2)^{(K=-1)}=\{0$ 到 $1\}$;

(1.3.5)
$(1-\eta_{ijk}^2)^{(K=\pm1)}$
$=(1-\eta_{[x]}^2)^{(K=\pm1)}\mathbf{i}+(1-\eta_{[y]}^2)^{(K=\pm1)}\mathbf{J}+(1-\eta_{[z]}^2)^{(K=\pm1)}\mathbf{K}$;

(1.3.6)
$(1-\eta_{ijk}^2)^{(Kw=+1)}$
$=(1-\eta_{[zy]}^2)^{(K=\pm1)}\mathbf{i}+(1-\eta_{[zx]}^2)^{(K=\pm1)}\mathbf{J}+(1-\eta_{[xy]}^2)^{(K=\pm1)}\mathbf{K}$;

(1.3.7)
$(1-\eta_{ijk}^2)^{(Kw=-1)}$
$=(1-\eta_{[MN]}^2)^{(K=\pm1)}\mathbf{i}+(1-\eta_{[NL]}^2)^{(K=\pm1)}\mathbf{J}+(1-\eta_{[LM]}^2)^{(K=\pm1)}\mathbf{K}$;

1.3.4, Riemann zeta function - circular logarithm

The original Riemann ζ function $\zeta(x)^{(K=+1)}$was rewritten as "negative power function $\zeta(x)^{(K=-1)}$or negative power mean function $\zeta(x_0)^{(K=-1)}$": indicating that Li The mean function of the sum of the reciprocals of the Mann function and then the reciprocal, without loss of generality. Written in the general formula $\zeta(x)^K$: heve:

$\zeta(x)^{(K=-1)}=\{1^{(-S)}+2^{(-S)}+3^{(-S)}+4^{(-S)}+5^{(-S)}+\ldots\}^{(K=-1)(Z\pm[S]-(q=1)}$;
$\zeta(x)^{(K=+1)}=\{1^{(+S)}+2^{(+S)}+3^{(+S)}+4^{(+S)}+5^{(+S)}+\ldots\}^{(K=+1)(Z\pm[S]+(q=1)}$;
$\zeta(x_0)^{(K=\pm1)}=(1/S)^K\{1^K+2^K+3^K+4^K+5^K+\ldots\}^{K(Z\pm[S]-(q=1)}$;

(1.3.8)
$\zeta(x)^{K(Z\pm S\pm q)}=ax^{K(Z\pm S\pm(q=0)}+bx^{K(Z\pm[S]\pm(q=1)}+\ldots+px^{K(Z\pm[S]\pm(q=p-1)}$
$=(1-\eta^2)^K[x_0^{K(Z\pm S\pm(q=0)}+x_0^{K(Z\pm[S]\pm(q=1)}+\ldots+x_0^{K(Z\pm[S]\pm(q=p-1)}]$
$=(1-\eta^2)^K\zeta(x_0)^{K(Z\pm S\pm q)}$;

The center zero is solved according to the simultaneous equations:

(1.3.9) $(1-\eta^2)=(1-\eta^2)+(1-\eta^2)=\{0,1\}$;

(1.3.10) $(1-\eta^2)=(1-\eta^2)\cdot(1-\eta^2)=\{0,1\}$;

Get the zero point value:

(1.3.11)
$(1-\eta^2)=(1-\eta^2)\cdot(1-\eta^2)=\{0$ or $[0$ to $(1/2)$ to $1]$ or $1\}$;

In the formula: the Riemann zeta function (K=+1) is adapted to the convergence function; (K=-1) is adapted to the diffusion function and the harmonic function; (K=±1) is adapted to the balance function and the central function; to ensure the convergence of the Riemann function and Uniqueness of solution.

1.3.5, Banach-Tarski paradox - circular logarithm

In 1924 Tarski and Stefan Banach collaborated to prove that a sphere can be cut into finite pieces and then spliced into a larger sphere, or two spheres of the same size as the original sphere. Nor are all subsets of R Lebesgue measurable, assuming the axiom of choice holds. The "peculiar" behavior of unmeasurable sets leads to propositions like the Banach-Tarski paradox, which is a consequence of the axiom of choice. It is now called the Banach-Tarski paradox.

In 1941, Tarski published an important paper on binary relations (called cylindrical functions of two variables), opening his research on relational algebra and its metamathematics. Although further research by Tarski and related work by Roger Lyndon revealed some important limitations of relational algebra, he also demonstrated that relational algebra can express the axioms of majority set theory and the axioms of Peano arithmetic.

In particular, $\{X\}=R\theta;\{X^2\}=R^2\theta\varphi$; $\{X^3\}=R^3\theta\varphi\psi$; the corresponding(cosx) is only suitable for the perfect circle mode.

(1.3.12)

$\{X_0\}^{K(Z\pm S\pm(q)}$
$=a(1-\eta_\theta^2)^K(\cos x)^{K(Z\pm[S]\pm(q=0)}+b(1-\eta_\theta^2)^K(\cos x)^{K(Z\pm[S]\pm(q=1)}$
$+\ldots+p(1-\eta_\theta^2)^K(\cos x)^{K(Z\pm[S]\pm(q=p-1)}$
$=\sum_{(Z\pm[S]\pm(q=p)}(1-\eta_\theta^2)^K\{(1/C_{([S]\pm(q=p)})^K({}^{K[S]}\sqrt{X})\}^{K(Z\pm[S]\pm(q)}$
$=(1-\eta^2)^K\cdot(1-\eta_\theta^2)^K\cdot\{X_0\}^{K(Z\pm[S]\pm(q)}$
$=(1-\eta_R^2)^K\cdot\{X_0\}^{K(Z\pm[S]\pm(q)}$;

In the formula: $(1-\eta^2)^K=(1-\eta_R^2)^{(Kw=+1)}\cdot(1-\eta_\theta^2)^{(Kw=-1)}=\{0 \text{ to } 1\}$ reciprocity, called Riemann-Lebesgue

Circle logarithmic space. Special,

(1), Under the condition of a perfect circle, any segment of the arc and the angle change are synchronized, and the center zero point is selected to satisfy the arc length X_0 and the angle θ_0 which are symmetrical on both sides. Arc length and angle changes become circle logarithmic factors

$\{X\}=R\theta=(1-\eta_R^2)^{(kw=+1)}(1-\eta_\theta^2)^{(kw=-1)}R_0\theta_0$
$(1-\eta x^2)^{(kw=\pm1)}R_0\theta_0$
$=(1-\eta x^2)^{(kw=\pm1)}\{X_0\}$;

At this point, the arc length $\{X_0\}$, angle $\{\theta_0\}$, and radius {R0} all have the same logarithmic factor of the circle,

$\theta=(1-\eta_\theta^2)^{(kw=-1)}\theta_0=\text{arc}(1-\eta x^2)^{(kw=\pm1)}=\text{arc}(1-\eta x^2)^{(kw=\pm1)}\{X_0\}=\{X\}$

(cosx) is converted to equivalent {X}, so$(\cos x)^{K(Z\pm S\pm(q)}$ is converted to equivalent $\{X\}^{K(Z\pm S\pm(q)}$, establishing Banach-Tarski Paradox - The relationship between circular logarithms, unified in circular logarithms.

(2), Under the condition of non-perfect circle, there is no synchronization between any arc and the angle change, and the selection of the center zero point does not satisfy the two-sided symmetry and equal arc lengthsX_1,X_2 and angles θ_1,θ_2, respectively, obtain the average arc length $X_{012}=(1/2)(X_1+X_2)$ and the angle $\theta_{012}=(1/2)(\theta_1+\theta_2)$, at this time, they form a positive circular arc R_{012} and a positive rounded angle φ_{012}, respectively,

$(1-\eta_{R12}^2)^{(kw=+1)}=\{X_{012}/R_{012}\}$,
$(1-\eta_{\theta12}^2)^{(kw=-1)}=\{\theta_{012}/\varphi_{012}\}$;
$\{X\}\neq(1-\eta_{R12}^2)^{(kw=+1)}(1-\eta_{\theta12}^2)^{(kw=-1)}R_{012}\varphi_0$;

For unification, additionally select a shared positive arcR_0 and large fillet ψ_0, containing them, with:

$(1-\eta_{R12}^2)^{(kw=+1)}=\{X_{012}/R_0\}$, $(1-\eta_{\theta12}^2)^{(kw=-1)}=\{\varphi_{012}/\psi_0\}$;
$\{X\}=(1-\eta_{R12}^2)^{(kw=+1)}(1-\eta_{\theta12}^2)^{(kw=-1)}R_0\psi_0$

The positive arc R0 and the large fillet ψ_0, (cosx) are converted to equivalent {X}, so $(\cos x)^{K(Z\pm S\pm(q)}$ is converted to equivalent $\{X\}^{K(Z\pm S\pm(q)}$, in this way, the asymmetry is transformed into arcs and angles that share relative symmetry. The Banach-Tarski paradox-relationship between the logarithms of circles is established, and unity is obtained in the logarithms of circles.

1.3.6. System calculus equation-circular logarithmic expansion of class clustering:

(1.3.13)

$\{X_0\pm{}^{K[S]}\sqrt{D}\}^{K(Z\pm[S]\pm N\pm(q))/t}$
$=ax^{K(Z\pm[S]\pm N\pm(q=0))/t}\pm b^{K(Z\pm[S]\pm N\pm(q=1))/t}+\ldots\pm p^{K(Z\pm[S]\pm N\pm(q=p-1))/t}+D$
$=\sum_{(Z\pm[S]\pm(q=p)}\{(1/C_{([S]\pm(q=p)})^K({}^{K[S]}\sqrt{X})\cdot D_0\}^{K(Z\pm[S]\pm N\pm(q)}$
$=(1-\eta^2)^K\cdot\{X_0\pm D_0\}^{K(Z\pm[S]\pm N\pm(q)}$
$=[(1-\eta^2)^K\cdot(0,2)\cdot\{D_0\}]^{K(Z\pm[S]\pm N\pm(q))/t}$;

1.3.7. The circular logarithmic expansion of Newton's binomial equation:

(1.3.14)

$\{X\pm{}^{K[S]}\sqrt{D}\}^{K(Z\pm S\pm(q)}$
$=ax^{K(Z\pm S\pm(q=0)}\pm b^{K(Z\pm S\pm(q=1)}+\ldots\pm p^{K(Z\pm S\pm(q=p-1)}+D$
$=\sum_{(Z\pm S\pm(q)}\{(1/C_{(S\pm(q)})^K({}^{KS}\sqrt{X})\cdot D_0\}^{K(Z\pm S\pm q)}$
$=\sum_{(Z\pm S\pm(q)}(1-\eta^2)^K\cdot\{X_0\cdot D_0\}^{K(Z\pm S\pm(q)}$
$=(1-\eta^2)^K\cdot\{X_0\pm D_0\}^{K(Z\pm S\pm(q)}$
$=[(1-\eta^2)^K\cdot(0,2)\cdot\{D_0\}]^{K(Z\pm S\pm(q)}$;

Among them:

(1), there are odd polynomials and even polynomials inside the integer polynomial, and the power functions are composed of odd-term order and even-term order respectively.

(1.3.15)

$(1-\eta^2)^K$
$=[(1-\eta^2)^{(K=+1)}+[(1-\eta^2)^{(K=+1)}=[(1-\eta^2)^{(K=+1)}\cdot[(1-\eta^2)^{(K=+1)}$
$=\{0 \text{ to } 1\}$.

(2), Odd polynomials and even polynomials are reciprocal,

(1.3.16)

$(1-\eta^2)^K$
$=[(1-\eta^2)^{(K=+1)}+[(1-\eta^2)^{(K=+1)}=[(1-\eta^2)^{(K=+1)}\cdot[(1-\eta^2)^{(K=+1)}$
$=\{0 \text{ to } 1\}$.

(3), polynomial calculation produces three results

(1.3.17)

$\{X - ({}^{K[S]}\sqrt{D})\}=[(1-\eta^2)^K\cdot(0)\cdot\{D_0\}]^{K(Z\pm S\pm(q)}$; (subtraction, two-dimensional rotation, torus)

(1.3.18)

$\{X+ ({}^{K[S]}\sqrt{D})\}=[(1-\eta^2)^K\cdot(2)\cdot\{D_0\}]^{K(Z\pm S\pm(q)}$; (addition, three-dimensional precession , spherical surface)

(1.3.19)
$\{X\pm ({}^{K[S]}\sqrt{D})\}=[(1-\eta^2)^K\cdot(0\leftrightarrow 2)\cdot\{D_0\}]^{K(Z\pm S\pm(q)}$; (vortex, five-dimensional space)

Formulas (1.1.1) - (1.3.19) indicate that any function of the system is composed of sub-items of "reciprocal combination of multiplication and addition", which can be mapped to high-dimensional sub-circular logarithmic-neural networks to form a three-dimensional solid The algebraic-geometric space of five-, six-, and six-dimensional fundamental vortices.

The logarithm of a circle adapts to all arbitrary functions, breaks through the axiomization of the symmetrical function of "self dividing itself equals 1", and satisfies the asymmetric function of "self dividing itself equals 1". The space in front of the circle can be described by the logarithm of the circle to describe their difference and conversion relationship.

In particular, according to the above-defined basis for the proof of the "group combination-circular logarithm" theorem:

(1), Arbitrary higher-order equations of system multi-body "calculus equation and pattern recognition cluster set can be integrated into one". In addition to representing group combinations of multivariate combinations of first-, second-, and higher-order state expansions. It can also describe binary generators (equal-order second-order and 2-2 element combinations), ternary combination generators (equal-order third-order and 3-3 element combinations), tuple generators (equal-order high-P-order and PP element combination), which is uniformly processed in the circular logarithmic mathematical mode.

(2), The circular logarithm-neural network isomorphism, based on the calculation of irrelevant mathematical models and no specific element content, makes any nonlinear function isomorphic to a linear function (called "normalization"), and obtains arbitrary nonlinear The function is converted to a circular logarithmic arbitrary function. In this way, discrete state, entangled state, and correlation calculation can be expanded on the linear probability function, and the reverse does not hold. The difference between linear and nonlinear calculations is that they correspond to different "eigenmode" structures.

(3), Based on solving the "rule of reciprocity of multiplication and addition, addition and subtraction, multiplication and division" - the circular logarithm theorem, it is widely used to solve the problem of reciprocity of basic mathematics, and reforms the traditional calculus equation to "no derivative". , limit, logical symbol" is the interface of mean function and pattern recognition, and the ellipse mode transmission is a perfect circle mode, which has broad adaptability.where: function or equation.

In the formula: function or equation property (K): K=(+1 (convergence), ±1 (equilibrium) ±0 (transformation), -1 (expansion), infinite element (Z) in the system, any finite element in the system composition (Z±S), area [S]=[S,Q,…,M], calculus order (±N) integral (+1) differential (-1), P term order, element combination form (q= 0,1,2,3…n≤[S]), time (/t) (form a dynamic equation with one-dimensional time), time and calculus order and element combination are simultaneously expanded to form a three-dimensional three-dimensional basic five-dimensional - six-dimensional Neural network space and dynamic control principle. Its characteristic mode (median and inverse mean function) is the neural network node, and the covariance of the center-zero symmetry is called the equivalent replacement principle. The neural network nodes form a ring network and a radial network.

If the network The more variable elements a node contains, the higher the information transmission speed and efficiency. In traditional computer theory, it can overcome one-way path transmission and become a multi-directional information transmission starting from the center zero point, and the center zero point between two nodes. synchronous transmission.

2. Circular logarithm and reciprocity theorem

In 1967, the American scientist Langlads proposed the Langlands conjecture in the form of a series of conjectures. Conjecture clearly embodies the intercrossing and permeating characteristics of contemporary mathematics, and requires knowledge in many fields of mathematics: algebraic number theory (including class field theory), structure theory of algebraic groups, representation theory of real and P-adic groups, K-theory, Abstract harmonic analysis, and the language of algebraic geometry. Attempts to describe the four major schools of algebra, geometry, number theory, group theory, and mathematical foundations in a unified manner using a simple formula. It can be expected that the Langlands conjecture will drive the development and progress of theoretical mathematics in the 21st century. Round logarithms may be a good alternative.

Why do you say that? Mathematicians believe that there are many kinds of mathematical formulas, and there are many local laws that are the same, and there is no need to make them so complicated, and advocate "the great way to the simple". It is expected that there is a simple formula that unifies the processing of mathematics "multiplication and division, multiplication and addition, addition and subtraction, equality and inequality, perfect circle and ellipse, sparse and dense, continuous and discrete, random and regular, fractal and chaos, ..." and other reciprocity rules. Extracting their commonalities becomes the circular logarithm theorem. The circular logarithm theorem is established on the basis of repeated verification. It can solve a series of centuries-old mathematical problems and is reliable, controllable and credible.

In 1975, Berman-Hartmanis found that there is a pair of G(·) and F(·), which has the asymmetric reciprocal relationship of full-rank mapping, so that f (+1) and f (-1) are both polynomial isomorphic time computable The problem. Mathematicians call it the "reciprocity theorem", and the reciprocity theorem is the "yeast" of all theorems, indicating that other theorems are derived from this reciprocity theorem.

The requirements for proving these theorems are made:

(1), The asymmetry of the closed reciprocity is converted into the relative symmetry of the isomorphism;

(2), Arithmetic calculations that have nothing to do with mathematical models and no logical symbols;

(3) , The degree of abstraction is the calculation without the content of specific elements;

(4), The calculation method is limited to the six symbolic operations of "addition, subtraction, multiplication and division of the square root";

(5), To realize the unified algorithm of "logical calculation of arithmetic and arithmetic of logical calculation".

According to the definition of elements and functions, in the system, the product of infinite elements (called integrative function) is selected without repeated combination, which is expressed as an infinite arbitrary finite power function K(Z±[S]±N±q)/t, which satisfies the element- Integer expansion of the clustering function:

(2.1.1)

$\{X\}^{K[S]/t}=\{\prod(x_1x_2\ldots x_S)(x_1x_2\ldots x_Q)(x_1x_2\ldots x_M)\}^{K[S]/t}$
$=\{\sum(x_S+x_Q+\ldots+x_M)\}^{K(Z\pm[S=S\pm Q\pm M]\pm N\pm q)/t}$
$=\{{}^{K[S]}\sqrt{X}\}^{K[S]/t}$;

Group combination and eigenmode: The group combination introduces a regularized combination coefficient to become the group combination "mean function", as an invariant group unit $\{X_0\}^{K(Z\pm[S]\pm(q=0)/t}$ (continuous multiplication combination) and $\{X_0\}^{K(Z\pm[S]\pm(q=1)/t}$(continuous addition combination) two forms of base logarithmic function.

The first eigenmode (multiply) unit body: the combination of the continuous multiplication square root of the group combination closed all elements:

$dx=\{X_0\}^{K(Z\pm[S]\pm N\pm(q=0)/t}=\{({}^{KS}\sqrt{\prod_{(i=S\pm q)}}(x_1x_2x_q\ldots)\}^{K}$
$=\{{}^{K[S]}\sqrt{X}\}^{K(Z\pm[S]\pm(N=-1)\pm(q=1)/t}=\{X\}^{K(1)}$;

The second eigenmodulus (additive) unit body: the mean of the linear continuous addition of all elements of the group combination closed:

$dx=\{X_0\}^{K(Z\pm[S]\pm N\pm(q=1)/t}$
$=\{(1/S)^K(x_1{}^K+x_2{}^K\ldots x_q{}^K\ldots)\}^{K(Z\pm[S]\pm(N=-1)\pm(q=1)/t}$
$=\{X\}^{K(1)}$;

2.1. [Theorem 1]: Reciprocity Theorem

A pair of inverse functions discovered by Berman-Hartmanis, G( ) and F( ), what do they represent? Always a fan. Here, the algebraic method is used to prove its reciprocity theorems, including "multiplication and division reciprocity theorems, multiplication and addition reciprocity theorems, addition and subtraction reciprocity theorems, equality and inequality reciprocity theorems", which satisfy classical mathematics Basic arithmetic "addition, subtraction, multiplication and division square root" algorithm. The reciprocity theorem is called theorem yeast, indicating that many theorems are derived from them. The importance of the reciprocity theorem can be seen. Here, the algebraic method is used to prove the reciprocity theorem, which has the advantages of clear, simple, clear, and universal arithmetical concepts.

2.1.1. [Pre-proof 2.1.1] Power function theorem:

The power function integers of traditional mathematics have unavoidable "accumulation of errors", and various calculation methods have to carry out "error analysis" to reduce the degree of error and achieve approximate calculation. How to avoid "error analysis"? Integer expansion involving power functions achieves "zero error".

The group combination (continuous multiplication) divides the closed continuous multiplication unit to obtain an integer power function without error accumulation.

(2.1.1)

$K(Z)/t=\{X\}^{K(Z\pm[S]\pm N\pm(q=0,1,2,3,\ldots)/t}/({}^{K[S]}\sqrt{X})^{K(Z\pm[S]\pm N\pm(q=0)/t}$

; The group combined (continuous addition) mean is divided by the unit mean to obtain an integer power function without error accumulation.

(2.1.2)

$K(Z)/t=\{X_0\}^{K(Z\pm[S]\pm N\pm(q=0,1,2,3,\ldots)/t}/(X_0)^{K(Z\pm[S]\pm N\pm(q=1)/t}$;

Obtained: (q=0,1,2,3,…)/t represents the logarithm of the eigenmode base of the multi-element non-repetitive combination, which ensures the zero error integer expansion of the power function and effectively avoids "error accumulation". Calculus order, level and time, representing the dynamic control function of the power function.

2.1.2. [Pre-proof 2.1.2] Stability theorem:

Group Combination (Continuous Multiplication) Units and Group Combination (Continuous Addition) Units in Circle Logarithms. "The reciprocity of multiplication and addition" is not recorded in the mathematical data. This is an important rule of mathematical foundation. What is the relationship between them? This reciprocal relationship has not been discovered or ignored for hundreds of years, resulting in uncertain stability problems. It also touches on why a series of century-old mathematical problems cannot be solved.

Circular logarithm successfully handles the relationship between group combination multiplication and addition. Ensure the function is monotonic and prove the uniqueness of the root. That is to say, {X} and $\{X_0\}$ are determined, and the stability is deterministically described by $(1-\eta^2)^K$controllable. have: $\{X\}=(1-\eta^2)^K\{X_0\}$, $\{X_0\}=(1/2)[\{X_A\}+\{X_B\}]$, $\{X_A\}\neq\{X_B\}$,

(2.1.3)

$(1-\eta^2)^K=[({}^{K[S]}\sqrt{X/X_0})=({}^{K[S]}\sqrt{D/D_0})]^{K(Z\pm[S]\pm N\pm(q)/t}\leq 1$; $q=0,1,2,3\ldots P\leq[S]$)。

It is known that $\{X_0\}$ and $(1-\eta^2)^K$ can obtain deterministic {X}. Specific examples include Einstein's special theory of relativity,$(1-v^2/C^2)^K$ (ratio of particle velocity to light speed) is equivalent to circular logarithm $(1-\eta^2)^K$, with circular logarithm-relativity, mean function light and mass , and also get the mass-energy theorem.

2.1.3. [Pre-proof 2.1.3] Covariance Theorem:

Von Neumann concluded: There are two basic processes in quantum mechanics. One is that the Schrödinger equation is the core equation of quantum mechanics, which is deterministic and has nothing to do with randomness. The other is the random collapse of the quantum superposition state caused by the measurement quantum. This phenomenological physics is called the "von Neumann and Einstein" dispute, which is still fierce to this day.

But measuring randomness is exactly what Einstein couldn't understand, saying, "God doesn't play dice." Schrödinger also argued against him by assuming a cat's superposition of life and death. It's called "Bohr vs Einstein".

The group combination-circular logarithm view holds that the monotonic convergence of any function can be ensured by the property K=+1,±0±1,-1. Obtain the uniqueness and interpretability of the multivariate roots of group combinations mentioned in this paper. The multi-element center zero circle logarithm ensures that the zero (1/2) maintains symmetry between interiors. Then the decomposition between {0 and 1} with the center zero value {1/2} as the center, is it random or deterministic?

Mathematical proof: The asymmetry function is converted into a circular logarithmic factor with the same symmetry through the circular logarithm. When the same circular logarithmic circular logarithmic factor is reversely converted, "determinism and randomness", "wave-particle duality" are obtained. ", which brings the "linear and surface coordinate duality" of spatial coordinates. The measurement exhibits its "random duality" side.

Logically, the combination of the multi-world-equivalent multivariable phenomenon interpretation and the consistent historical interpretation seems to be the most perfect for explaining the measurement problem. That is, the certainty of "God's perspective" is preserved, and the "randomness" of single-world measurement is preserved.

Specifically, the multivariate element {X} of an arbitrary function (group combination) in mathematics, when the function of resolution 2 decomposes two asymmetric functions (group combination) $\{X_A\}\neq\{X_B\}$, is " Certainty from God's Perspective.

Treat them from the logarithm of the circle: two functions of asymmetry, logarithmic through the center zero point, satisfy them as relative symmetry, namely $\{X_A\}=(1-\eta^2)^K\{X_0\}$ and $\{X_B\}=(1-\eta^2)^K\{X_0\}$, because the circle logarithm factor is the same, so that the "duality" of $\{\eta\}\rightarrow[\{X_A\}$ or $\{\eta\}\rightarrow\{X_B\}]$ is randomly generated by the same circle logarithm in the measurement. called covariance.

The covariance is proved as follows:

Multivariate elements: $\{X\}=\prod_{(Z\pm S\pm q)}(x_1x_2x_3x_4x_5x_6\ldots)$; $\{X\}=\sum_{(Z\pm S\pm q)}(x_1+x_2+x_3+x_4+x_5+x_6+\ldots)$; $\{X_0\}=\sum_{(Z\pm S\pm q)}(1/S)(x_1+x_2+x_3+x_4+x_5+x_6+\ldots)$;

Select the logarithm of the probability circle: $\{X\}^{K(Z\pm S\pm N\pm(q=1))/t}$, called the set of all elements,

(2.1.4)

$(1-\eta_H^2)=\sum_{(Z\pm S\pm q)}(x_1+x_2+x_3+x_4+x_5+x_6+\ldots)/\{X\}$
$=\sum_{(Z\pm S\pm q)}(\eta_{H1}+\eta_{H2}+\eta_{H3}+\eta_{H4}+\eta_{H5}+\eta_{H6}+\ldots)=1$;

Select the logarithm of the center zero point circle $\{X_0\}^{K(Z\pm S\pm N\pm(q=1))/t}$ to call the eigenmode (positive and negative mean function):

(2.1.5)

$(1-\eta_H^2)=\sum_{(Z\pm S\pm q)}(x_1+x_2+x_3+x_4+x_5+x_6+\ldots)/\{X_0\}$
$=\sum_{(Z\pm S\pm q)}[(\eta_{H1}+\eta_{H3}+\eta_{H5}+\ldots)+\sum_{(Z\pm S-q)}(\eta_{H2}+\eta_{H4}+\eta_{H6}+\ldots)]=0$;

The logarithm of the center zero point circle of formula (2.1.5) respectively obtains the logarithmic factor of the center zero point symmetry distribution circle, which is called the center zero point circle logarithmic symmetry:

(2.1.6)

$\sum_{(Z\pm S+q)}(\eta_{H1}+\eta_{H3}+\eta_{H5}+\ldots)=\sum_{(Z\pm S-q)}(\eta_{H2}+\eta_{H4}+\eta_{H6}+\ldots)$,

Equation (2.1.6) has equivalent covariance, which means that the group combination elements on both sides of the zero point of the symmetry center can be randomly permuted.

Function monotonicity proves the uniqueness of the root. There are: $\{X\}=(1-\eta^2)^K\{X_0\}$, $\{X_0\}=(1/2)[\{X_A\}+\{X_B\}]$, $\{X_A\}\neq\{X_B\}$,

(2.1.7) $\{X_A\}=(1-\eta^2)^{(KW=+1)}\{X_0\}$;

$\{X_B\}=(1-\eta^2)^{(KW=-1)}\{X_0\}$;
$\{X_{AB}\}=(1-\eta^2)^{(KW=\pm1)}\{X_0^2\}$;

That is, $(1-\eta^2)^K$ is determined with $\{X_0\}$ (network node), resulting in a random deterministic $\{X\}=\{X_A\}$ or $\{X_B\}:(1-\eta^2)^K$ The covariance is extended to the multi-level central zero-point circle logarithm, which transforms (bifurcates) the asymmetric group combination into two asymmetric group combinations and the corresponding symmetry circle logarithm factors, thereby performing tree-encoded power functions.

(2.1.8)
$(\eta_{H2}+\eta_{H4}+\eta_{H6}+\ldots)^{K(Z\pm S\pm N+q)/t}$对应$(x_2x_4x_6\ldots)^{K(Z\pm S\pm N-q)/t}$
$=[(1+\eta))^{(K=-1)}\{X_0\}])^{(K=-1)(Z\pm S\pm N-q)/t}$
$=[(1-\eta^2))^{(K=-1)}\{X_0\}])^{(K=+1)(Z\pm S\pm N-q)/t}$
$=\{X_B\}^{K(Z\pm S\pm N-q)/t}$;

Formula (2.1.8) is the three-dimensional (non-Euclidean surface) connection space of the neural network, called radial network surface or connection space,

(2.1.9)
$(1-\eta^2)^K=[(1-\eta^2)^{(K=+1)}\cdot(1-\eta^2)^{(K=-1)}=\{0 \text{ to } 1\}$;

(2.1.10) $(1-\eta^2)^K=[(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=-1)}=\{0 \text{ to } 1\}$;

Based on the same circular logarithm factor (η) (particle function) or (η^2) (wave function), the phenomenon of symmetrical circular logarithm (η, η^2) duality randomly appears, the torus network surface $\{X_A\}^{K(Z\pm S\pm N+q)/t}$ and radial network surface $\{X_B\}^{K(Z\pm S\pm N-q)/t}$. Based on the consistency and covariance of the logarithm of the isomorphic circle, the network nodes can transmit synchronously and quickly in multiple directions. Finally, their nonlinear problems belong to the one-dimensional probability-topological circle logarithm, which is called "quantum collapse" in quantum mechanics.

Such as: "discrete state and entangled state", "odd function and even function", "precession and rotation", "wave function and particle function", "revolution and rotation of gravity", "electricity and Circumferential magnetism, "quantum radiation and spin", "light precession and rotation", "red shift convergence and ultraviolet divergence", "geometric space and matter" can all appear "duality" of random and regular expressions, All can achieve a unified circular logarithmic description.

For example, the eigenmode is manifested in the decomposition of neural network nodes (called neuron synapses), resulting in the conversion of two groups of different groups of asymmetric values into a shared group of symmetrical, equivalently transposed circular logarithmic factors. Circular neural network and radial neural network are respectively generated, and synchronous, multi-directional and fast information transmission is carried out in the network space. And the more multivariate elements change in the neural network node (neuron synapse), the faster the transmission speed. It is called "high-dimensional equation-neural network space".

For example, the expansion of R=1 in the mathematical trigonometric function is represented by a geometric circle diagram, and the hypotenuse of a right triangle corresponds to the diameter of the circle;

$(1-\eta^2)^K=\sin x+\cos x=(1-\eta^2)^{(KW=-1)}+(1-\eta^2)^{(KW=+1)}=(0 \text{ to } 1)$;

The corresponding change in the height of the triangle is equal to the change in the radius of the perfect circle;

$(1-\eta^2)^K=\sin^2x+\cos^2x=(1-\eta^2)^{(KW=-1)}+(1-\eta^2)^{(KW=+1)}=1$;

The square of its triangle side $\sin^2x=a^2$; $\cos^2x=b^2$ is equal to the square of the diameter of the perfect circle; that is, $a^2+b^2=c^2$ (called the Pythagorean chord theorem),...;

In the same way, after an arbitrary function is decomposed, two groups of groups can still be decomposed repeatedly according to the tree code (power function, time series). The circular logarithm has the consistency of isomorphic high-dimensional space from low-dimensional to one-dimensional isomorphism.

For example: in the perfect circle mode, the isomorphism consistency of high-dimensional space is satisfied

$\{X\}^{K(1)/t}=(1-\eta^2)^{K(1)/t}=(0 \text{ to } 1)$; $\{X\}^{K(2)/t}=(1-\eta^2)^{K(2)/t}=(0 \text{ to } 1)$; …;
$\{X\}^{K(Z\pm S)/t}=(1-\eta^2)^{K(Z\pm S)/t}=(0 \text{ to } 1)$;
$(1-\eta^2)^K=(1-\eta^2)^{K(1)/t}=(1-\eta^2)^{K(2)/t}=\ldots=(1-\eta^2)^{K(Z\pm S)/t}$

The logarithm of circle describes the difference between "perfect circle mode and ellipse mode", "mean function and arbitrary function", "perfect circle function and arbitrary surface function". Among them: including perfect circular curves, perfect circular surfaces, perfect spheres, regular polygons, and positive high-dimensional spaces, which are converted to circular logarithms as unitary integer expansions.

In particular, the above-mentioned [pre-proof] is also suitable for the reciprocal proof of multi-body, multi-region, multi-parameter, and heterogeneity of the system, and stably reflects its universality, reliability, and controllability.

2.1.4, [Proof 2.1.4]: The necessity of the reciprocal inversion theorem of "multiplication and division":

Let:
$\{X_0\}^{K(Z\pm[S]\pm(N)+(q=S))}$
$=\sum_{(Z\pm S)}(1/C_{([S]\pm N\pm q)})^K[\prod_{(Z\pm[S]-q)}(x_1^K+x_2^K\ldots x_S^{(+1)})]^{K(Z\pm[S]\pm(N)+(q))}$;

Finite polynomial first

term: $\{X_0\}^{K(Z\pm[S]\pm(N)+(q=0))}=(x_1x_2\dots x_S)=\{X\}^{K(Z\pm[S]\pm(N)+(q=0))}$, (q=0 or S), A=1,

The second term of the finite polynomial: $\{X_0\}^{K(Z\pm[S]\pm(N)\pm(q=1))}=\{X_0\}^{K(\pm1)}$; （q=±1）,B=SD₀,

Apply regularization coefficient symmetry: $(1/C_{([S]\pm N+q)})=(1/C_{([S]\pm N-q)})$;

(2.1.12)

$\{\sum_{(Z\pm S)}(1/C_{([S]\pm N+q)})^{(+1)}[\prod_{(Z\pm[S]+q)}\{X\}^{(+1)}+\dots]\}^{K(Z\pm[S]\pm(N)+(q))}\cdot\{X_0\}^{K(Z\pm[S]\pm(N)+(q=S))}$

$=\{\sum_{(Z\pm S)}(1/C_{([S]\pm N-q)})^{(-1)}[\prod_{(Z\pm[S]-q)}(x_1^{(-1)}+\dots)]\}^{K(Z\pm[S]\pm(N)-(q))}$;

(2.1.13)

$\partial\{X\}=\partial(x_1x_2\dots x_S)$

$=(x_1x_2\dots x_S)/\{X_0\}^{K(+1)}\cdot\{X_0\}^{K(+1)}$

$=[\{X\}^{K(1)}/(x_1x_2\dots x_S)]^{(-1)}\cdot\{X_0\}^{K(+1)}$

$=[\{X_0\}^{K(1)}/\sum_{(Z\pm S)}(1/C_{([S]\pm N\pm q)})^K\prod_{(Z\pm S\pm N\pm(q=q-1))}(x_1x_2\dots x_s)+\dots]^{(-1)}\cdot\{X_0\}^{K(Z\pm[S]\pm(N)+(q=S))}\cdot\{X_0\}^{K(Z\pm[S]\pm(N)-(q=S))}\cdot\{X_0\}^{K(+1)}$

$=[\sum_{(Z\pm S)}(1/C_{([S]\pm N\pm q)})^{(-1)}[\prod_{(Z\pm[S]-q)}(x_1^{(-1)}+x_2^{(-1)}\dots x_S^{(-1)})]^{K(Z\pm[S]\pm(N)-(q))}\cdot\{X_0\}^{K(Z\pm[S]\pm(N)+(q=S))}\cdot\{X_0\}^{K(+1)}$;

Move $\{X_0\}^{K(+1)}$ to the left side of the equal sign to become $\{X_0\}^{K(-1)}$, get reciprocity

(2.1.14)

$\{X\}^{K(Z\pm[S]\pm(N)\pm(q))}$

$=\{X\}^{K(Z\pm[S]\pm(N)+(q))}\cdot\{X\}^{K(Z\pm[S]\pm(N)-(q))}$

$=\{X\}^{(-1)}\cdot\{X\}^{(+1)}$

$=(1-\eta^2)^{K(Z\pm[S]\pm(N)\pm(q))}\{X_0\}^{(-1)}\cdot\{X_0\}^{(+1)}$; …;

Similarly, the iterative method continues to decrease (increase) the dimension sequentially: the iterative method sequentially decreases (increases) the dimension to [(S-1) or (0-S)±(q-0)], and the covariance satisfies (q=0,1,2,3...,P≤S) The corresponding circle logarithms are all established.

Quoted circle logarithm $(1-\eta^2)^K\{^{K[S]}\sqrt{X}/X_0\}^{K(Z\pm[S]\pm(q=+n)}$;(q=0,1,2,3…P≤[S]) group combination is converted into:

(2.1.15)

$\{X^{K[S]}\}=(x_1x_2\dots x_S)^K=(x_1x_2\dots x_S)/\{X_0\}^{K(+P)}\cdot\{X_0\}^{K(+P)}$

$=\sum_{(Z\pm[S]\pm q)}\{X_0\}^{K(Z\pm[S]\pm(N)\pm(q=-P))}\cdot\{X_0\}^{K(Z\pm[S]\pm(N)\pm(q=+P))}$

$=\sum_{(Z\pm[S]+q)}\{X_0\}^{K(q=+P)}\pm\sum_{(Z\pm[S]-q)}\{X_0\}^{K(q=-P)}$;

Equation (2.1.15) indicates that the necessity proof of the reciprocity theorem holds.

2.1.5, [Proof 2.1.5]: The sufficiency proof of "multiplication and division" reciprocity theorem:

Citing the circular logarithm $(1-\eta^2)^K=\{X_0\}/\{^{K[S]}\sqrt{X}\}^{K(Z\pm[S]\pm(q=n)}$ reverse form proof; (n=0,1,2,3 ...P≤[S]) group combination is transformed into multiplicative reciprocity.

(2.1.16)

$\{X^{K[S]}\}$

$=(x_1x_2\dots x_S)^K/\{X_0\}^{K(Z\pm[S]\pm(q=n)}\cdot\{X_0\}^{K(Z\pm[S]\pm(q=+n)}$

$=\sum_{(Z\pm[S]\pm q)}\sum_{(Z\pm[S]\pm q)}[^{K[S]}\sqrt{(x_1x_2x_S)}]^{K[S]}/(1-\eta^2)^K\{^{K[S]}\sqrt{X}\}^{K(Z\pm[S]\pm(q=-n)}\cdot\{X_0\}^{K(Z\pm[S]\pm(q=+n)}$

$=\sum_{(Z\pm[S]\pm q)}\{^{K[S]}\sqrt{X}\}^{K(Z\pm[S]\pm(q=+n)}\cdot(1-\eta^2)^K\{X_0\}^{K(Z\pm[S]\pm(q=-n)}$

$=\sum_{(Z\pm[S]\pm q)}\{^{K[S]}\sqrt{X}\}^{K(Z\pm[S]\pm(q=+n)}\cdot\{^{K[S]}\sqrt{X}\}^{K(Z\pm[S]\pm(q=-n)}$

$=\sum_{(Z\pm[S]\pm q)}\{X_0\}^{K(q=+n)}\cdot\{X_0\}^{K(q=-n)}$;

Equation (2.1.16) indicates that the reciprocity theorem sufficiency is proved.

Sufficient and necessary extension of the reciprocity theorem:

The group combination$(^{K[S]}\sqrt{X})$and the mean function $\{X_0\}$ can also be a multiplication and addition reciprocal relationship:

(2.1.17)

$(^{K[S]}\sqrt{X})^{K(Z\pm[S]\pm N\pm(q)/t}$

$=\sum_{(Z\pm S)}\{(1/C_{([S]\pm N\pm q)})^K[\prod_{(Z\pm[S]\pm N\pm q)}\{x\}^K+\dots]\}^{K(Z\pm[S]\pm N\pm(q)/t}$

$=\sum_{(Z\pm[S]\pm N\pm q)}[\{(p-1)!/(S-0)!]^K\prod_{(Z\pm[S]\pm(q))}\{x\}^K+\dots\}]^{K(Z\pm[S]\pm N\pm(q)/t}$

$=\sum_{(Z\pm[S]\pm q)}[(1-\eta^2)^K\{X_0\}]^{K(Z\pm[S]\pm N\pm(q)/t}$;

2.1.6, [Prove 2.1.6]: Calculus order reciprocity theorem:

The traditional calculus single variables are: $d^Nx^{(S)}=(N)(x)^{(S-N)}$; $\int^N x^{(S-N)}d^{(N)}x=(S+N)x^{(S+N)}$,

Group combined calculus multivariate mean function:

$d^N\{x_0\}^{(S)}=(N)\{x_0\}^{(S-N)}$; $\int^N\{x_0\}^{(S-N)}d^{(N)}\{x_0\}=(S+N)\{x_0\}^{(S+N)}$。

Differential (-N) and integral (+N) have asymmetric reciprocal composition,

(2.1.18)

$d^N\{x_0\}^{(S)}/\int^N\{x_0\}d^{(S-N)}x=(N)\{x_0\}^{(S-N)}/(S+N)\{x_0\}^{(S+N)}$

$=[(N)/(S+N)]^{K(S+N)}=(1-\eta^2)^{K(S+N)}$;

(2.1.19)

$(1-\eta^2)^{K(Z\pm S\pm N)}=(1-\eta^2)^{K(Z\pm S\pm N)}+(1-\eta^2)^{K(Z\pm S\pm N)}=\{0\text{ to }1\}$;

(2.1.20)

$(1-\eta^2)^{K(Z\pm S\pm N)}=\sum_{(i=\infty)}\text{lin}[(N)/(S+N)]^N=e^X$(Eulerian logarithm);

Formula (2.1.20) is a constant: $[(N)/(S+N)]^N$ is equivalent to $\sum_{(i=\infty)}\text{lin}[(N)/(S+N)]^N$,

Among them: circle logarithm (1-η2)K(Z±S±N) (algebraic equation proof) is equivalent to eX (limit method proof)

(2.1.21)

$e^X=(1/2)(e^{\pi X}+e^{\pi X})$is equivalent to$(1-\eta^2)^{K(Z\pm S\pm N)}$

$=(1-\eta^2)^{(KW=+1)(Z\pm S\pm N)}(1-\eta^2)^{(KW=-1)(Z\pm S\pm N)}$

The difference is: the algebraic proof is different from the limit proof; there is some constant equivalent to the circular logarithm and the Euler logarithm. However, the limit value of Euler's logarithm e^x=2.718281828...; the fixed value divided by the uncertain continuous multiplication combination value cannot be fully

The integer expansion of the full power function is still "approximate calculation". The logarithm of the circle is based on the eigenmode and the logarithm of the unitary circle $(1-\eta^2)^{K(Z\pm S\pm N)}$, which satisfies the integer expansion of the power function and ensures the expansion and calculation of zero error.

2.2, [Theorem 2]: "multiplication and addition" reciprocal theorem

In China more than 2,000 years ago, the appearance of indefinite equations is a subject worthy of attention, which is more than 300 years earlier than the Greek Diophantine equations that we are familiar with now. There are cubic equations in the form of$x^3+px^2+qx=A$ and $x^3+px^2=A$. It has been recorded in Wang Xiaotong's "Jiangu Suanjing" in the Tang Dynasty in the seventh century AD, and the number is obtained by "dividing it from the open cube" Answer (Unfortunately, this original solution method was lost due to historical reasons.

In the 17th century, Italian mathematician Veda proposed Veda's theorem. Later European mathematicians Newton, Gauss, Euler, etc. proposed "the least squares method, the principle of least action, distance, geodesy Lines, relativity, elliptic functions..." did not find the "rule of reciprocity of multiplication and addition" that exists in functions.

In 2003, John Derbyshire, an expert in the history of mathematics in the United States, said in the 2003 best-selling popular science book "History of Algebra" p101: Euler in "On the Solution of Any S-degree Equation" in 1732, pointed out that any S The expression of the secondary equation may be of the form,

(2.2.1)

$A({}^{S}\sqrt{D})^0+B({}^{S}\sqrt{D})^1+C({}^{S}\sqrt{D})^2+\ldots+P({}^{S}\sqrt{D})^{(p-1)}+\ldots;$

In the formula: $({}^{S}\sqrt{D})$ is the continuous multiplication of the root form), and (A, B, C,...P) is the polynomial coefficient.

How to solve this root? Many mathematicians such as Euler and Gauss have no way to find them in modern times, and they have become unsolved cases. The difficulty is that Euler et al. do not know that the coefficients contain the mean (D_0) as the root of the continuous mean function, and the "reciprocity of multiplication and addition" is not known here. So that the higher order equation cannot be solved.

In 1824, Abel-Rafini's proof that the quintic equation was unsolvable started from a form similar to the solution given above, because he did not realize that it was "multiplication (including root multiplication) and addition (including polynomial coefficients)" continuation)". Facts have proved that this is an improper proof that "the quintic equation cannot be solved algebraically", causing the difficulties of today's mathematical algebraic equations, and just providing an opportunity for the emergence of the branch of mathematics that developed logical algebra.

In the early 19th century, European mathematicians began to realize that "the combination of multiplication and addition of two numerical values to obtain a new numerical value has a wider application and can be applied to objects that are not numerical values at all". However, George Boole gave logical symbols to the traditional algebraic symbol system, emphasizing the symmetry of modern algebra (logical algebra) and computer algorithm theory for discrete big data statistical calculations. The symbols they used often could stand for anything: numbers, permutations, arrays, sets, rotations, transformations, propositions, etc. When this trickled in, modern algebra (logical algebra) was born.

At this time, the axiomatic hypothesis proposes a similar "Self divides itself equals 1", and the "multiplication and addition reciprocity rule equals 1" of equivalent symmetry. When applied to the quintic equation in one variable, it becomes a special case and cannot solve the "general solution" problem.

The key point is that "Self dividing itself is equal to 1" becomes a special solution, and it cannot handle the general solution "Self dividing itself is not equal to 1".

(2.2.2)

$(1-\eta^2)^K=[({}^{K[S]}\sqrt{X/X_0})=({}^{K[S]}\sqrt{D/D_0})]^K=\{0$ 或 $1\}$; $q=0,1,2,3\ldots P\leq[S])$。

Obviously, although logical algebra is widely used in computer theory, mathematicians are not satisfied with logical algebra, expecting that "the synthesis of new numerical values can be applied to objects that are not numerical values at all", thinking that the symbolic ability of arithmetical addition, subtraction, multiplication and division is limited. Realize accurate calculation with zero error.

Here, breaking the axiomatic assumption, it is proposed that "dividing itself is not equal to 1", which is equivalent to "the rule of reciprocity of multiplication and addition is not equal to 1". Including the special case of quintic equation, it can solve the problem of "general solution of quintic equation in one variable".

It has been recorded in Wang Xiaotong's "Ancient Suanjing" written by Wang Xiaotong in the Tang Dynasty in China in the seventh century AD, and the numerical solution is obtained by "dividing it from the open cube". "Dividing it from the cube (proof: What is the specific content of "division"? The original text is lost and there is no record, and now it is proved by circular logarithms that it should be "average-characteristic modulus")".

Similarly, in the 17th century, the French mathematician Wei Da proposed the discriminant for the quadratic equation in one variable: B2-4AD≥0. People have no understanding of this discriminant and have not been able to expand it. In the exploration of the relationship between polynomial root elements and combination coefficients, we discovered the previously unknown "rule of reciprocity of multiplication and addition", and we discovered their rules, which were extended to circular logarithms.

Extended to circular logarithmic method: the sub-terms of the polynomial root elements that do not repeat are the multi-element combination $D=(S\sqrt{D})S$; corresponding to the polynomial coefficients (A,B,C,...P), the polynomial coefficients have a combination Coefficient $(1/C_{([S]\pm N\pm q)})$; characteristic modulus$D=({}^{S}\sqrt{D})^{S}$.

The relationship between polynomial coefficients and eigenmodes (additional mean function):

(2.2.3) $A=1(D_0)^0$; $B=(1/S)(D_0)^1$; $C=[(2)/S(S-1)](D_0)^2$; $P=[(P-1)!/(S-0)(D_0)!]^{(P-1)}$; Import this multiplication and addition reciprocity rule into the polynomial subterm by subterm,

(2.2.4)

$$A({}^{S}\sqrt{D})^{K(Z\pm[S]\pm N\pm(q=0)/t}+B({}^{S}\sqrt{D})^{K(Z\pm[S]\pm N\pm(q=1)/t}+\dots+P({}^{S}\sqrt{D})^{K(Z\pm[S]\pm N\pm(q=(p-1))/t}+\dots$$

$$=({}^{S}\sqrt{D})^{K(Z\pm[S]\pm N\pm(q=0)/t}+(1/C_{([S]\pm N\pm(q=1))})^{K}({}^{S}\sqrt{D})^{K(Z\pm[S]\pm N\pm(q=1)/t}+\dots+(1/C_{([S]\pm N\pm(q=(P-1))})^{K}({}^{S}\sqrt{D})^{K(Z\pm[S]\pm N\pm(q=(p-1))/t}+\dots$$

$$=(1-\eta^2)^K\{D_0\}^{K(Z\pm[S]\pm N\pm(q)/t};$$

Each subterm of the polynomial is a combination of multiplication

and addition: we get

(2.2.5)

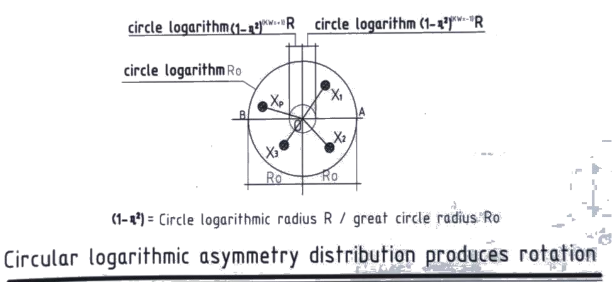
$$(1-\eta^2)^K=[({}^{KS}\sqrt{X/X_0})^{K(Z\pm[S]\pm N\pm(q)/t}$$

$$=({}^{KS}\sqrt{D/D_0})]^{K(Z\pm[S]\pm N\pm(q)/t}$$

$$=\{0\ \text{to}1\}^{K(Z\pm[S]\pm N\pm(q)/t};\ q=0,1,2,3\dots P\le[S])。$$

addition: "The combination of twovalues of multiplication and addition to obtain a new value can be applied to

Formula (2.2.5) expresses the reciprocity of multiplication and objectsthat are notnumerical values at all, and it becomes the arithmetic calculation of circular logarithmic value" .



(Fig. 1.1 Group combination and circular logarithm)

That isto say, the asymmetry function with a resolution of 2 is converted into a relative symmetry function by the circular logarithm, and the zero-error logical calculation is arithmeticalized between {0 and 1} of the controllable circular logarithm. Be part of the reciprocity theorem proof.

2.3. [Theorem 3]: The reciprocal theorem of "addition and subtraction" The reciprocity of addition and subtraction is reflected as the reciprocity of the circular plate and the ring, which is described by the logarithmic reciprocity of the circle. where circular logarithms describe their asymmetric relationship.

2.3.1. Group combination and perfect circle mode

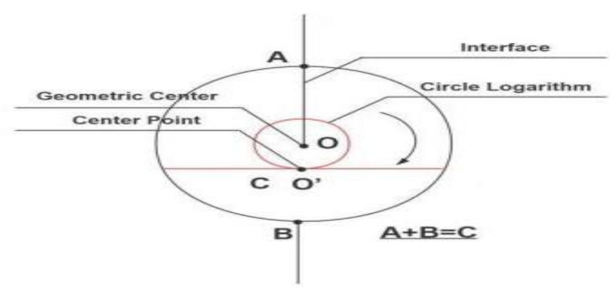
The group combination is defined as the gap between the multi-element asymmetric distribution set and the symmetrical distribution set, and this gap is called circular logarithm.

For example, a circular plate (ball) passes through the geometric center (O) point of the radius R0 of the circular plate, and is suspended on the vertical line of point A in the air, and different movable small weights (The total mass is less than the tensile strength of the suspension wire, and the radius of the circular plate remains unchanged and will not break). The probability is 1 under the conditionof constant total mass, moving the small weight around the circular plate,

The circular plate always rotates tilted to one side. This rotational dynamic reflects the inhomogeneity of the mass distribution at the peripheral boundary of the circular plate.

Take a closer look:

(1), The weight (wi) around the circular plate does not move in the ring direction: the circular plate rotates.



(Figure 1.2 Group combination and circle logarithm)

If the circular plate is compressed into an axis, the center of gravity is balanced with the weight W on the circumference of the circular plate;

(a) the plate is placed horizontally, the plane of the plate is balanced, and the center of mass rotates to form a circle (OC),

(b) the center of gravity is always connected to the suspension The lines are on the same straight line, and the center of mass rotates to form a circle (OC). (OC) Weigh the center circle, which can also be said to be a group combination "distance circle of asymmetric distribution". The circular orbit becomes the distance from the center of gravity of the multiple objects to the zero point (O) of the geometric center of the circular plate.

(2), Get $(1-\eta^2)^{KS}$; R_0=(OC) circular orbit. This (OC) circular orbit can also be adapted

A sphere, a body, and multiple objects W within a circle. The algebraic difference of the ratio of (OC) to the radius R0 of a circular plate (line, surface, body, multibody), called the logarithm of the circle:

There are three forms of circular logarithms

(1), logarithm of probability circle;

(2.3.1) $(1-\eta^2)^K=\{(\underline{OC})/R_0\}^{KS}=\{\sum(x_i)/X\}^{KS}=\{1\}^{KS}$;

(2), the logarithm of the center zero point circle:

(2.3.2) $(1-\eta^2)^K=\{(\underline{OC})/R_0\}^{KS}=\{\sum(x_i)/X\}^{KS}=\{0\}^{KS}$;

(3), topological circle logarithm;

(2.3.3) $(1-\eta^2)^K=\{(\underline{OC})/R_0\}^{KS}=\{\sum(x_i)/X\}^{KS}=\{0 \text{ to } 1\}^{KS}$;

(4) The relationship between the logarithm of the circle and the eigenmode is written as a general formula:

(2.3.4) $W=(1-\eta^2)^{KS}W_0$;

In the formula: W, W0 represent unknown and known events, $(1-\eta^2)^{KS}$ circular logarithm, which represents the difference between unevenly distributed weights or arbitrary functions W and uniformly distributed state W0 with a quadratic relationship (distance). K forward and reverse rotation represents properties (K=+1,±0±1,-1), (S) dimension,

2.3.2, define vector and circle logarithm

If it is represented by a vector: For a perfect arc (plane, surface) (O'A), the rotation angle of the perfect circle is synchronized with the change of the length of the perfect arc (plane, surface). The rotation angles include（θ,φ,ψ） consisting of

$\{X\}=(R,\theta)$(one-dimensional curve),

$\{X\}^2=(R^2,\theta\varphi)$ (two-dimensional plane, two-dimensional surface),

$\{X\}^3=(R^3,\theta\varphi\psi)$ (spherical, arbitrary Three-dimensional body)

$\{X\}^n=(R^n,\theta\varphi\psi)$(three-dimensional solid basic [four-dimensional-five-dimensional-six-dimensional]-high-dimensional vortex space).

(2.3.4) $\{X\}^n=R^n\theta=(\underline{O'A})/(\underline{OC})=\{\theta/2\pi\}^K R^n=(1-\eta_\theta^2)^K\{R_0\}^n$;

In the formula:$(1-\eta_\theta^2)^K=\{(\theta/2\pi)\}^{Kn}$ spatial rotation angle. The average radius of $\{X\}^{Kn}$ any circle (line, area, volume, multibody range).

(1), The circle weight W of the circular plate does not change and moves in the circumferential direction, and the circle orbit of the zero point radius of the center of mass has different distances in the circumferential direction: the balance point of the center of mass is always on the same line as the suspension line, and the deformation produces (OA) topology The circular orbit, called the topological circle of the center of gravity, indicates that the center zero point moves circumferentially by an angleθ or θφ to (OA) on the basis of the circumferential circle.

Such as: $(1-\eta_A^2)^K=\{(OA)/(\underline{OC})\}^2$ (circular movement, or ellipse short axis);

(2), The weight W on the circumference of the circular plate moves radially without changing, and the circular orbit with the zero radius of the center of gravity has different radial distances: the balance point of the center of gravity is always on the same line as the suspension line, and the deformation produces (OB) topology A circular orbit, called a barycentric topological circle (or ellipse), indicates that the center zero point moves radially (OB) on the basis of a torus circle.

Such as: $(1-\eta_B^2)=(OB)/(\underline{OC})^2$ (radial movement, or ellipse long axis). Vector representation (circular movement A + radial movement B) to obtain an ellipse, the ellipse rotation angle is not synchronized with the ellipse arc length, resulting in a combination of both circular movement and radial movement,

Composition: $(1-\eta_A^2)^K=\{(OA)/(\underline{OC})\}$ (circular movement, or ellipse short axis); $(1-\eta_B^2)=(OB)/(\underline{OC})$ (radial movement, or ellipse long axis). The elliptic curve and the perfect circle curve represent the difference between the movement of the weight (circumferential and radial), the distribution is uniform and the non-uniform, and the movement of the center of gravity. Expand to line, area, body, multibody. Its function is to group multiple objects (groups combining multivariate elements) into a collection point, and express their "quadratic square" distance difference through the logarithm of the circle.

For example: a generalized ellipse is (uneven, asymmetrical circle) $\{S\}^{K(Z\pm[S]\pm N\pm(q)/t}$; a generalized perfect circle is (uniform, symmetrical circle) $\{S_0\}^{K(Z\pm[S]\pm N\pm(q)/t}$; ;

$(1-\eta^2)^K=[(\underline{OC})/(\underline{OR})]^1=\{0 \text{ to} 1\}$; one-dimensional linear space, parameters are contained in radius or element;

$(1-\eta^2)^K=[(\underline{OC})/(\underline{OR})]^2=\{0 \text{ to} 1\}$; two-dimensional plane, surface space, parameters are included in the radius or element;

$(1-\eta^2)^K=[(\underline{OC})/(\underline{OR})]^3=\{0 \text{ to} 1\}$; three-dimensional solid space, the parameter is contained in the radius or element;

$(1-\eta^2)^K=[(\underline{OC})/(\underline{OR})]^{KZ}=\{0 \text{ to} 1\}$; three-dimensional solid high-dimensional space, the parameters are contained in the radius or element;

The above reflects the relative symmetry of isomorphism of line, surface, body, and many-body, with isomorphism consistency (proved later), maintaining unit probability invariance, isomorphism topological variability, and center zero mobility.

The mobility of the center zero point means that the weights tend to be distributed symmetrically due to the movement of the center of gravity. Mathematically, the movement of the curvature center of the asymmetric arbitrary curve causes the boundary curve to tend to the perfect circle curve. That is to say, the movement of the center point is synchronized with the shape change of the boundary curve, which satisfies Brouwer's "center zero point theorem".

(2.3.5)

$(1-\eta^2)^K R_0^2=(1-\eta^2)^{(K=\pm1)}AB$

$=(1-\eta^2)^{(K=-1)}A\cdot(1-\eta^2)^{(K=+1)}B$

$=(1+\eta)^{(K=\pm1)}A\cdot(1-\eta)^{(K=\pm1)}B$;

(2.3.6)

$(1-\eta^2)^K=(1-\eta_A^2)^{(K=\pm1)}+(1-\eta_B^2)^{(K=\pm1)}=\{0 \text{ to } 1\}$;

or

$(1-\eta^2)^K=(1-\eta_A)^{(K=\pm1)}\cdot(1+\eta_B)^{(K=\pm1)}=\{0 \text{ to } 1\}$;

In the formula: $(1-\eta^2)^{(K=-1)}=(1+\eta^2)^{(K=+1)}$; $(1-\eta^2)^{(K=+1)}=(1+\eta^2)^{(K=-1)}$; becomes one of the important rules for circular logarithms.

Now we expand our thinking,

(1), vertical circular plate, the distance from one direction to the center point is called the weight, $\{XR\}=\sum\{Xr\}$ becomes a one-dimensional space;

(2) Lay the circular plate flat, and cluster the distances from the two directions to the center point to become a two-dimensional space $\{X^2R\}=\sum\{X^2r\}$ to become a two-dimensional space;

(3) The circular plate is converted into a spherical cluster and the distance from the three directions to the center point becomes a three-dimensional space $\{X^3R\}=\sum\{X^3r\}$ becomes a three-dimensional space;

(4) In the three-dimensional space, cluster the distances from multiple directions to the center point to form a high-dimensional space $\{X^SR\}=\sum\{X^Sr\}$, which becomes a three-dimensional high-dimensional space.

(5) Under the multi-level condition $\{R^S\}=\prod\{r_1r_2\ldots r_S\}=({}^{KS}\sqrt{\{r_1r_2\ldots r_S\}})^S$. But their distances and angles are unchanged in three-dimensional space. The circular logarithm rule is also unchanged.

(2.3.7)

$(R)=\sum\{X^Sr\}/\{X^S\}=\ldots=\sum\{X^3r\}/\{X^3\}=\sum\{X^2r\}/\{X^2\}$

$=\{\sum Xr\}/\{X\}$;

According to Brouwer's central theorem: in a closed curve, the value of the center point is equivalent to the length of the boundary curve. For this reason, any eccentricity of the circular plate can be moved to the center point of the circular plate, and the concept of circular logarithm remains unchanged. Similarly, the circular plate can be set as a circle (R0) with a large enough radius, and everyone takes this (R0) center point as the central point to obtain a unified circle logarithmic standard template comparison.

(2.3.8)

$(1-\eta^2)^K=(R)/(R_0)^K=[(R)/(R_0)]^S=[({}^{KS}\sqrt{\{r_1r_2\ldots r_S\}})/(R_0)]^{KS}$

;

(2.3.9) $(1-\eta^2)^K=\{0 \text{ to } 1\}^{KS}$;

In this way, the ancient one-dimensional axis statistics of circular plates has become the ancient two-dimensional axis statistics of circular plates called "drunk line problem", and then extended to multi-dimensional axis statistics, which are all converted into isomorphic and consistent circular logarithm problems.

2.3.3. [Prove 2.3.1] The "addition theorem" of logarithms of circles

The theorem of logarithmic addition of circles consists of: circular plane, spherical surface, convex function, neural network toroidal grid

Let: an asymmetric circular logarithm with a resolution of 2 for any function, and the group combinations are A and B, respectively. The circular logarithm converts asymmetry into a relative symmetry function.

Mean function:

$\{R_0\}^{(K=+1)(Z\pm[S]\pm N\pm(q)/t}=\{(1/2)(A+B)\}^{(K=+1)(Z\pm[S]\pm N\pm(q)/t}$;

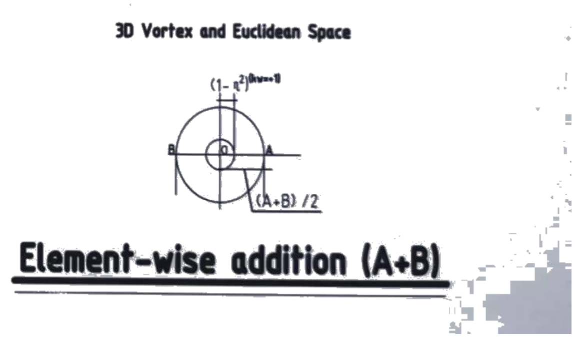
(2.3.10) $(1-\eta^2)^{(K=+1)}=(1-\eta^2)^{(K=+1)(Z\pm[S]\pm N\pm(q)/t}$

$=[(A-B)/((A+B))]^{(K=+1)(Z\pm[S]\pm N\pm(q)/t}$

$=[(A-R_0)/(R_0)]^{(K=+1)(Z\pm[S]\pm N\pm(q)/t}$

$=[(R_0-B)/(R_0)]^{(K=+1)(Z\pm[S]\pm N\pm(q)/t}$

$=\{0 \text{ 到 } 1\}^{(K=+1)(Z\pm[S]\pm N\pm(q)/t}$;



(Fig. 2.1 Addition of logarithms of circles)

The topological change of a sphere is called simply connected,

with an average radius and a (1/2)(A+B) average radius,

Respectively shrink from the boundary to the center, at the center $(1-\eta^2)^{(K=-+1)}\rightarrow0$ is a positive circle, or spread outward from the boundary at the boundary $(1-\eta^2)^{(K=+1)}\rightarrow1$ is a perfect circle.

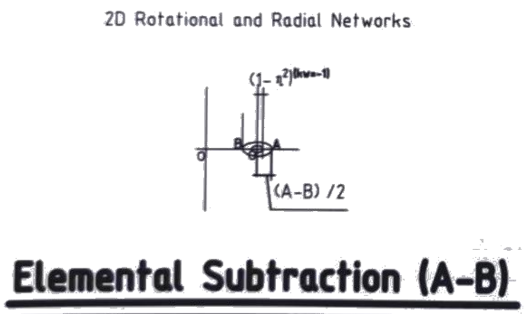
2.3.2. [Prove 2.3.2] The "subtraction theorem" of logarithms of circles

The circular logarithm subtraction theorem consists of: torus plane, curved surface (doughnut), concave function, neural network radial grid:

Mean function:
$\{R_0\}^{(K=-1)(Z\pm[S]\pm N\pm(q)/t}=\{(1/2)(A-B)\}^{(K=-1)(Z\pm[S]\pm N\pm(q)/t}$;

(2.3.11) $(1-\eta^2)^{(K=-1)}=(1-\eta^2)^{(K=-1)(Z\pm[S]\pm N\pm(q)/t}$
$=[(A-B)/(A+B)]^{(K=-1)(Z\pm[S]\pm N\pm(q)/t}$
$=[(A-B)/(R_0)]^{(K=-1)(Z\pm[S]\pm N\pm(q)/t}$
$=[(R_0-B)/(R_0)]^{(K=-1)(Z\pm[S]\pm N\pm(q)/t}$
$=\{0$ 到 $1\}^{(K=-1)(Z\pm[S]\pm N\pm(q)/t}$;

The topological change of the ring has two forms:



(Figure 2.2 Subtraction of logarithms of circles)

the averageradius of A and B and the average radius of (1/2)(AB), which shrink from the boundary to the center, respectively, at the center $(1-\eta^2)^{(K=-1)}\to 0$ is a positive circle, or diffuses outward from the boundary at the boundary$(1-\eta^2)^{(K=-1)}\to 1$ is a perfect circle.

2.3.3. [Prove 2.3.3] The reciprocal theorem of "subtraction and addition" of circular logarithms

Addition and subtraction reciprocity of circular logarithms $\{R_0\}^{K(Z\pm[S]\pm N\pm(q)/t}=\{(1/2)(A\pm B)\}^{K(Z\pm[S]\pm N\pm(q)/t}$;

It shows the compatibility and reciprocity of the perfect circle and the ring.

(2.3.12)
$(1-\eta^2)^{(K=\pm1)}=(A-B)/(A+B)$
$=\{R_0\}^{(K=-1)(Z\pm[S]\pm N\pm(q=-n)/t}/\{R_0\}^{(K=+1)(Z\pm[S]\pm N\pm(q=+n)/t}$
$=\sum_{(Z\pm[S]\pm N)}(1/C_{(Z\pm[S]\pm N\pm(q))})^K[\prod(x_1x_2\dots x_S)^K+\dots]^{(K=-1)(Z\pm[S]\pm N\pm(q=-n)/t}/\sum_{(Z\pm[S]\pm N)}(1/C_{(Z\pm[S]\pm N\pm(q))})^K[\prod(x_1x_2\dots x_S)^K+\dots]^{(K=+1)(Z\pm[S]\pm N\pm(q=+n)/t}$
$=\sum_{(Z\pm[S]\pm N)}(1/S)^K(x_1+x_2+\dots+x_S)^K]^{(K=-1)(Z\pm[S]\pm N\pm(q=-n)/t}$
/
$\sum_{(Z\pm[S]\pm N)}(1/S)^K(x_1+x_2+\dots+x_S)^K]^{(K=+1)(Z\pm[S]\pm N\pm(q=+n)/t}$
$=(1-\eta^2)^{(K=+1)(Z\pm[S]\pm N\pm(q)/t}+(1-\eta^2)^{(K=-1)(Z\pm[S]\pm N\pm(q)/t}$
$=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=-1)}$
$=\{0 \text{ to } 1\}$;

Among them: The reciprocal circular logarithm of isomorphism can be written as the following important rules:

(2.3.13) $(1-\eta^2)^{(K=\pm1)}=(1-\eta^2)^{(K=+1)}\cdot(1-\eta^2)^{(K=-1)}$;

(2.3.14) $(1-\eta^2)^{(K=\pm1)}=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=-1)}$;

(2.3.15) $(1-\eta^2)^{(K=\pm1)}=(1-\eta)^{(Kw=+1)}+(1+\eta)^{(Kw=-1)}$;

They are: (sphere, circular convex surface, circular plane, network toroidal convex surface, network toroidal concave surface) and (circle, circular concave surface, circular plane, network toroidal concave surface, network radial surface) composition a unitary whole.

In particular, the "subtraction and addition" reciprocal theorem of circular logarithm forms the precession of the surface and the rotation of the torus, forming the toroidal surface network and the radial connection network of the circular logarithm-neural network. The network intersections are all characteristic modes composed of closed elements, which have high robustness against internal and external interference, meet the multi-parameter, heterogeneous jump transition and continuous transition between nodes, and perform synchronization and multi-directional in the network space. , Fast information transmission.

Topological changes of spheres and rings, involving the "Poincaré topology conjecture". In 2004, the Russian mathematician Perelman proved the sphere simply connected topology, and two international teams including mathematician Qiu Chengtong have supplemented the proof.

The logarithm of the circle is further extended to prove that the topological changes of the sphere and the ring are unified, and it becomes the reciprocity theorem of "the reciprocity of the sphere and the ring" and "the surface of the toroidal network and the radial connection network".

2.4. [Theorem 4]: Equality and inequality reciprocity theorem

Any function with a resolution of **2** is decomposed into two asymmetric functions, which are called uncertainty "inequalities". Inequalities are converted to relative symmetry by describing the distance between them by circular logarithms.

2.4.1. Labida's inequality and circular logarithm reciprocity theorem:

The Lapita inequality (infinity/infinity, infinity/infinity, infinity/infinity, infinity/infinity) creates uncertainty. The circular logarithm obtains deterministic values through the principle of relativity: infinity/infinitesimal, infinity/infinity, infinitesimal/infinitesimal, infinitesimal/infinity, and the circular logarithm obtains deterministic values through reversible relative symmetry:

(2.4.1)
$(1-\eta^2)^{(K=-1)}=\infty/0=\{0 \text{ to } 1\}^{(K=-1)(Z\pm[S]\pm N\pm(q)/t}$;
$(1-\eta^2)^{(K=+1)}=0/\infty=\{0 \text{ to } 1\}^{(K=+1)(Z\pm[S]\pm N\pm(q)/t}$;
$(1-\eta^2)^{(K=\pm1)}=0/0=\{0 \text{ to } 1\}^{(K=\pm1)(Z\pm[S]\pm N\pm(q)/t}$;
$(1-\eta^2)^{(K=\pm1)}=\infty/\infty=\{0 \text{ to } 1\}^{(K=\pm1)(Z\pm[S]\pm N\pm(q)/t}$;

(2.4.2)
$(1-\eta^2)^{(K=\pm1)}=\{0 \text{ to } (1/2) \text{ to } 1\}^{(K=\pm1)(Z\pm[S]\pm N\pm(q)/t}$。

2.4.2. Calculus inequalities transform reciprocal symmetry:

Polynomial sub-item hierarchy and differential and integral composition inequality $dx^{K(Z\pm[S]-N\pm(q)/t} \neq \int x dx^{K(Z\pm[S]+N\pm(q)/t}$, invertible by circular logarithm Deterministic values for symmetry:

Set: Differential: $dx^{K(Z\pm[S]\pm N\pm(q-1)/t}=Sx^{K(Z\pm[S]\pm N\pm(q+1)/t}$;

Integral: $\int x dx^{S}=x^{(S+1)}$;

Discriminant: $(1-\eta^2)^{(K=\pm1)}$;

(2.4.3)

$$dx^{K(Z\pm[S]\pm N\pm(q-1)/t}\cdot\int x dx^{K(Z\pm[S]\pm N\pm(q+1)/t}$$
$$= \lim_{(S\to\infty)}[S/(1+S)]^{S}\, x^{(S-1)}\cdot x^{(S+1)}$$
$$= (1-\eta^2)^{(K=\pm1)(Z\pm[S]\pm N\pm(q)/t}\cdot x^{(K=\pm1)(Z\pm[S]\pm N\pm(q)/t}$$
$$= e^{S}\cdot x^{(S\pm1)}=\{0 \text{ to } 1\}^{(K=\pm1)};$$

In the formula: $(1-\eta^2)^{(K=\pm1)}$ equivalent Euler logarithm $e^S=e^x$, $e^x=[S/(1+S)]^S$; they are all constants, the former is$(1-\eta^2)^{(K=\pm1)}$ Algebraically obtains the (internally variable) constant $(1-\eta^2)^K=\{0 \text{ to } 1\}^K$. The latter limit method obtains the constant $e^x=2.718281828\ldots$. There are different effects here. When the multi-element multiplication is uncertain, use the circular logarithm (internally variable) constant division to obtain an integer expansion. Using Euler's logarithmic (fixed) constant division, the "error accumulation" expansion under integers is obtained, resulting in congenital defects of the function.

2.4.3. Reciprocal symmetry of square and mean element transformation (q=2):

The sum of squares and the average value of additions belong to an asymmetric relationship. The reversibility and deterministic value are ensured by circular logarithms, which is called the square reciprocity theorem:

Suppose: the diameter of a perfect circle is $AO+OB=a+b=2R_0$, and its semicircle boundary is arbitrarily selected to C, forming a triangleΔABC and $\angle C=\angle A+\angle B=\pi/2$;

$(A+B)=\arcsin A+\arccos A\neq(\pi/2)$; $(\sin^2\alpha+\cos^2\beta)\neq1$;

$a=A\cos\beta=A\sin\alpha$. $b=B\cos\alpha=A\sin\beta$:

$C=A\sin\alpha+A\cos\beta=a+b=2C_0$; $C_0=(1/2)(a+b)$;

Using three variables a,b,c, $D^{(K=\pm3)}=abc^{(K=\pm1)}$ of ΔABC side length to form a triplet to generate an algebraic equation:

$$D_0^{(K=+1)}=[(1/3)^{(K=+1)}(a^{(+1)}+b^{(+1)}+c^{(+1)})]^{(K=+1)},$$
$$D_0^{(K=-1)}=[(1/3)^{(K=-1)}(a^{(-1)}+b^{(-1)}+c^{(-1)})]^{(K=-1)},$$

Unknown variable $\{X\}$, known variable $\{D_0\}$;

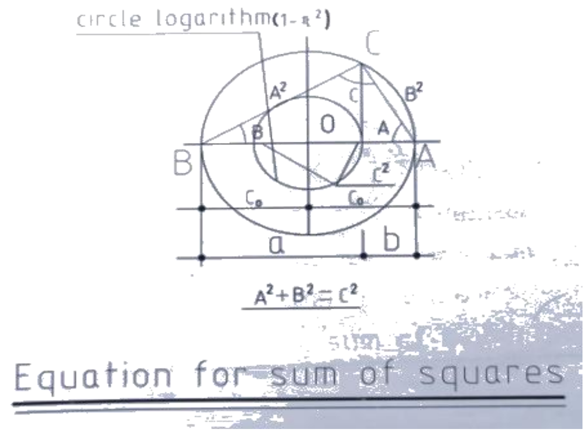


Figure 3.1 Circular logarithmic sum of squares)

Applying the proven results, a triple generation meta-algebraic equation is established:

Discriminant:

$(1-\eta^2)^K=\{(\sqrt[3]{abc})/D_0\}^{K(3)}=\{(\sqrt[3]{abc})/D_0\}^{K(2)}=\{(\sqrt[3]{abc})/D_0\}^{K(1)}\leq1$;

the equation is established.

(2.4.4)
$$Ax^3\pm Bx^2+Cx\pm D=\{X\pm(\sqrt[3]{abc})\}^3$$
$$=(1-\eta^2)^K[x_0^3\pm x_0^2D_0+x_0D_0^2\pm D_0^3]^K$$
$$=(1-\eta^2)^K\{X_0\pm D_0\}^3$$
$$=(1-\eta^2)^K(0,2)\{D_0\}^3;$$

(2.4.5)
$$(1-\eta^2)^K= D_0^{(K=-1)}/D_0^{(K=+1)}$$
$$=[(1/3)^{(K=-1)}(a^{(-1)}+b^{(-1)}+c^{(-1)})]^{(K=-1)}/[(1/3)^{(K=+1)}(a^{(+1)}+b^{(+1)}+c^{(+1)})]^{(K=+1)}$$
$$=\{0 \text{ to } 1\};$$

In the formula:

$[(1/3)^{(K=-1)}(a^{(-1)}+b^{(-1)}+c^{(-1)})]^{(K=-1)}=[(1/3)^{(K=+1)}(ab^{(+1)}+bc^{(+1)}+ca^{(+1)})]\cdot\{abc\}^{(K=-1)}$;

$[(1/3)^{(K=+1)}(a^{(+1)}+b^{(+1)}+c^{(+1)})]^{(K=+1)}=[(1/3)^{(K=-1)}(ab^{(-1)}+bc^{(-1)}+ca^{(-1)})]\cdot\{abc\}^{(K=+1)}$;

Probability circle logarithm: $(1-\eta_H^2)^K=(a+b+c]/2c_0=\eta_{Ha}+\eta_{Hb}+\eta_{Hc}=1$;Center-zero symmetry:

(2.4.6) $(1-\eta_C^2)^K=[(1/3)(a+b+c)]/c_0=(\eta_{Ha}^2+\eta_{Hb}^2)+(\eta_{Hc}^2)=0$;

Get: (1), the center zero coincides with c:a=b=c;

(2), The center zero point is between ab and c: ab≠c;

Satisfy symmetry:$(1-\eta_C^2)^K=(\eta_{Ha}^2+\eta_{Hb}^2)/(\eta_{Hc}^2)=1$;

Is it possible to prove that these two symmetries exist?

(1), Proof of necessity**:**

When: $(1-\eta^2)^K= D_0^{(K=-1)}/D_0^{(K=+1)}=1$;

(2.4.7)

$$(1-\eta^2)^K=[(1/3)^{(K=-1)}(ab^{(-1)}+bc^{(-1)}+ca^{(-1)})]^{(K=-1)}/[(1/3)^{(K=+1)}(ab^{(+1)}+bc^{(+1)}+ca^{(+1)})]^{(K=+1)}$$
$$=[(1/3)^{(K=-1)}(a^{(-1)}+b^{(-1)}+c^{(-1)})]^{(K=-1)}/[(1/3)^{(K=+1)}(a^{(+1)}+b^{(+1)}+c^{(+1)})]^{(K=+1)}=1;$$
$$=[(1/3)^{(K=-1)}(ab^{(-1)}+bc^{(-1)}+ca^{(-1)})]^{(K=-1)}$$

$/[(1/3)^{(K=+1)}(a^{(+1)}+b^{(+1)}+c^{(+1)})]^{(K=+1)}$
$=[(1/3)^{(K=-1)}(a^{(-1)}+b^{(-1)}+c^{(-1)})]^{(K=-1)}/[(1/3)^{(K=+1)}(ab^{(+1)}+bc^{(+1)}+ca^{(+1)})]^{(K=+1)}=1$;

Get: $a=(1-\eta^2)^{(K=-1)}c_0=(1-\eta)^{(K=+1)}(\sin\alpha)c_0$;
$b=(1-\eta^2)^{(K=+1)}c_0=(1+\eta)^{(K=-1)}(\cos\beta)c_0$;
$a^2=(1-\eta^2)^{(K=-1)}c_0^2=(1-\eta^2)^{(K=-1)}(\sin^2\alpha)c_0^2$;
$b^2=(1-\eta^2)^{(K=-1)}c_0^2=(1-\eta^2)^{(K=+1)}(\cos^2\beta)c_0^2$;

(2.4.8)
$(1-\eta^2)^K=[(1-\eta^2)^{(K=-1)}c_0^2+(1-\eta^2)^{(K=+1)}c_0^2]/2c_0^2$
$=(a^2+b^2)/2c_0^2$
$=(a^2+b^2)/c^2$
$=(\alpha+\beta)/(\pi/2)=\{1\}$;

In the formula:

$(1-\eta^2)^{(K=\pm1)}=(1-\eta^2)^{(K=-1)}+(1-\eta^2)^{(K=+1)}=1$;

$(1-\eta^2)^{(K=\pm1)}=(a-b)/(a+b)=[(a-c_0)/2c_0]^{(K=-1)}(a\geq c_0)=[(c_0-b)/c_0]^{(K=+1)}(b\leq c_0)$;

(2), Sufficiency proof:

When: $(a^2+b^2)\neq c^2$; (a^2+b^2) becomes an ellipse, $(1-\eta^2)^K=(a^2+b^2)/c^2\neq1$;

$(1-\eta^2)=(a^2+b^2)-c^2\to0$, the ellipse approaches a perfect circle;

$(\alpha+\beta)=\arcsin a+\arccos b=(\pi/2)$;

(2.4.9)
$(1-\eta^2)^{(K=\pm1)}=((1-\eta^2)^{(K=-1)}(\sin^2\alpha)c_0^2+(1-\eta_2)^{(K=+1)}(\cos^2\beta)c_0^2)/2c_0^2$
$=(\text{arc}\sin^2\alpha\cdot a^2+\text{arc}\cos\beta\cdot b^2)/(\pi/2)c^2$
$=(\sin^2\alpha+\cos^2\beta)\cdot(a^2+b^2)/c^2$
$=(a^2+b^2)/c^2$
$=(\alpha+\beta)/(\pi/2)$
$=\{1\}^{K(Z\pm[S]\pm N\pm(q=2)/t}$;

In the formula: $(1-\eta^2)(\sin^2\alpha)^{(K=-1)}+(1-\eta^2)(\cos^2\beta)^{(K=+1)}=1$;

In particular, only by applying the perfect circle mode, the ratio of the linearity of the axis and the ratio of the radial area are equivalent, and it is called the Pythagorean chord theorem when $(1-\eta^2)^K=1$ is proved.

(1), isosceles right triangle $(a=b=c_0)$,

(2), right triangle $(a+b)=[(1-\eta^2)+(1+\eta^2)]c_0=[(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=-1)}]c_0=2c_0$。

2.4.4. Fermat's last theorem inequality transformation relative symmetry equation:

In 1637, Fermat, while reading the Latin translation of Diophantus' "Arithmetic", wrote next to the eighth proposition of Book 11: "Divide a cube into the sum of two cubes, or a fourth power into two. It is impossible to divide the sum of four powers, or in general a power higher than two into the sum of two equal powers. For this, I am sure I have found a wonderful proof, but unfortunately it is blank The place is too small to write down." After all, Fermat did not write down the proof, and his other conjectures contributed a lot to mathematics, which inspired many mathematicians to be interested in this conjecture. The related work of mathematicians enriches the content of number theory and promotes the development of number theory.

The expression of Fermat's last theorem is very simple: when:$\{S\geq3\}$, there is no positive integer solution, which is called an inequality. (S=2) the equation holds. In other words: Under the condition that A, B, and C are all integers, it is impossible to write a power higher than $\{n\geq3\}$ as the sum of the same power. That is: $A^n+B^n=C^n$. Since then, countless wise men, including the great mathematicians Euler and Cauchy, have devoted themselves to it.

A conjecture by Japanese mathematicians Taniyama Feng and Shimura Goro in 1955: an E-sequence of an elliptic equation (this paper proves that it is a circular logarithm $(1-\eta^2)^{(K=\pm1)}$ and a modular M-sequence (This paper proves that it corresponds to the characteristic modulus $\{D_0\}^{K(Z\pm[S]\pm N\pm(q)/t}$, which produces a rational number domain elliptic curve (this paper proves that $(1-\eta^2)^{(K=\pm1)}\cdot\{D_0\}^{K(Z\pm[S]\pm N\pm(q)/t}$) . This is called the modular formalization of the elliptic equation. His proof was confirmed in 1995 and finally obtained by Wolfskehl bonus.

In May 1995, Andrew Wiles was aware of the elliptic equation derived from assuming that Fermat's conjecture was not established, namely "prime **P**-deficient" (this paper proves that it is a "prime characteristic modulus", which is a modular pattern and RIbet's theorem is The result of some groups of numbers in the field is a reinforcement of Ernst Kummer's theorem, i.e. if and only if the numerator of p divided by the S-th Bernoulli number Bn is n (the Bernoulli number, originally used In order to solve the idempotent sum problem), the prime number **P** is divided by the class number of the circular field of the p-th root of the unit, and we get: "Irrational numbers and rational numbers are numbers in different fields, and the formalization of the inequality model is incompatible with the equality model. , which is equivalent to proving Fermat's conjecture". It proves that Fermat's last theorem holds. It was finally published in the May 1995 issue of Annals of Mathematics. Wiles won the Wolf Prize and the Fields Special Prize for this achievement. .

As a result, there has been such a controversy on the Internet: some people think that this cannot be the proof that Fermat thought of at the time, and there should be a simpler proof than this that has not been found; but there are also many people who tend to think that Fermat at that time was actually nothing. Nothing found, or just thought of a wrong approach.

This article will prove that Fermat's last theorem does not hold. Fermat's Last Theorem ($S \geq 3$) does have asymmetry. In fact, it is the "inequality gap" between a uniform perfect circular function and an uneven elliptical function under the same dimension. This gap can describe their reciprocity and compatibility by circular logarithms. $A^n+B^n=(1-\eta^2)^{(K=\pm1)}C^n$ is obtained. Under the condition of ($n \geq 3$), A^n, B^n, C^n all have invariant values, there is no artificial irrational number interference on rational numbers, and $(1-\eta^2)^{(K=\pm1)}$ is a deterministic dimensionless value.

The circular logarithm proof is as follows:

Let: $(x^{KS}+y^{KS})$ (n=S is any integer $A=x^{KS}$;$B=y^{KS}$ are two (group combination prime multivariate) perfect circular functions respectively; (K=+1,0,-1) represent respectively The median inverse power function, the zero-point conversion function, and the (group combined prime number multivariate) obtain the eigenmodes respectively (the median and inverse mean function) $\{x_0\}^{KS}+\{y_0\}^{KS}$.

Let: $z^{KS}=x^S+y^S$:

$x^S=(x)^{KS}=\prod_{(i=S)}(x_1x_2\dots x_S)$; $y^S=(y)^{KS}\prod_{(i=S)}(y_1y_2\dots y_S)$;

$X_0^S=(x_0)^{KS}=\sum_{(i=S)}(1/C_{(i=S\pm q)})^K[\prod_{(i=S\pm q)}(x_1x_2\dots x_S)^K+\dots]$;

$Y_0^S=(y_0)^{KS}=\sum_{(i=S)}(1/C_{(i=S\pm q)})^K[\prod_{(i=S\pm q)}(y_1y_2\dots y_S)^K+\dots]$;

$Z_0^S=(1/2)(x_0^S+y_0^S)$;

Discriminant:

$(1-\eta^2)^K=\{(x^S+y^S)/z^S\}^K=\{(x_0^S+y_0^S)/z_0^S\}^K \leq 1$,polynomial is established;

(1), The necessity to prove the polynomial expansion:

$\{(x+y)\pm z\}^{KS}=x^{KS}+y^{KS}+[\pm Bx^{K(S-1)}+Cx^{K(S-2)}\pm\dots]$

$=x^{KS}+y^{KS}+[\pm Bx^{K(S-1)}+Cx^{K(S-2)}\pm\dots]$

$=x^{KS}+y^{KS}+\sum_{(i=S)}(xy)^{KS}$

$=(1-\eta^2)^K[x_0^{KS}+y_0^{KS}+\sum_{(i=S)}(x_0y_0)^{KS}]$

$=(1-\eta^2)^K[x_0^{KS}+y_0^{KS}+\sum_{(i=S)}(z_0)^{KS}]$

$=(1-\eta^2)^K(0,2)^{K(S-1)}\cdot(z_0)^{KS}$;

Get: $x^{KS}+y^{KS}=(1-\eta^2)^K\cdot(x_0^{KS}+y_0^{KS})$;

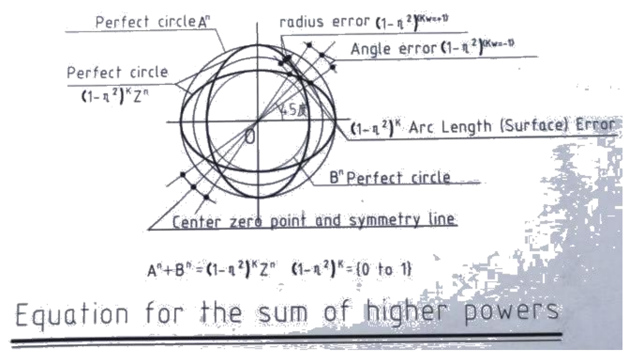
(2.4.10) $(x^{KS}+y^{KS})=(1-\eta^2)^K z_0^{KS}$;

(2.4.11) $(1-\eta^2)^K=[(x^S+y^S)/z^S\}^K=[(x^S+y^S)/z_0^S\}^K=[0 \text{ 到 } 1]^K$;

(2), The sufficiency proof geometry:

Let: $\{x^S\}=A^n$ (perfect circle); $\{Y^S\}=B^n$ (perfect circle); $\{z^S\}=C^n$ (ellipse); Take: A^n (perfect circle) and B^n (perfect circle) as concentric circles,

$\{z_0^S\}=(1/2)(A^n+B^n)$ (average perfect circle); take the long axis An and the short axis Bn as an ellipse $\{z^S\}=C^n$ over 45 degrees ($\pi/4$) is the average angle $\{\theta_0\}$; That is, the ellipses that are perpendicular to each other take 45 degrees ($\pi/4$) as the center line of symmetry. It can be obtained that when An (perfect circle), Bn (perfect circle) and ellipse $\{z^S\}=C^n$ generate a radius error $(1-\eta^2)^K$ at ($\pi/4$), correspondingly an angle error $(1-\eta^2)^K$ is generated. Corresponding to the arc error $(1-\eta^2)^K$, the distance between A^n (perfect circle) and



(Figure 3.2 The logarithmic high power sum of the circle)

B^n (perfect circle) increases. The change of the logarithm of the circle $(1-\eta^2)^K=[0 \text{ to } 1]^K$ proves that the change of the angle of the center point of the ellipse function is not synchronized with the change of the radius and the arc. However, their circular log factors are the same.

Such as: 2+3=5, the average value (2.5); the inverse operation average value 2.5 consists of two kinds of values, 5=(2+3)=(1+4); how to control?

That is, the mean value (2.5), the logarithm of the circle $(1-\eta_1^2)^K=(3-2)/(3+2)=(1/5)$; $(1-\eta_2^2)^K=(4-1)/(3+2)=(3/5)$; corresponds to different numerical compositions. It is proved that the circular logarithm has a controlling effect.

Two asymmetry functions can be controlled by circular logarithm to become a relatively symmetrical function, and vice versa: circular logarithm plays a key role in the reciprocity calculation.

Such as: $A^n+B^n \to Z^n$ of Fermat's Last Theorem, satisfying (A^n, B^n, Z^n) integer dimension unchanged, no irrational numbers are generated,

(2.4.12) $A^n+B^n=(1-\eta_{ab}^2)^{(K=\pm1)}\cdot Z^n$,

Reverse operation; $Z^n \to (A^n+B^n)$, satisfying (A^n, B^n, Z^n) integer dimension unchanged, no irrational numbers are generated,

(2.4.13) $Z^n=(1-\eta_{ab}^2)^{(K=+1)}[Z_0^n]+(1-\eta_{ab}^2)^{(K=-1)}[Z_0^n]=A^n+B^n$;

(2.4.14) $(1-\eta^2)^K=[(A^{Kn}+B^{Kn})/z^n\}^K=[(x_0^S+y_0^S)/z_0^S\}^K=[0 \text{ to} 1]^K$;

Formulas (2.4.10)-(2.4.14) represent symmetric and asymmetric elliptic functions whose arbitrary dimension (S) is an integer, and the distance between them to form a relatively symmetrical perfect circular mean function is uniformly described by circular logarithm, which represents the cost. Ma's Last

Theorem converts inequalities of any dimension into circular logarithmic symmetry and the deterministic variation of $\{0 \text{ to } 1\}^{KS}$ within the circular logarithm. The above proofs reflect the circular logarithm condition: the reciprocity and compatibility of asymmetric functions and symmetric functions. It is suggested to be called "Fermat's Last Theorem of Relative Symmetry" reciprocity theorem. The concept of "relative symmetry" is added, which satisfies Fermat's last theorem invariant equation of integer dimension.

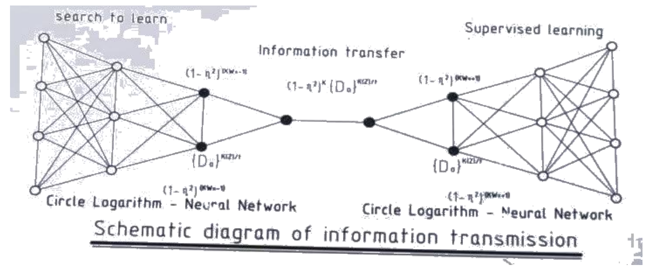
It needs to be explained here: each sub-item of the polynomial expansion is composed of the reciprocal mean function. The "one-to-one correspondence comparison principle" of set theory has the same power form to form the characteristic modulus $\{D_{0xy}{}^{KS}\}=[(1/2)\cdot\{(x_1+y_1),(x_2+y_2),\ldots,(x_S+y_S)\}]^{KS}$ element combination, there is a loopable "clock arithmetic calculation".

The clock arithmetic calculation: refers to the cyclic arithmetic calculation of all prime elements in the combined average element. For example, if the clock 12 coincides with 0, the cycle timing is (0,1,2,3...12), and 18 o'clock is 6 o'clock in the afternoon after a cycle. This rule corresponds to the "clock arithmetic calculation" of each prime element eigenmode of the closed group combination between $\{(x_1+y_1),(x_2+y_2),\ldots,(x_S+y_S)\}$, which has a controllable "Circular logarithm$(1-\eta^2)^K=\{0 \text{to} 1\}^K$ circular arithmetic".

The positive meaning of Fermat's last theorem equation of relative symmetry is to satisfy the expansion of "dimension-invariant integer equation".

(1) In the mathematical algorithm of artificial intelligence, it can be extended to any two (multiple) symmetric and asymmetric functions, unified into two sequential relative symmetry functions with a "resolution of 2", and the combination is composed of The isomorphic perfect circle mode controlled by the power function is convenient for forward and reverse combination and analysis.

(2) In computer image processing, the control conditions of search learning and supervised learning are combined by any clustering combination environment according to the "perfect circle pattern", and the "perfect circle pattern" information that becomes the temporary distortion of the image is transmitted to the output end, which is called Cognition, search and learning; the terminal is the input end, after receiving the information, the "perfect circle mode" will restore the original clustering combination environment according to the circle logarithm rule, which is called analysis and supervised learning. The "center zero" bit value remains unchanged throughout the process, effectively preventing mode collapse and mode confusion, and ensuring the stability, effectiveness, and robustness of information transmission (preventing interference from physical factors inside and outside the computer). "Perfect circle mode" effectively eliminates the combination of specific element calculations, and greatly simplifies the production of computer programs and chips, software, and hardware.



(Fig. 4 Schematic diagram of circular logarithmic information transmission)

Both search learning and supervised learning can be "center-to-boundary" or "boundary-to-center" combinatorial or analytical clustering, in 2D/3D basic four-dimensional - five-dimensional (composing a triangular network) - six-dimensional (composing a rectangular network) - Arbitrary high-dimensional (constituting three-dimensional arbitrary multi-level, multi-neuron synapse) neural network for efficient, high computing power and zero error control of dynamic information transmission and image processing.

2.5. [Theorem 5]: Perfect circle-ellipse reciprocity theorem:

Compatibility between nonlinear asymmetry of ellipse and perfect circular symmetry is a hot topic that has been widely used and important. This paper proves that Fermat's last theorem does not hold, and it becomes "Fermat's last theorem relative symmetry equation", which means that the inequality becomes a relative symmetry equation through the logarithm of the circle. called the perfect circle mode. Many mathematical problems cannot ignore the existence of the perfect circle pattern. It has many functions. It is comparable to the important basic mathematical problems of "addition, subtraction, multiplication, division, square and power". Its core point is to solve the relative symmetry problems of isomorphic consistency of "perfect circle and ellipse", "symmetry and asymmetry", and "linear and nonlinear". It is called the perfect circle-ellipse reciprocity theorem.

In the history of mathematics, the famous methods for solving elliptic functions are: Jacobi ellipse method, there are as many as 24 methods for light, homogeneous equilibrium method, inverse scattering transformation method, Backland transformation method, Lebesgue polynomial method, functional Analysis, Finite Element Analysis, …. With the development of computer algorithm theory, the solution of some special functions or nonlinear equations is shown using the principle of graphing. There are Jacobi elliptic function expansion method to solve NLS equation, MATLAB programming expansion of partial elliptic function visualization, nonlinear continuous system solution of discrete system in soliton theory, and successively extended to nonlinear difference-differential equations: tank-function method, Lie group A series of continuous and asymmetric function solving methods such as theoretical method and hyperbolic function method.

In addition, the Weierstrass function is a class of real-valued functions that are continuous everywhere and non-derivable everywhere. The Weierstrass function is a function that cannot be drawn with a pen, and the slope of each point of the function does not exist. Fractal and dense and other discrete phenomena have changed the view of mathematicians at that time on continuous functions.

In 1942, R.P. Feynman defined the path integral from the principle of "minimum action" (equivalent to the concept of circular logarithm in this paper), which is called continuous integral, which refers to the integral of a functional along a class of continuous orbits. It gives another equivalent expression of quantum mechanics, later known as the Feynman path integral, which has been cited more and more in quantum physics. For simplicity, take a quantum mechanical system with a finite number of degrees of freedom in infinity as an example. Usually the state of such a system is described by a complex-valued wave function (Ψ) that satisfies the Schrödinger equation, which becomes a new branch of infinite-dimensional analysis.

At present, the functional integration method has penetrated into the fields of fractionalized quantum field theory, elementary particle theory, stochastic mechanics, Markov field, statistical physics and turbulence theory. At the same time, functional integration is interpenetrating with group theory, Banach space geometry, differential equation theory, and stochastic process theory. All this makes it a compelling discipline in modern analytics. The content of functional integration currently mainly includes continuous integration, cylindrical measure, positive definite function, quasi-invariant measure theory, etc. Due to space limitations, it is not possible to list one by one.

The above traditional methods of various functions are summarized as elliptic function algorithms, which are all approximate calculations with complicated procedures. It involves dealing with a series of nonlinear asymmetric equation problems of "continuous and discontinuous, symmetric and asymmetric, uniform and inhomogeneous, fractal and chaotic, dense and sparse" of dynamic control. Many existing methods cannot obtain integer expansion based on "Eulerian logarithm", and have "assumed (symmetry)", "if and only if" approximate approximation calculation. Mathematically speaking, this calculation is not rigorous. How to process and analyze in a "symmetry" way is actually an approximate calculation of converting various asymmetric elliptic functions into symmetrical perfect circles in different ways.

The concept of "group combination-circular logarithm" converts various nonlinear and asymmetric functions into "eigenmodes" (median inverse mean function), optimizes the establishment of a higher-order equation, and maps it to an "irrelevant mathematical model, without Concrete element content", controllable circle logarithm - dynamic control over the range {0 to 1} on a neural network. That is to say, to find a reasonable ellipse and perfect circle reciprocal complementarity neural network, unified into the relative symmetry of linear probability-topology, integration and inclusion of various methods to replace the above traditional analysis.

2.5.1. [Prove 2.5.1] Proof that "number field K" is the logarithmic relationship between an arbitrary curve and a circle

Definition of "number field K": refers to any closed line, curve, surface, polyline, discontinuous line, etc. in the closed area, which can be: smooth and non-smooth, continuous derivable and non-derivable, uniform and non-uniform, symmetrical and Asymmetry, sparse and dense, generalized natural numbers and other characteristics such as "numerical value, space, function, group logic, ..." and other characteristics are discussed. (the same below).

Let: one-dimensional straight line: $dS/dt=(a+b)^{K(Z\pm[S]\pm(N)\pm(q=1)/t}$,
$S=\{R(\theta_a+\theta_b)\}^{K(Z\pm[S]\pm(N)\pm(q=1)/t}$,

S one-dimensional curve: S is an elliptic curve with constant length defined on the number field K, S_0 is a perfect circle defined on the number field K Uniform curve. Make S ellipse line, long axis a, short axis b and S_0 perfect circle line, radiusR_0; $a\geq b$, $(a+b)=2R_0$;

In the perfect circle mode, the curve and the angle change are synchronized, and the elliptic curve is not synchronized with the angle change $(\pm\delta S/S_0)=(\pm\eta_S)$ (arc error); $(\pm\delta\theta/\theta_0)=(\pm\eta_\theta^2)$ (arc error); $(\pm\delta r/R_0)=(\pm\eta_r^2)$ (radius error).

(1), When: $a=b=R_0$; the perfect circle and the ellipse center coincide (O) curve correspondingly coincide, the corresponding quadratic shape is (R02) rectangle, through the center point (O) as a diagonal line, the resulting The center zero angle is ($\theta 0=\pi/4$).

For a perfect circle $(1-\eta^2)^K=[(a-R_0)/(R_0-b)]^K=[(a-b)/(a+b)]^K$; $[(1-\eta_S{}^2)^K\cdot(1-\eta_\theta{}^2)^K]=1$;

the curve is synchronized with the angle change, the center point R0 or $(\theta_0=(\pi/4)$ of the line segment is a straight line, a curve, and an angle with$(\pm\eta_S{}^2)=(\pm\eta_\theta{}^2)$,with$(\pm\eta_S{}^2)=0$, $(\pm\eta_\theta{}^2)=0$ respectively. $(\pm\theta_0{}^2)=0$ is the center and expands to both sides; there are: $r_0\theta_0=S_0$;

Perfect circular surface, the zero point of the curve center:

$[\theta_0]=\{(1/4)^K((\theta_0)^K+(\varphi_0)^K)\}^K=(\pi/4)^{(K=\pm1)K(Z\pm S\pm(q=2)}$;

(2.5.1) $S=(S_0\pm\delta S)=(r_0\theta_0\pm r_0\delta\theta)/r_0\theta_0]^K\cdot S_0$
$=(1-\eta_r{}^2)(1-\eta_\theta{}^2)^KS_0=(1-\eta_L{}^2)^KS_0$;

(2.5.2) $\theta^K=[(\theta_0\pm\delta\theta)/\theta_0]^K\cdot\theta_0=(1-\eta_\theta{}^2)^K\theta_0$;

In particular, if the logarithm of a circle has different parameters for a perfect circle and an ellipse, including it in the variable does not affect the calculation. At this time, the center of the perfect circle coincides with the center of the ellipse (O), and the corresponding center zero point line is the corresponding angle $(\theta_0=\pi/4)$passing through the center point (O) as a radius line, which is called the invariant center zero point eigenmode.

(2), When: $a\neq b$; $(a+b)=2R_0$; $R_0=(1/2)(a+b)$; the center of the perfect circle corresponding to the change of the elliptic curve coincides with the center of the ellipse (O), the corresponding shape It is a (ab) rectangle, and the diagonal line passes through the center point (O). At this time, the angle corresponding to the diagonal line is $(\theta_0=\pi/4)$. The curve is synchronized with the angle change, with $(\theta_{01}=\pi/4)$ as the curve and the angle as the center point, the elliptic curve is expanded to the left and right respectively $(\pm\delta S\neq\pm\delta\theta)$The curve is not synchronized with the angle change value, but the logarithmic factor of the circle is exactly Synchronous.

(2.5.3)

$S=(S_0\pm\delta S)=(1-\eta_S{}^2)^{(Kw=+1)}(1-\eta_\theta{}^2)^{(Kw=-1)}S_0$
$=(1-\eta_R{}^2)^KR_0=(1-\eta_\theta{}^2)^K\theta_0=(1-\eta_L{}^2)^KS_0$;

For ellipse corresponding curve:

(2.5.4)

$(1-\eta_L{}^2)^K=[(a-R_0)/(R_0-b)]^K=[(a-b)/(a+b)]^K$; $[(1-\eta_S{}^2)^K=(1-\eta_\theta{}^2)^K]\neq1$;

Indicates that the center zero point of the elliptic curve and the angle is expanded to the two sides by the characteristic modulus R_0 or $(\theta_0=\pi/4)$and its values are not synchronized$(\pm\delta S\neq\pm\delta\theta)$; but the corresponding circular logarithmic factor $(\pm\delta\eta_S=\pm\delta\eta_\theta)$ symmetric expansion of synchrony.

Including:

(A), $[(1-\eta_S{}^2)=(1-\eta_\theta{}^2)]^{(K=-1)}$ center zero point R_0 tends to a, (K=-1) $(1+\delta\eta_S)R_0=(1+\delta\eta_\theta)\theta_0$;

(B), $[(1-\eta_S{}^2)=(1-\eta_\theta{}^2)]^{(K=+1)}$ center zero point R_0 tends to b, (K=+1) $(1-\delta\eta_S)R_0=(1-\delta\eta_\theta)\theta_0$;

(3), When: $a\neq b$; $(a+b)=2R_0{}^{(-1)}\leq2R_0{}^{(+1)}$; $R_0{}^{(-1)}=(1/2)^{(-1)}(a^{(-1)}+b^{(-1)})^{((-1)}$;

$(1-\eta_S{}^2)^K=R_0{}^{(-1)}/R_0{}^{(+1)}$ It is called the curvature center or gravity center point, and the curve focus point.

At this time, the center of the perfect circle coincides with the center of the ellipse (O), and the corresponding shape is a rectangle. The diagonal line passes through the center point (O), and the angle corresponding to the diagonal line is$(\theta_{01}=\pi/4)$. The curve is synchronized with the angle change, taking $(\theta_{01}=\pi/4)$ as the center point of the curve and the angle, and expands to the left and right $(\pm\delta S=\pm\delta\theta)$. The intersection of the original circle and the ellipse is the center point corresponding to the square diagonal $(\theta_0=\pi/4)$ becomes the center point corresponding to the rectangle diagonal$(\theta_{03}\neq\pi/4)$,$\theta_{03}=(1-\eta_L{}^2)\theta_0$; still take the intersection of this perfect circle and the ellipse (the diagonal of the rectangle, and the rectangular coordinates are $\theta_{03}=(1/2)(\theta_a+\theta_b)=(1-\eta_L{}^2)\theta_0$; at this time, the ellipse ab corresponds to two respectively Radius a, b circle, the radius of the elliptic curve changes in the (ab) curve ring (Figure 3)

(2.5.5)

$(1-\eta_S{}^2)^K=(a-R_0)/R_0=(R_0-b)/R_0\neq1$;

$a=(1+\eta_S)^KR_0$; $b=(1-\eta_S)^KR_0$;

(2.5.6)

$(1-\eta_\theta{}^2)^K=(\theta_a-\theta_{02})/\theta_{02}=(\theta_{02}-\theta_b)/\theta_0\neq1$;

$\theta_a=(1+\eta_\theta)^K\theta_{03}$; $\theta_b=(1-\eta_\theta)^K\theta_{03}$;

(2.5.7) $(1-\eta_L{}^2)=(1-\eta_R{}^2)(1-\eta_\theta{}^2)^K=(1-\eta_{R\theta}{}^2)^K\leq1$;

(2.5.8) $(1-\eta_L{}^2)=(1-\eta_R{}^2)=(1-\eta_\theta{}^2)^K=(1-\eta_{R\theta}{}^2)^K\leq1$;

$(\pm\eta_S)=(\pm\eta_\theta)$ and $(\pm\delta S=\pm\delta\theta)$, ellipse angle, arc corresponding $(1-\eta_L{}^2)\neq1$, perfect circular angle, arc corresponding $(1-\eta_L{}^2)=1$. That is to say, with$(\theta_0=\pi/4)$ and $(S_0=\pi/4)$ as the standard values, the center point is expanded to the two sides to calculate the logarithm of the circle.

Curve: $S_L=(1-\eta_L)^KS_0$; curve angle $\theta_L=(1-\eta_L)^K\theta_0$;

Straight line:$S_L=(1-\eta_L)^KS_0$; straight line angle $\theta_L=(1-\eta_L)^K\theta_0=0$; angle intersection point is infinite;

The central zero point is asymmetrically distributed in a curve, a straight line or an arbitrary curve, and it can also be an "inflection point or inflection point". If the probability is equal to "1", and the logarithm of the circle satisfies the symmetrical distribution, the symmetrical expansion of the two sides of the logarithm of the circle at the center zero point can be obtained.

The center zero point is in a curve, a straight line or any point, and it can also be an "inflection point, a vertex". The probability is equal to "1" unchanged. The symmetry expansion of the logarithmic two sides of the center zero point circle can be obtained.

2.5.2. [Prove 2.5.2] "Number field K^2" is the

logarithmic relationship between any surface and circle.

Definition "Number field K^2": refers to any plane, curved surface, curved surface, polyline surface, discontinuous surface, etc. in a closed area, which can be: smooth and non-smooth, continuous derivable and non-derivable, uniform and non-uniform, symmetrical and Asymmetry, sparse and dense, generalized natural numbers and other characteristics such as "numerical value, space, function, group logic, ..." and other characteristics are discussed. (the same below).

Let: the two-dimensional plane $S_L^2=(R^2(\theta\varphi))^{K(Z\pm[S]\pm(q=2)}$ is an ellipse plane, curved surface, and torus defined on the number field K^2 of which the length of an ellipse boundary curve is constant The two-dimensional surface of , S_{0L}^2 is a two-dimensional surface of a perfect circle and uniform plane, curved surface, and torus defined on the number field K^2. In particular, the logarithm of a circle has no effect on the parameters that are different between a perfect circle and an ellipse.

As an S elliptic surface, the long curve axis a, the short curve axis b, the radius R_0; $a\geq b$, $(a+b)=2R_0$; $(ab)^K$ is the ellipse long and short axis surface, the average radius $\{R_0\}^{(K=\pm1)}=[(1/2)^K(a^K\pm b^K)]^{K,}$; The angle corresponding to the ellipse is $\sum(\theta+\varphi)=2\pi=8\{\theta_0\}$;

Average value of perfect circle angle : $\{\theta_0\}^{(K=\pm1)}=[(1/2)^K(\theta_a{}^K\pm\theta_b{}^K)]^K=(\pi/4)^{(K=\pm1)}$;

Perfect circular surface, the zero point of the curve center:
$[\theta_0]=\{(1/2)^K((\theta_0)^K+(\varphi_0{}^K)\}^K=(\pi/4)^{(K=\pm1)K(Z\pm S\pm(q=2)}$;

(1), Take the center zero point as the intersection to the axis angle:

(2.5.9) $\theta_L=(\theta+\varphi)=(1-\eta_{\theta L}{}^2)^K\theta_{0L}$;

(2.5.10) $\theta_L=(1-\eta_\theta{}^2)^K\theta_0$:

(2), Take the center zero point as the intersection point to the axis, arc length:

(2.5.11) $S_L=(R(\theta+\varphi))=(1-\eta_L{}^2)^K S_{0L}$;

(2.5.12)
$(1-\eta_S{}^2)^K=[(a-b)/(a+b)]^K=[(\theta_a-\theta_b)/(\theta_a+\theta_b)]^K$;

(3),Take the center zero point as the intersection point to the center point of the surface and the arc surface:

(2.5.13) $S^2=(R^2(\theta+\varphi))=(1-\eta_{0L}{}^2)^K S_{0L}$;

(2.5.14)
$S_L{}^2=\theta_L(ab)=(1-\eta_{ab}{}^2)(1-\eta_\theta{}^2)^K\theta_0R_0{}^2=(1-\eta_L{}^2)\pi R_0{}^2$,

(2.5.15)
$(1-\eta_S{}^2)^K=(1-\eta_L{}^2)^{(Kw=+1)}\cdot(1-\eta_\theta{}^2)^{(Kw=-1)}$;

$\theta_{0a}=\theta_{0L}+\delta\theta=(1-\eta_{\theta L}{}^2)^K(\theta_{0L}+\delta\theta_{0La})$(the angle corresponding to the short curve axis),

$\theta_{0b}=\theta_{0L}+\delta\theta=(1-\eta_{\theta L}{}^2)^K(\theta_{0L}+\delta\theta_{0Lb})$ (the angle corresponding to the long curve axis),

$(\pm\delta\theta_{0La}\neq\pm\delta\theta_{0Lb})$corresponds to$(\pm\eta_{0La})=(\pm\eta_{0Lb})$,

Where: $\{R_0\}^{(K=+1)}=[(1/2)^{(K=+1)}(a^{(K=+1)}\pm b^{(K=+1)})]^{(K=+1)}$ is an ellipse Line, surface, positive mean function;

$\{R_0\}^{(K=-1)}=[(1/2)^{(K=-1)}(a^{(K=-1)}\pm b^{(K=-1)})]^{(K=-1)}$is an elliptical loop line face, inverse mean function;

The whole ellipse angle (2π) : $(\theta_0\varphi_0)=\{\theta_L\}^{K(Z\pm S\pm(q=1)}=8\cdot(1-\eta_{\theta L}{}^2)^K\theta_{0L}{}^{K(Z\pm S\pm(q=1)}$;

Elliptic curve: $S=\{X_L\}^{K(Z\pm S\pm(q=2)}=(R\cdot\theta\varphi)=(1-\eta_L{}^2)^K(\theta_0R_0)^{K(Z\pm S\pm(q=1)}$;

Elliptic surface: $S^2=\{X_L\}^{K(Z\pm S\pm(q=2)}=(R^2\cdot\theta\varphi)=(1-\eta_L{}^2)^K(\theta_0R_0)^{K(Z\pm S\pm(q=2)}$;

Ellipsoid: $S^3=\{X_L\}^{K(Z\pm S\pm(q=3)}=(R^3\cdot\theta\varphi\psi)=(1-\eta_L{}^2)^K(\theta_0R_0)^{K(Z\pm S\pm(q=3)}$;

2.5.3. [Prove 2.5.3] "Number field K^3" is the proof of the logarithmic relationship between an arbitrary surface body and a circle

Definition of "number domain K^3": refers to any plane body, curved surface body, curved surface body, polyline surface body, discontinuous surface body, etc. in a closed area, which can be: smooth and non-smooth, continuous derivable and non-derivable, uniform and non-uniform , symmetry and asymmetry, sparse and dense, generalized natural numbers and other characteristics of "numerical value, space, function, group logic, ..." and other characteristics as the content of the object to discuss. (the same below).

Suppose: an ellipsoid defined on the number field K^3, an ellipsoid with constant spherical area, and $S_0{}^3$ is a uniform curve of a perfect sphere $R_0{}^3$ defined on the number field K^3.

$S^3=(R^3\theta\varphi\psi)^{K(Z\pm[S]\pm(q=3)}=(R^3(\theta_{0L}))^{K(Z\pm[S]\pm(q=3)}$, $(\theta_{0ab})=(\theta\varphi)$; $(\theta_{0L})=(\theta\varphi\psi)$,

$S^3=S^2R_c=(R_{ab}{}^2(\theta_{0ab}))^{K(Z\pm[S]\pm(q=2)}\cdot R_c$, $(\theta_{abc})=(\theta\varphi\psi)$, $(\theta_{0L})^3=(\theta_{0abc})^3=(\theta\varphi\psi)$;

$S_0{}^3=S_0{}^2R_c=(R_{ab}{}^2(\theta_{0ab}))^{K(Z\pm[S]\pm(q=2)}\cdot R_{0c}$, $(\theta_{0abc})=(\theta_0\varphi_0\psi_0)=(\theta_{0L})^3=(\theta_{0abc})^3$;

S^3 ellipsoid axis and coordinate angle: axis a corresponds to $X\theta_a$, axis b corresponds to $Y\varphi_b$, and normal axis Zc corresponds to ψ_c,

Ellipse sphere radius R_0 ; $R_0=(1/3)(a+b+c)$; $a\geq b\geq c\geq 0$;

The angle between the a plane of R_0 and the coordinate **x**-axis:

$\theta_a=\theta_{0L}+\delta\theta=(1-\eta_{\theta ab}{}^2)^K(\theta_{0L})$, $\theta_{0L}=(\pi/4)$,

The angle between the b plane of R_0 and the coordinate **y**-axis:

$\varphi_b=\varphi_{0L}-\delta\varphi=(1-\eta_{\varphi ab}{}^2)^K(\varphi_{0L})$,$\varphi_{0L}=(\pi/4)$,

The angle between the ab plane of (ab) of R_0 and the **z**-axis of the c-axis coordinate:

$\psi_c=\psi_{0L}\pm\delta\psi=(1-\eta_{\psi L}{}^2)^K\psi_{0L}$,$\psi_{0L}=(\pi/4)$,

Volume of a perfect sphere:

$S_0{}^3=(R_0{}^3,\theta_0\varphi_0\psi_0)$;$(\theta_{0abc}=(1-\eta_L{}^2)(\theta_{0L})R_0{}^3$; $(1-\eta_L{}^2)=1$;

Surface volume:

$S_L{}^3=abc(\theta_L)=(1-\eta_L{}^2)^K(\theta_{0L})R_0{}^3$, $(1-\eta_L{}^2)\neq1$;

The intersection of the perfect sphere and the ellipsoid sphere is an ellipse,

$S_L^2=R_{ab}^2(\theta_{0ab})=(1-\eta_L^2)^K(\theta_{0ab})R_{ab}^2$。

Three-dimensional solid basic ellipsoid equation:

Known: three-dimensional generator K(Z±S±(q=3) ; ; mean function $\{R_0\}$; boundary condition (volume) $D=\{(^{K3}\sqrt{abc})\}^{K(Z\pm S\pm(q=3)}$;

Discriminant: $(1-\eta_L^2)^K=\{(^{K3}\sqrt{abc})/R_0\}^K\geq 0$;

(2.5.16)
$$Ax^{K(Z\pm S\pm(q=0)}\pm Bx^{K(Z\pm S\pm(q=1)}+Cx^{K(Z\pm S\pm(q=2)}+D$$
$$=\{x\pm(^{K3}\sqrt{abc})\}^{K(Z\pm S\pm(q=3)}$$
$$=\{x_0\pm S0\}^{K(Z\pm S\pm(q=3)}$$
$$=[(1-\eta_L^2)^K(0,2)S_0]^{K(Z\pm S\pm(q=3)};$$

(2.5.17) $S_L^{K(Z\pm S\pm(q=3)}=(\theta_{abc})abc=(1-\eta_S^2)(1-\eta_{\theta L}^2)^K(\theta_{0L})R_0^3$; $(\theta_{0L})=(\theta_{0abc})$

(2.5.18) $(1-\eta_L^2)^K=(1-\eta_L^2)^{(Kw=+1)}\cdot(1-\eta_L^2)^{(Kw=-1)}$; (asymmetric elliptic function)

The relationship between the ellipse function radius R_{abc} and the perfect circle function R_{0abc}:

(2.5.19) $R_{abc}=(1-\eta_L^2)^K R_{0abc}$;

In the formula:$(1-\eta_L^2)^K$ and the axes corresponding to **X,Y,Z** (**I,J,K** or **L,M,N**) are expanded in three plane directions, involving the description of the logarithm of the circle and the coordinates. For the distance from the center point of an elliptic curve, surface, and body to any point in the radial direction of the curve, surface, and body, it is distributed according to the logarithm of the circle $(1-\eta_L^2)^K$, which is called "topological circle logarithm".

2.6, circle logarithm and three-dimensional solid (plane, curved surface, multi-dimensional) Cartesian coordinates X,Y,Z（I,J,K and L,M,N）

The circle logarithm itself is an irrelevant mathematical model, a relatively variable constant of independent coordinates, and sometimes the spatial relationship between the topological changes itself, describing the relationship between the circle logarithm and the three-dimensional Cartesian coordinates,

Three-dimensional Cartesian coordinates select Cartesian coordinates, with axes **X,Y,Z** （ **I,J,K** or **L,M,N**）The coordinates corresponding to the normal plane; [zy],[MN]=**i** (angle φψ)； [zx],[NL]=**J** (angle θφ); [xy],[LM]=**K**(angle θψ);

Let: $\{S^3\}^{(K=\pm1)}=[^{K3}\sqrt{xyz}]^{(K=\pm3)}=(R^3\theta\varphi\psi)]^K$, $\{S_0^3\}^{(K=\pm1)}=(R^3\theta_0\varphi_0\psi_0)]^K$,

$\{R_{0[xyz]}\}^{(K=\pm1)}=(1/3)^K(x^K+y^K+z^K)\}$;

$\{R_{0[\theta\varphi\psi]}\}^{(K=+1)}=(1/3)^K((x\theta_0)^K+(y\varphi_0)^K+(z\psi_0)^K)\}$;

$[\theta_0]=(1/3)^K[(\theta_0^K\pm\varphi_0^K)^K+(\varphi_0^K\pm\psi_0^K)^K+(\psi_0^K\pm\theta_0^K)^K]^K$;

2.6.1, elliptical real spherical coordinates:

Let: $\{S^3\}^{(K=+1)}=(R^3\theta\varphi\psi)]^{(K=+1)}$, $\{S_0^3\}^{(K=+1)}=(R_0^3\theta_0\varphi_0\psi_0)]^{(K=+1)}$,

$\{R_0^{(K=+1)}=(1/3)^{(K=+1)}(x^{(K=+1)}+y^{(K=+1)}+z^{(K=+1)})\}$

normal plane corresponding **X,Y,Z**（**I,J,K** or **L,M,N**）Cartesian coordinates, respectively, have spherical coordinates: (K=+1) spherical convex function (K=-1) spherical concave function.

(a), the ellipse plane R^2=[**xy**], the angle with the x-axis and the y-axis is (θφ), the perfect circle plane $R_0^2=[x_0y_0]$, the angle is$(\theta_0\varphi_0)$, and the normal plane corresponds to the coordinate K;

(2.6.1) $[xy,(R^2\theta\varphi)]=[(1-\eta_{[xy]}^2)^{(K=\pm1)}(R_0^2\theta_0\varphi_0),(1-\eta_{[xy]}^2)^{(K=\pm1)}(R^2\theta_0\varphi_0)]$ corresponds to the normal direction**K**;

(b), the ellipse plane R^2=[**yz**], the angle with the y-axis and the z-axis is (φψ), the perfect circle plane $R_0^2=[\mathbf{y_0z_0}]$, the angle is $(\varphi_0\psi_0)$, and the normal plane corresponds to the coordinate I;

(2.6.2) $[yz,(R^2\varphi\psi)]=[(1-\eta_{[yz]}^2)^{(K=\pm1)}(R_0^2\varphi_0\psi_0),(1-\eta_{[yz]}^2)^{(K=\pm1)}(R^2\theta_0\psi_0)]$ corresponds to the normal direction **I**;

(c), elliptical plane R^2=[**zx**], the angle with the z-axis x-axis is (ψθ), the perfect circle plane $R_0^2=[\mathbf{z_0x_0}]$, the angle is $(\psi_0\theta_0)$, the normal direction

The plane corresponds to the coordinate J

(2.6.3) $[zx,(R^2\psi\theta)]=[(1-\eta_{[zx]}^2)^{(K=\pm1)}(R_0^2\psi_0\theta_0),(1-\eta_{[zx]}^2)^{(K=\pm1)}(R^2\psi_0\theta_0)]$ corresponds to the normal direction**J**;

Ellipsoid (non-Euclidean surface)$(R^3\theta\varphi\psi)]^{(K=+3)}$circle logarithmic coordinates

(2.6.4) $(1-\eta^2)^{(K=\pm1)}=(1-\eta_{[yz]}^2)^{(K=\pm1)}\mathbf{I}+(1-\eta_{[zx]}^2)^{(K=\pm1)}\mathbf{J}+(1-\eta_{[xy]}^2)^{(K=\pm1)}\mathbf{K}=\{0\text{ to }1\}$;

2.6.2**, Ellipsoid torus coordinates:**

Let : $\{S^3\}^{(K=-1)}=(R^3\theta\varphi\psi)]^{(K=-1)}$, $\{S_0^3\}^{(K=-1)}=(R_0^3\theta_0\varphi_0\psi_0)]^{(K=-1)}$,

$\{R_0^{(K=-1)}=(1/3)^{(K=-1)}(x^{(K=-1)}+y^{(K=-1)}+z^{(K=-1)})\}$ normal plane corresponding **X,Y,Z** Cartesian coordinates, respectively: (K=-1) torus convex function; (K=+1) torus concave function.

(a), The elliptical ring plane R^2=[**xy**], the angle with the x-axis and the y-axis is (θφ), the perfect circle plane $R_0^2=[x_0y_0]$, the angle is ($\theta_0\varphi_0$), and the normal plane corresponds to the coordinate K;

(2.6.5) $[\mathbf{xy},(R^2\theta\varphi)]=[(1-\eta_{[xy]}^2)^{(K=\pm1)}(R_0^2\theta_0\varphi_0),(1-\eta_{[xy]}^2)^{(K=\pm1)}(R^2\theta_0\varphi_0)]$corresponds to the normal direction **K**;

(b), The elliptical ring plane R^2=[**yz**], the angle with the y-axis and the z-axis is (φψ), the perfect circle plane $R_0^2=[y_0z_0]$, the angle is $(\varphi_0\psi_0)$, and the normal plane corresponds to the coordinate i;

(2.6.6) $[\mathbf{yz},(R^2\varphi\psi)]=[(1-\eta_{[yz]}^2)^{(K=\pm1)}(R_0^2\varphi_0\psi_0),$

$(1-\eta_{[yz]}^2)^{(K=\pm1)}(R^2\theta_0\psi_0)]$ corresponds to the normal direction **I**;

(c), The elliptical ring plane R^2=[**zx**], the angle with the z-axis and the x-axis is (ψθ), the perfect circle plane $R_0{}^2$=[$\mathbf{z_0x_0}$], the angle is ($\psi_0\theta_0$), the method

The plane corresponds to the coordinate J;

(2.6.7) [**zx,**($R^2\psi\theta$)]=[$(1-\eta_{[zx]}{}^2)^{(K=\pm1)}(R_0{}^2\psi_0\theta_0)$, $(1-\eta_{[zx]}{}^2)^{(K=\pm1)}(R^2\psi_0\theta_0)$]corresponds to the normal direction**J**; $\varphi_0\psi_0\theta_0$

Elliptical spherical surface (doughnut surface) $(R_0{}^3\ \varphi\psi\theta)]^{(K=+3)}$ circle logarithmic coordinates

(2.6.8)

$(1-\eta^2)^{(K=\pm1)}=(1-\eta_{[yz]}{}^2)^{(K=\pm1)}\mathbf{I}+(1-\eta_{[zx]}{}^2)^{(K=\pm1)}\mathbf{J}+(1-\eta_{[xy]}{}^2)^{(K=\pm1)}\mathbf{K}$={0 to1};

The ratio of elliptic function to perfect circle function:

(2.6.9)

$(1-\eta^2)^{(K=\pm1)}=[\{S\}/\{S_0\}]^{(K=\pm1)}=[\{R(\theta)\}/\{R_0(\theta_0)\}]^{(K=\pm1)}$
$=[\{S\}/\{S_0\}]^{(K=\pm2)}=[\{R^2(\theta\varphi)\}/\{R_0{}^2(\theta_0\varphi_0\psi_0)\}]^{(K=\pm1)}$
$=[\{S\}/\{S_0\}]^{(K=\pm3)}=[\{R^3(\theta\varphi\psi)\}/\{R_0{}^3(\theta_0\varphi_0\psi_0)\}]^{(K=\pm1)}$;

Among them:(K=+1) spherical convex function; (K=-1)spherical surface function;(K=±1) inflection point surface function; three-dimensional three-dimensional two-dimensional plane, the normal plane of the curved surface corresponds to [yz]=**I,**[zx]=**J,**[xy]=**K** Cartesian coordinates,

In particular, under the condition of a perfect circle, the changes of the central angle, the arc and the curved surface are synchronized, and the central zero value corresponding to the central angle is constant$(\pi/4)^{(K=\pm1)K(Z\pm S\pm(q=1,2,,3\ldots)}$ adapts to any dimensional space.

(2.6.10)

$[\theta_0]=(1/6)^K[(\theta_0{}^K\pm\varphi_0{}^K)^K+(\varphi_0{}^K\pm\psi_0{}^K)^K+(\psi_0{}^K\pm\theta_0{}^K)^K]^K$
$=\{(1/3)^K((\theta_0)^K+(\varphi_0)^K+(\psi_0)^K)\}^K=\{(1/2)^K((\theta_0)^K+(\varphi_0)^K)\}^K$
$=(\pi/4)^{(K=\pm1)K(Z\pm S\pm(q=1,2,,3\ldots)}$;

For the center point of the ellipsoid to the average radius of the ellipsoid boundary $\{R_0\}^{(K=+1)}=(1/2)\{R_a+R_b\}^{(K=+1)}$, and the center point of the circular ring surface (doughnut surface) Respectively go to the center point of the circular ring surface (doughnut surface) $\{R_0\}^{(K=+1)}=(1/2)\{R_a+R_b\}^{(K=+1)}$outer doughnut surface; inner doughnut surface Distance radius $\{R_0\}^{(K=-1)}=(1/2)\{R_a-R_b\}^{(K=-1)}$ according to circle logarithm $(1-\eta_L)^{(K=\pm1)}$={0to1}Simultaneous expansion, called "topology of homeomorphic closed curves, circular surfaces and toroidal rings".

The central zero point is asymmetrically distributed in a curve, a straight line or an arbitrary curve, and it can also be an "inflection point or inflection point". If the probability is equal to "1", and the logarithm of the circle satisfies the symmetrical distribution, the symmetrical expansion of the two sides of the logarithm of the circle at the center zero point can be obtained.

2.6.3, Three-dimensional Cartesian coordinates of ellipsoid-torus topologically inversely complementary:

The ellipse-circle has reciprocity and complementarity, which can correspond to each other or complement the common three-dimensional rectangular coordinates.

(2.6.11)

$(1-\eta^2)^K=(1-\eta^2)^{(K=+1)}$(ellipse)$+(1-\eta^2)^{(K=-1)}$(circle)={0 to 1};

(a), the topology of the elliptic function $(1-\eta^2)^{(K=+1)}\{R_0\}^{(K=+1)}$ is that the circle radius {R0(K=+1)} shrinks homeomorphically to the center point (Kw=+1), or the center point is homeomorphic, the radius of the circle expands outward from the boundary (Kw=-1), the topological linear change or balance (Kw=±1) keeps the boundary shape unchanged, and forward and reverse topology is performed at the boundary (K=±0); When$(1-\eta^2)^{(K=-1)}\{R_0\}^{(K=-1)}\to0$ of any ring, it becomes a perfect circle whether it shrinks inward or expands outward.

(2.6.12)

$(1-\eta^2)^{(K=+1)}=(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=-1)}+(1-\eta^2)^{(Kw=\pm0)}$={0 to 1};

(b), the topology of the ring function $(1-\eta^2)^{(K=-1)}\{R_0\}^{(K=-1)}$ has two topological phenomena, which are:

(1), The average radius of the ring $\{R_0{}^{(KW=-1)}\}$ shrinks towards the center point homeomorphically $\{R_0{}^{(K=+1)}\}$, or the center point of the homeomorphism does not move, and the radius of the circle expands outward (Kw=-1), keep the topological linear change or balance of the boundary shape unchanged (Kw=±1), forward and reverse topology at the boundary (K=±0); $(1-\eta^2)^{(K=-1)}\to0$ of any ring , whether it shrinks inwards or expands outwards, it becomes a perfect circle.

(2), The average radius of the ring $\{R_0{}^{(KW=-1)}\}$ shrinks to the central axis homeomorphically (Kw=+1), or the central axis does not move homeomorphically, and the circle radius expands outward from the boundary (Kw=-1), keep the topological linear change or balance of the boundary shape unchanged (Kw=±1), forward and reverse topology at the boundary (Kw=±1); $(1-\eta^2)^{(K=-1)}\to0$ When it is 0, it becomes a perfect circle whether it shrinks inwards or expands outwards.

(3),Topology of the juxtaposed torus (Mobius strip, Klein flask, New knot) function$(1-\eta^2)^{(K=-1)}\{R_0\}^{(K=-1)}$. Among them, the nodes (intersections, transition points, and center points of the connecting line between the center points) that define the juxtaposed rings (Mobius strips, Klein flasks, and new knots) are the center zero points. Asymmetric space, converted to two symmetrical perfect circle patterns or one symmetrical right circle pattern.

(2.6.13)

$(1-\eta^2)^{(K=\pm1)}=(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=-1)}+(1-\eta^2)^{(Kw=\pm0)}=\{0$ to $1\}$;

Formula (2.6.13) When $(1-\eta^2)^{(K=-1)}\to0$ of any juxtaposed ring (Mobius strip, Klein flask, New knot) function, whether it is inward contraction or outward expansion All become perfect circles.

2.7. [Theorem 6]: Eigenmode (positive and negative mean function) theorem

In the 20th century, the number theorist Eichler proposed the modular form (called circular logarithm in this paper), which has extraordinary symmetry, and can be translated, exchanged, reflected and infinitely rotated to maintain symmetry. And a conjecture of Taniyama Feng and Shimura Goro: the E-sequence of an elliptic equation (called the characteristic modulus in this paper) must correspond exactly to the M-sequence of a modular form (called the circular logarithm in this paper). This is called the modular formalization of the elliptic equation. Overcome the gap between the ellipse equation and the perfect circle equation. These are exactly the characteristics described in this paper "Group Combination - Circle Logarithm". The cyclic "clock calculation" feature with eigenmodes and a controllable isomorphic circular logarithmic-neural network for $\{0$ to $1\}^K$ numerical analysis and cognition.

The so-called "relative symmetry" is that once the circular logarithm is withdrawn, the two functions revert to asymmetry. The so-called "clock calculation" is to establish such a clock in the form of a cyclic point where 12 o'clock coincides with 0 o'clock. Mathematical calculation is within 12, such as 5+6=11 (hour), if it exceeds 12, it is the number of hours minus 12, such as 13+5=18-12=6 (hour). The characteristic die has a finite linearly additive mean, consisting of a base value (similar to Clock 12). The combined values $\{x_1,x_2,...,x_S\}$ coincide from the start point to the end point, and between {0 and 1}, the circular logarithmic factor $(\eta_1,\eta_2,\ldots,\eta_S)^K$is calculated cyclically.

Traditionally known as the infinite inequality, the uncertainty of "infinity/infinitesimal, infinity/infinity, infinity/infinity, infinitesimal/infinitesimal". In fact, the ratio of any of the above values is a deterministic circular logarithmic value for the principle of relativity. The "infinite divergence function" can be controlled by K=(-1) in the property function K=(+1,±1±0,-1) for convergence control, K=(±1) for balance control, K=(±0) Perform forward and reverse conversion control or rotational control. The eigenmode $\{X_0\}$ corresponding to the logarithm of the circle is the eigenmode of the invariant (median inverse mean function). Together they form a neural network that adapts to infinity or infinitesimal.

In particular, the eigenmode (positive and negative mean function) becomes a node in the neural network, the node element becomes the neuron synapse, and the logarithm of the circle becomes the connecting line between the ring and the radial (vertical and horizontal) of the neural network, and multi-directional (polysynapses) synchronized rapid information transfer.

2.7.1. [Prove 2.7.1] Combinatorial Theorem

Yang Hui in 1303-Pascal in 1664 proposed the triangular distribution of element combination coefficients, which involves infinite element regularization coefficients to form eigenmodes (positive and inverse mean functions)$\{X_0\}^{(infinity)/t}$, which is of great significance. In the principle of relativity, a stable, controllable circular logarithm-neural network $(1-\eta^2)^K=\{(^{KS}\sqrt{x})/X_0\}^{(infinity)/t}$expansion.

Prove here why polynomial coefficients contain eigenmodulus values?

In Newton's binomial, Taylor series, Fourier series, and series of arbitrary functions, the term order is the change in the number of non-repetitive combinations (term sequence) of elements in the function. This "change in the number of combinations" is called "polynomial" Combination coefficient", the calculus equation is called "order value".

The polynomial combination coefficient is combined with the sub-item combination coefficient form to generate an invariant eigenmode (median inverse mean function), which represents an integer power function with a change in the combination form and a constant base value of the eigenmode. At the same time, the polynomial coefficients (A, B, C, ..., P) contain the contents of "eigenmodes".

Definition of closedness: Instructing the composition and operation of equations, other values, elements, and signals are not allowed to enter in supervised learning. Computer algorithms are called robustness. Unit features:

Multiplication combination: any finite: $\{X\}^{K(Z\pm S\pm N\pm(q=0))/t}=[^{KS}\sqrt{(x_1x_2\ldots x_S)^K}]^{K(Z\pm S)/t}$, combination coefficient=1 ;

Continuous addition combination: arbitrary finite: linear $\{X\}^{K(Z\pm S\pm N\pm(q=1))/t}=[(x_1^K+x_2^K+\ldots+x_S^K)]^{K(Z\pm S)/t}$, combination coefficient: $(1/S)^K$;

Element combination coefficient: arbitrary finite: nonlinear $\{X\}^{K(Z\pm S\pm N\pm(q=1))/t}=[(\prod x_1^K+\prod x_2^K+\ldots+\prod x_S^K)]^{K(Z\pm S)/t}$, Combination coefficient : $(1/C_{(S\pm N\pm q)})^K$; $(1/C_{(S\pm N\pm q)})=(P-1)(P-0)!/(S-1)(S-1)!$。

Among them:K：(K=+1,±0,-1) represents function or element property; Z: represents infinite element; S:

represents dimension, (Z±S)/t represents any finite element combination P in infinity : indicates the order of items, q: indicates the number of non-repetitive combinations of elements, (±N) indicates the calculus order value.

Let: in the infinite arbitrary finite S region of the system, any finite element: $\{X\}^{K(Z\pm S)/t}=\{x_1x_2x_3\ldots x_Lx_Mx_S\}^{K(Z\pm S)/t}$; multiple elements are not repeatedly combined, resulting in finite terms Combinations and combination coefficients with non-repetitive elements; wherein the symmetry of the combination {x} corresponds to {D}, {x_1 corresponds to x_Q}, {x_2 corresponds to x_L}, {x_3 corresponds to x_M}, . This results in the symmetry of the regularized combination coefficients. That is:$(1/C_{(S\pm N+q)})=(1/C_{(S\pm N-q)})$; sum of coefficients : $\sum(1/C_{(S\pm N\pm q)})^K=\{2\}^{K(S\pm N\pm q)}$;

Define (K=+1) as a positive power function, (K=±1) as a balance power function, (K=±0) as a positive and negative conversion power function, and (K=-1) as an inverse (negative) power function. In particular, the "sum of reciprocals" of the Riemann function is converted into "sum of reciprocals and then reciprocal", becoming an "inverse (negative) power function" without losing the generality of the function. This approach is to solve the critical value of the Riemann function (ie, the central zero point theorem) {1/2}.

(1), [0-0 combination]: Indicates the continuous multiplication combination of all (S) elements, and the combination coefficient is (1)K; in the finite polynomial, it is fixed as the first sub-item.

(2.7.1)

$\{X\}^{K(Z\pm S\pm(q=0)/t}=\{x_1x_2x_3\ldots x_Lx_Mx_S\}^{K(Z\pm S\pm(q=0)/t}$;

(2), [1-1 combination]: means "one and one" combination: combination coefficient: $(1/S)^K$; average value $\{X_0\}$.

(2.7.2)

$\{X\}^{K(Z\pm S\pm(q=1)/t}=\{x_1x_2x_3\ldots x_Lx_Mx_S\}^{K(Z\pm S\pm(q=1)/t}$;

called linear (first-order) combination. Adapt to negative (first-order differential), axis, granularity function, curve {Rθ},, unknown circle logarithm$(1-\eta_{[x]}^2)^{(K=-1)}$, …, $(1-\eta_{[z]}^2)^{(K=-1)}$.

(3), [2-2 combination]: means "two and two" combination: combination coefficient: $(1/S)^K$; average value

(2.7.3)

$\{X_0^2\}^{K(Z\pm S\pm(q=-2)/t}$
$=(1/(S-0)(S-1))^K\{(x_1x_2)^K+(x_1x_2)^K+\ldots+(x_Lx_M)^K+(x_Mx_S)^K\}^{K(Z\pm S\pm(q=1)/t}$,

It is called nonlinear (second-order) combination. Adapt to negative (second-order differential), plane, surface coordinates, wave function, surface {R2θψ},

The unknown circle logarithm$(1-\eta_{[yz]}^2)^{(K=-1)}$, …, $(1-\eta_{[yx]}^2)^{(K=-1)}$ represents.

(4), [3-3 combination]: means "three and three" combination: combination coefficient: [(2/(S-0)(S-1)(S-2)]K; mean:

(2.7.4)

$\{X_0^3\}^{K(Z\pm S\pm(q=-3)/t}=[(2/(S-0)(S-1)(S-2)]^{(K=-1)}\{\prod_{(S\pm N\pm q=3)}(x_1x_2x_3)^K+\ldots\}^{(K=-1)}$, called triple generator combination. Adapt to negative (third-order differential), reverse spherical coordinate spherical function $\{R^3\theta\psi\varphi\}^{(K=-1)}$,

Unknown circle logarithm $(1-\eta_{[i]}^2)^{(K=-1)}\ldots(1-\eta_{[k]}^2)^{(K=-1)}$.

(5), [p-p combination]: means "P and P" combination: combination coefficient: (1/S)K;

(2.7.5)

$\{X_0^P\}^{K(Z\pm S\pm(q=-P)/t}$
$=[(P-1)(P-0)!/(S-1)(S-1)!]^K\{\prod_{(S\pm N\pm q=(p-1))}(x_1x_2x_3\ldots x_Qx_Lx_M)^K+\ldots\}^K$,

It is called nonlinear (P-order) high-dimensional combined vortex (three-dimensional precession plus two-dimensional rotation) [**xyz+uv**] space.

High-dimensional circular logarithm: The high-dimensional vortex space of the reciprocity of$(1-\eta_{[xyz+uv]}^2)^{(K=+1)}$与$(1-\eta_{[xyz+uv]}^2)^{(K=-1)}$

(6), [M-M combination]: $(M=(S-3))^{(K=+1)}$ means "M and M" (ie positive 3-3) combination: combination coefficient: $(2/(S -0)(S-1)(S-2))^{(K=+1)}$;

(2.7.6)

$\{X_0\}^{K(Z\pm S\pm(q=+3)/t}=(2/(S-0)(S-1)(S-2))^{(K=+1)}\{\prod_{(S\pm N\pm q=3)}(x_1x_2x_3)^{(K=-1)}+\ldots\}^{(K=+1)}$, called triplet generator combination. Adapt to the forward third-order integrating spherical coordinate spherical function $\{R^3\theta\psi\varphi\}^{(K=+1)}$,

The circular logarithms$(1-\eta_{[i]}^2)^{(K=+1)}$, … , $(1-\eta_{[k]}^2)^{(K=+1)}$ are known.

(7), [L-L combination]:$(L=(S-2))^{(K=+1)}$ means "L corresponds to L" (ie positive 2-2) combination: combination coefficient: $(1/S-0)(S-1))^K$;

(2.7.7)

$\{X_0\}^{K(Z\pm S\pm(q=+2)/t}$
$=(1/(S-0)(S-1))^K\{(x_1x_2)^K+(x_1x_2)^K+\ldots+(x_Lx_M)^K+(x_Mx_S)^K\}^{(K=+1)}$,

It is called nonlinear (second-order) combination. Adapt forward second-order integral or plane, surface coordinates, wave function, surface $\{R^2\theta\psi\}$, unknown circle logarithm $(1-\eta_{[yz]}^2)^{(K=+1)}$, … , $(1-\eta_{[yx]}^2)^{(K=+1)}$representation.

(8), [Q-Q combination]: means "Q and Q" combination: combination coefficient: $(1/S)^K$; average value

(2.7.8)

$\{X_0\}^{K(Z\pm S\pm(q=1)/t}=(1/S)^K\{x_1^K+x_2^K+x_3^K+\ldots x_L^K+x_M^K+x_S^K\}^{K(Z\pm S\pm(q=1)/t}$called linear (first-order) combination. Adapt to forward first-order integral or axis, granular function, curve {R θ}, unknown circle logarithm

$(1-\eta_{[x]}^2)^{(K=-1)}$, …, $(1-\eta_{[z]}^2)^{(K=-1)}$.

2.7.2. [Prove 2.7.2] The isomorphism theorem for combinations

There are invariant group combinations $\{X\}^{K(Z\pm S\pm(q=0)/t}=(x_1x_2x_3\ldots x_Qx_Lx_M)^K$ using the unit group combination variable $\{X_0\}^{K(Z\pm S\pm(q=1)/t}$As the base, the order of increasing or decreasing in unit order is called iterative method:

(1), The second term of the polynomial, coefficient: polynomial (B)

$\{X\}^{K(Z\pm S\pm(q=0)/t}/\{X_0\}^{K(Z\pm S\pm(q=1)/t}$

$=(x_1x_2x_3\ldots x_Qx_Lx_M)/[(1/S)\{x_1+x_2+x_3+\ldots x_L+x_M+x_S\}]$

$=\{[(1/S)\{x_1+x_2+x_3+\ldots x_L+x_M+x_S\}]/[(x_1x_2x_3\ldots x_Qx_Lx_M)]\}^{(-1)}$

$=\{\prod_{(q=(S-1))}(x_2x_3\ldots x_Qx_Lx_M)+\prod_{(q=(S-1))}(x_1x_3\ldots x_Qx_Lx_M)+\ldots\}^{(-1)}$

$=(1/S)\{\prod_{(q=(S-1))}(x_2x_3\ldots x_Qx_Lx_M)+\prod_{(q=(S-1))}(x_1x_3\ldots x_Qx_Lx_M)+\ldots\}\cdot\{X\}^{K(Z\pm S-(q=0)/t}\cdot\{X\}^{K(Z\pm S+(q=0)/t}$

$=(1/S)^{(K=-1)}\{x_1^{(K=-1)}+x_2^{(K=-1)}+x_3^K+\ldots x_L^{(K=-1)}+x_M^{(K=-1)}+x_S^{(K=-1)}\}^{(K=-1)}\cdot\{X\}^{K(Z\pm S+(q=0)/t}\cdot\{X_0\}^{K(Z\pm S+(q=1)/t}\{X_0\}^{K(Z\pm S-(q=1)/t}$

$=(1-\eta^2)^{K(Z\pm S\pm N\pm(q-1))}\cdot\{X_0\}^{K(Z\pm S-(q=1)/t}\cdot\{X\}^{K(Z\pm S+(q=0)/t}$;

Move $\{X_0\}^{K(Z\pm S\pm(q=0)/t}$to the left side of the equal sign, and $\{X_0\}^{K(Z\pm S\pm(q=1)/t}$ to the right side of the equal sign, we get:

(2.7.9)

$\{X\}^{K(Z\pm S-(q=0)/t}=(1-\eta^2)^{K(Z\pm S\pm N\pm(q-1))}\cdot\{X_0\}\}^{K(Z\pm S+(q=1)/t}$;

(2.7.10)

$(1-\eta^2)^{K(Z\pm S\pm N\pm(q-1))}=[\{X\}/\{X_0\}]^{K(Z\pm S+(q=0)/t}$;

(2), The third term of the polynomial

$\{X\}^{K(Z\pm S\pm(q=0)/t}/\{X_0\}^{K(Z\pm S\pm(q=2)/t}=(x_1x_2x_3\ldots x_Qx_Lx_M)/[((2/(S-0)(S-1))\{x_1x_2+x_2x_3+\ldots x_Lx_M+x_Mx_S\}]$

$=\{[((2/(S-0)(S-1))\{x_1x_2+x_2x_3+\ldots x_Lx_M+x_Mx_S\}]/[(x_1x_2x_3\ldots x_Qx_Lx_M)]\}^{(-1)}$

$=[((2/(S-0)(S-1))^{(+1)}\{\prod_{(q-2)}(x_1x_2\ldots x_S)^{(+1)}+\ldots+\prod_{(q-2)}(x_Lx_Mx_S)^{(+1)}+\prod_{(q-2)}(x_1\ldots x_Mx_S)^{(+1)}\}]^{(-1)}\cdot\{X\}^{K(Z\pm S-(q=0)/t}\cdot\{X\}^{K(Z\pm S+(q=0)/t}$

$=[((2/(S-0)(S-1))^{(-1)}\{(x_1x_2)^{(-1)}+x_2x_3)^{(-1)}+\ldots x_Lx_M)^{(-1)}+x_Mx_S\})^{(-1)}])^{(-1)}\cdot\{X\}^{K(Z\pm S+(q=0)/t}\cdot\{X_0\}^{K(Z\pm S+(q=1)/t}\{X_0\}^{K(Z\pm S-(q=1)/t}$

$=(1-\eta^2)^{K(Z\pm S\pm N\pm(q-2))}\cdot\{X_0\}^{K(Z\pm S-(q=2)/t}\cdot\{X\}^{K(Z\pm S+(q=0)/t}$;

Move $\{X\}^{K(Z\pm S+(q=0)/t}$ to the left side of the equal sign, and $\{\{X\}^{K(Z\pm S+(q=2)/t}$ to the right side of the equal sign, we get:

(2.7.11)

$\{X\}^{K(Z\pm S-(q=0)/t}=(1-\eta^2)^{K(Z\pm S\pm N\pm(q-2))}\cdot\{X_0\}^{K(Z\pm S+(q=0)/t}$;

(2.7.12)

$(1-\eta^2)^{K(Z\pm S\pm N\pm(q-2))}=[\{X\}/\{X_0\}]^{K(Z\pm S+(q=0)/t}$;

(3), the P-th term of the polynomial

Similarly:

(2.7.13)

$\{X\}^{K(Z\pm S\pm(q=0)/t}/\{X_0\}^{K(Z\pm S\pm(q=p)/t}=(1-\eta^2)^{K(Z\pm S\pm N\pm(q=p))}\cdot\{X_0\}^{K(Z\pm S+(q=0)/t}$;

(2.7.14)

$(1-\eta^2)^{K(Z\pm S\pm N\pm(q-p))}=\{X\}^{K(Z\pm S-(q=0)/t}/\{X_0\}^{K(Z\pm S+(q=0)/t}$;

(4), polynomial symmetry term

When: the polynomial items $x_1,x_2.x_3\ldots$and the symmetric polynomial items $\ldots x_{Q,}x_{L.}x_{M.}$ with regularization, are equivalent to positive power functions and negative power functions, respectively. Also get isomorphic circle logarithm

(2.7.15)

$(1-\eta^2)^{K(Z\pm S\pm N\pm(q))}=\{X\}/\{X_0\}^{K(Z\pm S+(q)/t}$;

2.7.3. [Prove 2.7.3] Combined coefficient normalization theorem

The normalization theorem solves the problem of isomorphism between nonlinear and linear functions. Proof from the repeated combination of element combination Definition 8: Normalized element combination repetition rate($\mathbf{f_p}$): The number of times that the element is repeated multiple times in a non-repeated combination of a high-dimensional order function. In an iterative transformation, the repetition rate of the repeated combination is eliminated, and a new equation normalized to a linear or ascending power is realized. There are:$(\mathbf{f_p})=(S\pm N\pm p)$ =⟶ $(S\pm N\pm p-1)$: according to the combination top sequence **(P)** **a**nd so on.

(A), Necessity proof normalization:

Appl $\{X^{K(Z\pm S\pm N\pm(q))}=\prod_{(Z\pm S\pm N\pm(q))}\{X_0\}^{K(Z\pm S\pm N\pm(q))}=\prod_{(Z\pm S\pm N\pm(q))}[\{X_1\}\cdot\{X_2\}\cdot\ldots\cdot\{X_S\}]^k$;

sequentially use$\{X_0\}^{K(Z\pm S\pm N\pm(q-1))}$ to increase and decrease the iterative method until Linear $\{q=\pm1\}$.

(2.7.16)

$G(\cdot)=\{X_0\}^{K(Z\pm S\pm N\pm(q))}/\{X_0\}^{K(Z\pm S\pm N\pm(q=1))}=\{X_0\}^{K(Z\pm S\pm N\pm(q-1))}$;

(2.7.17)

$G_0(\cdot)F_0(\cdot)=\{X_0\}^{K(Z\pm S\pm N\pm(q-1))}\cdot\{X_0\}^{K(Z\pm S\pm N\pm(q-1))}$;

It reflects that the basic eigenmode contains integer elements, and eliminates (increases) repeated combination elements in the order of continuous division (multiplication) $\{q=\pm1\}$, so as to obtain the integer necessity expansion of the power function, and the realization of zero error is normalized change.

(B), sufficiency proof normalization

Defining the combination repetition rate: It is the phenomenon of repetition **(p-1)** in the combination of elements **p** in the non-repetitive combination of point infinite elements, and the number of occurrences is called the combination repetition rate $(\mathbf{f_p})$ Eliminate repeating combinations of elements by$(\mathbf{f_p})$ until there are no repeating linear combinations.

Combined repetition rate $(\mathbf{f_p})$

(2.7.18)

$(\mathbf{f_p})=\sum_{(i=S)}(1/C_{(S\pm N\pm1)})^k\sum_{(i=p)}[\{x_a)^k+\{x_b)^k+\ldots]\}^{k(Z\pm S\pm N(q=+1))/t}$;

Proof: According to the reciprocity, the continuous multiplication can be converted into an inverse eigenmode (ie: the average superposition of the reciprocal functions), so there are

(2.7.19)

$$\{X_0\}^{k(Z\pm S\pm N\pm q)/t}=\sum_{(i=S)}(1/C_{(S\pm N\pm p)})^k[\{x_a x_b \ldots x_p)^k+\{x_a x_c \ldots x_p)^k+\ldots]\}^{k(Z\pm S\pm N\pm p)/t}$$

$$=\sum_{(i=S)}(\mathbf{f_p}/C_{(S\pm N\pm 1)})^k\sum_{(i=p)}[f_p\{x_a)^k+f_p\{x_b)^k+\ldots]\}^{k(Z\pm S\pm N\pm(q=1))/t}$$

$$=\sum_{(i=S)}(\mathbf{f_p}/C_{(S\pm N\pm 1)})^k\sum_{(i=p)}f_p[\{x_a)^k+\{x_b)^k+\ldots]\}^{k(Z\pm S\pm N\pm(q=+P))/t}$$

Eliminate combinatorial duplication rates:

(2.7.20)

$$G(\cdot)F(\cdot)=\longrightarrow\{X_0\}^{k(Z\pm S\pm N\pm(p-1))/t}\cdot\{X_0\}^{k(Z\pm S\pm N\pm(p+1))/t};$$

(2.7.21) $$\{X_0\}^{k(Z\pm S\pm N\pm p)/t}=\longrightarrow\{X_0\}^{k(Z\pm S\pm N\pm(q=1))/t};$$

(2.7.22)

$$(1-\eta^2)^{K(Z\pm S\pm N\pm P)}=\longrightarrow(1-\eta^2)^{k(Z\pm S\pm N\pm(q=1))/t};$$

(2.7.23)

$$(1-\eta^2)^{K(Z\pm S\pm N\pm P)}=\longrightarrow[(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=-1)}]^{k(Z\pm S\pm N\pm(q=P))/t};$$

In the formula: "→" represents the continuous iterative method, which is close to "1 or a certain combined form".

2.7.4, the eigenmode and the group combination of P-adjacent

The eigenmode becomes the unification of the probability-topological circle logarithm-neural network corresponding to the nodes of the neural network to stabilize, optimize and control the system. It is a group combined multivariate median inverse mean function. That is, the elements corresponding to the various eigenmodes are all arbitrary finite combinations in the infinite converted to circular logarithms. Under the condition that the probability is 1, based on the isomorphic circular logarithm, various nonlinear combinations are isomorphic to linear combinations (including normalization), and the probability-topological distributions are all within the range of the mean function. When it represents that P0 is in a closed multi-prime combination, and the circular logarithmic factor performs probability-topological arithmetic expansion in this number field, which is called time arithmetic calculation, and defines the linear mean combination P_0 of its prime numbers, P_0=p enters the number field.

Here, the p-adic number field is a complete number field obtained by topological completion after the rational number field is equipped with a p-adic norm different from the Euclidean norm (the distance between the two ends). Similarly, it is possible to define limits, differentials, integrals, and algebraic solutions for functions whose eigenmodes (center and inverse mean functions) or functions whose value range is in (center and inverse mean functions) can be used for independent variables, so as to establish an analysis similar to real analysis.

The "p-advanced" in the usual sense refers to "the combination of multiple prime numbers, the average of which is still a prime number". Converts in circular logarithms to "clock arithmetic calculations" with no numerical interference, only sequences of bit values. Its analysis also refers to the theory that studies the analytic properties of functions that take on the value above. In other words: the eigenmode (positive and negative mean function) is composed of those elements, values, spaces, group combinations, etc., through the logarithm of the center zero circle, respectively, to find the root solution. Therefore, the p-adic analysis here is actually to ensure the periodic expansion of the integer unitary periodicity of the eigenmode, and to perform arithmetic calculations within the periodicity of the integer unitary. From p-advanced Hodge and prism theory to p-divisible groups and crystal Galois classification. called the Hodge conjecture.

In the 19th century, German mathematician (G.F.) B. Riemann used Dirichlet's principle to establish the algebraic functions of single and complex variables and their integrals, as well as the existence of a series of function classes, on the topology and potential construction of Riemann surfaces. When this knowledge is extended to high-dimensional manifolds, Hodge's theory further reveals the profound connection between analysis and topology, which has a huge impact on the overall study of contemporary analysis on manifolds. This theory was first created by the British mathematician W.V.D. Hodge in the 1930s, and then greatly developed and applied by mathematicians such as Kunihiko Kodaira.

Among them: the Hodge conjecture is a major open question in algebraic geometry. It is a conjecture about the association of the algebraic topology of a nonsingular complex algebraic variety and its geometry expressed by the polynomial equations that define the sub-variety. Hodge's conjecture, Fermat's last theorem and Riemann's conjecture have become the m-theory structural geometry topology carrier and tool for the fusion of general relativity and quantum mechanics.

Mathematically, Hodge's integer theory is an aspect of the study of the algebraic topology of "continuously smooth and continuous nonsmooth" manifolds M. More precisely, it looks for the application of the cohomology group of real coefficients of M to the partial differential equations of the generalized Laplacian operator related to the Riemannian metric on M. That is to say, the p-advanced analysis here is equivalent to the eigenmode (median inverse mean function) D_0.

Here, the p-adic analysis is combined with the group combination-circular logarithm to become the eigenmode (median inverse mean function), and the probability-topological circular logarithm with the asymmetric distribution function is converted into a unitary probability-topological circular logarithm, and the integer zero error expansion is performed. , the symmetry distribution of the coordinate-independent logarithm of the probability circle. Satisfy the center-zero symmetry expansion and become the bifurcation point of the tree-like distribution.

2.8. [Theorem 7]: Isomorphism Theorem

The circular logarithm is an "arithmetic logic without specific elements, values, or spatial content" digit calculations. Do you have the same time reduction for simple equations and complex polynomials? That is, the "P=NP problem". called isomorphism (homology, homotopy, homomorphism) topological circle logarithm theorem

Circular logarithms involve "isomurphisrm", homomorphisms, homotopy (homotopy): the eigenmode "median inverse mean function" of an invariant group composed of regularization coefficients, mapped to probability-topological circle pairs number, prove that complex polynomials and simple polynomials have isomorphic circular logarithms.

2.8.1, circular log isomorphism (isomurphisrm)

(2.8.1) $(1-\eta^2)^K=[\{^{KS}\sqrt{X}\}/\{X_0\}]^{K(Z\pm[S]\pm(N)\pm(q))}$

$=\{X_0\}^{K(Z\pm[S]-(N)-(q)}/\{X_0\}^{K(Z\pm[S]+(N)+(q))}$

$=[\sum_{(Z\pm[S]-q)}(x_1^{(-1)}+x_2^{(-1)}\dots x_S^{(-1)})]^{K(Z\pm[S]-(N)-(q))}$

$/[\sum_{(Z\pm[S]+q)}(x_1^{(+1)}+x_2^{(+1)}\dots x_S^{(+1)})]^{K(Z\pm[S]+(N)+(q))}$

$=(1-\eta^2)^{(kw=-1)(Z\pm[S]-(N)-(q)}\cdot(1-\eta^2)^{(kw=+1)(Z\pm[S]+(N)+(q)}$

$=f^{(kw=-1)}\cdot f^{(kw=+1)}$

$=G(\cdot)\cdot F(\cdot)$

$=\{0 \text{ to } 1\}$;

2.8.2. Circular log homomorphisms (homomorphs):

Closed population-to-population, population-to-single, and single-to-single comparison forms have the same one-to-one mapping.

(2.8.2) $(1-\eta^2)=(1-\eta^2)^{K(Z\pm[S]\pm(N)+(q=0))}+(1-\eta^2)^{K(Z\pm[S]\pm(N)+(q=1))}+(1-\eta^2)^{K(Z\pm[S]\pm(N)+(q=2))}+\dots$;

2.8.3, circular logarithm homology (homoloqy):

Any function element has a combination of interactions, which is converted into a unit body (eigenmode) as an invariant group, and the corresponding probability-topological circle logarithm-center zero is the unity of system stability, optimization and control.

(2.8.3) $(1-\eta^2)=\{^{KS}\sqrt{X}/X_0\}^{K(Z\pm[S]\pm(N)+(q=0,1,2,3\dots))}$

$=(1-\eta^2)^{K(Z\pm[S]\pm(N)+(q=0))}=(1-\eta^2)^{K(Z\pm[S]\pm(N)+(q=1))}=(1-\eta^2)^{K(Z\pm[S]\pm(N)+(q=2))}=\dots=\{0\text{or}（0\text{ to}1/2\text{ to}1）\text{or}1\}^{K(Z\pm[S]\pm(N)+(q))}$;

2.8.4. Circular logarithms and Einstein's theory of relativity

Einstein's special principle of relativity: All laws of physics (except gravity) maintain the same form in an inertial frame of reference.

General Principle of Relativity: All physical laws maintain the same form in all reference frames. For example, the Lorentz equivalence principle and the Mach principle are also the covariance and equivalent substitution functions of the relativity principle which can be summarized as equivalent circular logarithms.

The object explored by the circle logarithm in the calculus equation is the infinite program combination of known infinite elements (Z). Based on the difficulty of obtaining the value of infinite elements, any finite system element K(Z±[S]),[S]=[S±Q±M] is the boundary condition of any finite program combination in infinity: it represents its motion state and combination relationship, written as:

$K(Z\pm[S]\pm(N=0,1,2)\pm m\pm(q=0,1,2,3,\dots S))/t$, $D=(^{K[S]}\sqrt{D})^{K(Z\pm[S]\pm(N=0,1,2)\pm m\pm(q=0,1,2,3,\dots S))/t.}$,

determine the system mean function $\{D_0\}^{K(Z\pm[S]\pm(N=0,1,2)\pm m\pm(q=0,1,2,3,\dots S))/t.}$; the circular logarithm of the controllable isomorphism can also be determined $(1-\eta^2)^K=\{(^{K[S]}\sqrt{D})/D_0\}^{K(Z\pm[S]\pm(N=0,1,2)\pm m\pm(q=0,1,2,3,\dots S))/t.}$.

Conversely, if any one $\{^{K[S]}\sqrt{D}\}$ or $\{D_0\}$ of $(1-\eta^2)^K$ of the controllable circular logarithm is known, the other can be controlled deterministically. Obviously, these three elements are the conditions for establishing the stability, reliability and feasibility of the equilibrium equation.

Multivariate combination based on controllable circle logarithms (1-η2)={0 or (0 to 1/2 to 1) or 1}K(Z±[S]±(N)±m+(q)) corresponding groups The median inverse mean function-eigenmode {D0} is a network node, which forms a controllable three-dimensional three-dimensional four-dimensional-five-dimensional-six-dimensional-high-dimensional multi-level neural network for information transmission, cognition and analysis.

The object of exploration in physics is that the relationship between mass and space-time is expressed as $\{^{K[S]}\sqrt{D}\}$ or $\{D_0\}$.

The dynamic calculus of the system is described as:

(1), $(N=\pm0),(1-\eta^2)^K=\{(^{K[S]}\sqrt{D})/D_0\}^{K(Z\pm[S]\pm(N=0)\pm m\pm(q))/t.}$. The zeroth order represents the original function, orbit, circle logarithmic topological space-time;

(2), $(N=\pm1),(1-\eta^2)^K=\{(^{K[S]}\sqrt{D})/D_0\}^{K(Z\pm[S]\pm(N=1)\pm m\pm(q))/t}$. The first order represents the calculus equation, the circular logarithmic topological space-time state of velocity and momentum, which is equivalent to Einstein's special theory of relativity;

(3),

(N=±2),$(1-\eta^2)^K=\{({}^{K[S]}\sqrt{D})^2/D_0^2\}^{K(Z\pm[S]\pm(N=2)\pm m\pm(q)/t}$. The second order represents the calculus equation, the circular logarithmic topological space-time state of acceleration, force and energy, which is equivalent to Einstein's general theory of relativity;

Special, high-order calculus dynamic equations, it is necessary to clearly know the total number of particle dimensions in the system $\{X\}^{K(Z)/t}=[(x_1x_1\ldots x_S), (x_1x_1\ldots x_Q), \ldots,(x_1x_1\ldots x_M)]^{K(Z\pm[S]\pm(N=0,1,2)\pm m\pm(q=0,1,2,3,\ldots S))/t}$.,

Known power functionK(Z)/t=K(Z±[S]±(N=0,1,2)±m±(q=0,1,2,3,…S))/t.

Boundary conditions $D^{K(Z)/t}=[(D_1D_2\ldots D_S), (D_1D_2\ldots D_Q), \ldots,(D_1D_2\ldots D_M)]$,

mean function $\{X_0\}^{K(Z)/t}$,

The circular logarithm $(1-\eta^2)^{K(Z)/t}$ stability controls the relationship and state of the changes between them.

Conversely, two of the three known factors are determined above, and the third factor must be stable certainty.

It is physically difficult to obtain the boundary condition $D^{K(Z)/t}$ and the unknown function $\{X_0\}^{K(Z)/t}$.But physicists can measure universal objects as research basis, such as: macroscopic universal Newtonian gravitational mechanics, Coulomb electromagnetic mechanics, microscopic quantum mechanics (quantum electrodynamics, quantum chromodynamics), all of which are related to mass-space-time Closely linked, based on homogeneous particles.

Einstein proposed the famous mass-energy equation($E=MC^2$), in the way of set theory (assuming mass particles are uniform and symmetrical distribution), the ratio of particle velocity (v, v2) to the constant speed of light (C^2, C) It is written as the formula of special relativity $\beta=\{(v^2/C^2\}$ and the discussion of general relativity. It has become the two major pillars of physics that have made outstanding contributions to relativity and quantum mechanics in the 20th century. However, it is difficult to unify the sharp contradictions between relativity and quantum mechanics.

Einstein's special theory of relativity formula $\beta=\{(v^2/C^2\}$ is limited to historical conditions, and it has not been able to prove the universality, isomorphism, relative symmetry and other conditions of this (β), and there are still many disputes. In the last 40 years Einstein is still trying to establish the structure of relativity to deal with issues related to unity. In the end, he left a famous saying "the world will eventually return to the round world".

The inheritance and extension of circular logarithms prove the relationship between relativity and circular logarithms. Contains the logarithm of the isomorphic circle - the logarithm of the probability circle - the logarithm of the center zero point circle, under the condition of probability unitary: nonlinear conversion to linear, asymmetry to relative symmetry, and continuous transition and jump transition, revolution and The unity of rotation, precession and spin, forward events and reverse events, etc.

Extract the eigenmode of any function (unknown physical event W, known physical event W_0), and perform calculations without specific element content.

(2.8.4) $W=(1-\eta^2)^{K(Z)/t}W_0$;

If it is assumed that the particles are distributed uniformly and symmetrically, then $(\eta^2)^{K(Z)/t}\to 0$; $(1-\eta^2)^{K(Z)/t}=1$ Get Einstein's mass-energy formula:($E=MC^2$).

Wave (surface space) physical events:

(2.8.5) $(1-\eta^2)^K=\{({}^{K[S]}\sqrt{D})^2/D_0^2\}^{K(Z\pm S\pm N\pm(q=2))/t}=\{(v^2/C^2\}^{K(Z\pm S\pm N\pm(q=2))/t}$.

Granular (linear space) physical events:

(2.8.6) $(1-\eta^2)^K=\{({}^{K[S]}\sqrt{D})/D_0\}^{K(Z\pm S\pm N\pm(q=1))/t}=\{(v/C\}^{K(Z\pm S\pm N\pm(q=1))/t}$.

Among them: the circular logarithm is adapted to the balance and reciprocity conversion between the macroscopic gravitational force (K=+1) and the microscopic quantum (K=-1), and (K=±1±0) between the positive and negative quantum neutral particles, Prove that $\beta=\{(v^2/C^2\}$ is equivalent to a circular logarithm-neural network $(1-\eta^2)^K$.

The wave-particle duality of the circle logarithm $(1-\eta^2)^K$ is extended to the duality space of linear coordinates and surface coordinates. The respective fields of macroscopic continuity and microscopic discreteness of high-dimensional space-time are unified and expressed as the basic theory of circular logarithm-neural network mathematics. The magical construction of "circle logarithm (perfect circle mode)" may become the "relativistic construction" pursued by Einstein.

2.9. [Theorem 8]: Theorem of the invariance of the three "1" gauges of the logarithm of a circle

For hundreds of years, the four arithmetic operations "addition, subtraction, multiplication and division, exponentiation, and square root" are reciprocal in the familiar "addition and subtraction, multiplication and division, and power and square root." So is there a reciprocity of "multiplication and addition, exponentiation and addition"? No one has discovered that circular logarithms are actually the "reciprocal rule of multiplication and addition", which is actually an important soul of the foundation of mathematics.

In the history of mathematics, circular logarithms are known as "the discriminant of Veda's theorem, the least squares method, the principle of least action, distance, geodesics, Einstein's special theory of relativity, ...". In addition, it can also handle "transformation of asymmetric functions into relatively symmetrical functions"; supervised learning applied to pattern recognition; analytical basis for calculus equations; arbitrary function solving and automatic control methods, and controllable neural networks. Heterogeneous, multi-parameter synchronization information transmission principle.

Based on the operation of circular logarithms in a controllable range of {0 to 1}, it is called "three '1' norm invariance of circular logarithms".

2.9.1, [Theorem 2.9.1] Probability circle logarithm:

The group combination function divides each element addition combination by the whole group combination continuous addition function. The sum of this point (value) is "1" corresponding to its characteristic modulus, which is called the logarithm of the probability circle.

(2.9.1)
$(1-\eta_H^2)^{K(Z/t)}=[(\sum_{(i=S)}\{x_j\})/\{x\}]^{K(Z\pm[S]\pm(N)\pm(q)/t}$
$=[\{x_j\}/\{x_1+x_2+\ldots+x_S\}]^{K(Z\pm[S]\pm(N)\pm(q)/t}$
$=\{\eta_{H1}+\eta_{H2}+\ldots+\eta_{HS}\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$
$=\{1\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$;

2.9.2, [Theorem 2.9.2] The logarithm of the center zero point circle:

"The function can be decomposed into two asymmetric functions of resolution 2", how does the conversion into a function of circular logarithmic factor symmetry work? The difference between the logarithm of the center zero point circle and the logarithm of the probability circle is that$(1-\eta_C^2)^K=0$; $(1-\eta_H^2)^K=1$;

Suppose: there are various forms of continuous multiplication and combination of multiple variables $\{X\}=\prod\{x_1x_2\ldots x_S\}$, and each sub-item can adopt two asymmetry functions of "resolution 2", respectively $\{x_A\},\{x_B\}$, $\{x_A\}\neq\{x_B\}$, $X=\{x_A\}\cdot\{x_B\}$; $D=(\sqrt{D})^2$;

Mean function: $\{D_0\}=(1/2)[\{x_A\}+\{x_B\}]$;

(2.9.2)
$(1-\eta_C^2)^{K(Z/t)}=[(\sum_{(i=S)}\{x_j\})/\{x_0\}]^{K(Z\pm[S]\pm(N)\pm(q)/t}$
$=[\{x_j\}/(1/S)\{x_1+x_2+\ldots+x_S\}]^{K(Z\pm[S]\pm(N)\pm(q)/t}$
$=\{\eta_{H1}+\eta_{H2}+\ldots+\eta_{HS}\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$
$=\{0\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$;

The center zero point satisfies symmetry and often becomes the bifurcation point of tree coding:

(2.9.3)
$[(1-\eta^2)+(1-\eta^2)]^{(kw=\pm1)}=\{0 \text{ or } 1\}$;
Or :
$[(1-\eta^2)^{(kw=+1)}\cdot(1-\eta^2)^{(kw=-1)}=(1-\eta^2)^{(kw=\pm1)}=\{0 \text{ or } 1\}$;

(2.9.4)
$\{x_A\}=(1-\eta^2)^{(kw=+1)}\{D_0\}=(1-\eta^2)^{(kw=+1)}\{D_0\}$,
$\{x_B\}=(1-\eta^2)^{(kw=-1)}\{D_0\}=(1+\eta^2)^{(kw=+1)}\{D_0\}$,

The central zero point means that the asymmetric combination of multiple variables within the same level in the system is converted into a relatively symmetrical combination. The probability circular logarithm is processed by the center zero point method, which satisfies the symmetry of each level of circular logarithmic tree coding.

(2.9.5)
$(1-\eta^2)^{K(Z/t)}=[(\sum_{(i=S)}\{x_j\})/\{x_0\}]^{K(Z\pm[S]\pm(N)\pm(q)/t}$
$=\sum_{(i=S)}\{x_j\}/[(1/S)\{x_1+x_2+\ldots+x_S\}]^{K(Z\pm[S]\pm(N)\pm(q)/t}$
$=\{\eta_{H1}{}^2+\eta_{H2}{}^2+\ldots+\eta_{HS}{}^2\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$
$=\{0\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$;

(2.9.6)
$\sum_{(Z\pm S+q)}(+\eta)$ or $\sum_{(Z\pm S+q)}(+\eta^2)^{K(Z\pm[S]\pm(N)+(q)/t}=(1-\eta^2)^{(Kw=+1)}$,
$\sum_{(Z\pm S-q)}(-\eta)$ or $\sum_{(Z\pm S+q)}(-\eta^2)\}^{K(Z\pm[S]\pm(N)-(q)/t}=(1-\eta^2)^{(Kw=-1)}$;

The value of the center zero point of the logarithmic equation of the circle is called the median value theorem in traditional calculus, and it is proved by the limit method, which has become the core function of the calculus equation. Here the simultaneous equations of the circular logarithmic method are used to solve:

(2.9.7) $(\eta \text{ or } \eta^2)^K=\sum_{(Z\pm S\pm q)}(\pm\eta \text{ or } \pm\eta^2)^{K(Z\pm[S]\pm(N)\pm(q)/t}=\{0 \text{ or } [0\leftarrow(1/2)\rightarrow1] \text{ or } 1\}^K$;

(2.9.8) $(\eta \text{ or } \eta^2)^K=\sum_{(Z\pm S\pm q)}(\pm\eta \text{ or } \pm\eta^2)^{K(Z\pm[S]\pm(N)\pm(q)/t}=\{0 \text{ or } [-1\leftarrow(0)\rightarrow1] \text{ or } 1\}^K$;

The power function (time series, path integral) becomes the branch point of the tree-like level, corresponding to the invariant characteristic module (median inverse mean function) of the corresponding level, which is composed of:

Even function:

(2.9.9)
$[(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=-1)}]^{(Kw=+1)}\cdot\{D_0\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$

Odd function:

(2.9.10)
$[(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=\pm0)}+(1-\eta^2)^{(Kw=-1)}]^{(Kw=+1)}\cdot\{D_0\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$;

Zero function (including equivalent permutation, symmetry rotation):

(2.9.11)
$(1-\eta^2)^{(Kw=\pm1)}\{D_0\}^{K(Z\pm[S]\pm(N)\pm(q)/t}=[(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=-1)}]^K\cdot\{D_0\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$

Satisfy the description of simplified, zero-error exact symmetric bifurcations for complex many-body systems.

In particular, in the highly parallel functions, each function (such as audio, video, language, text, etc.) has the function of sharing the superimposed center zero point, resulting in a range of {0 to 1} on the two sides centered on the center zero point" Concentric circles or concentric circles" Symmetry jumps with continuous synchronous unwinding.

2.10. [Theorem 9]: Poincaré conjecture and topological circle logarithm:

We are familiar with Newton's binomial expansion, and we can find that each subterm contains an average value, which is called the mean function. The mean function exists in the polynomial regularization coefficients (A,B,C,…P).

The logarithm of the topological circle is: "the mean value of each sub-item of the group combination divided by the mean function of the whole term", or "the boundary condition divided by the mean function (eigenmode)", which reflects the topology of each combined sub-item, and is a topological point (numerical value, The combination of space, function and group corresponds to the distribution process of different element combinations in "0 to 1". It is called the topological circle logarithm.

The important content of topological circle logarithm is that "elliptic function and torus function" have unified topological convergence and expansion.

(1), The elliptic function is called simply connected: any closed curve shrinks to the center of the homeomorphism or expands outwards are symmetrically distributed circles.

(2), The torus function is called bi-connected: any two closed torus curves are symmetrically distributed to the homeomorphic center or the center axis of the homeomorphic torus or expand outwards.

Their performance becomes a circular logarithmic process with "no specific spatial content", and finally the circular logarithm shrinks to "0" or expands to "1".

(2.9.12)

$(1-\eta_T^2)^{K(Z/t)}=[(\sum_{(i=S)}\{x_{j0}\})/\{x_0\}]^{K(Z\pm[S]\pm(N)\pm(q)/t}$

$=\sum_{(i=S)}[(1/C_{(S\pm N\pm q)})^k\prod_{(i=q)}\{x_j\}/(1/C_{(S\pm N\pm(q=S))})^K\{x_1+x_2+\ldots+x_p\}^K+\ldots]^K$

$=\sum_{(i=S)}[(\{^{KS}\sqrt{D}\})/\{D_0\}]^{K(Z\pm[S]\pm(N)\pm(q)/t}$

$=\{\eta_1^2+\eta_2^2+\ldots+\eta_S^2\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$

$=\{0\text{ to }1\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$;

(2.9.13)

$(1-\eta_T^2)^{K(Z/t)}=[(\sum_{(i=S)}\{x_{j0}^2\})/\{x_0^2\}]^{K(Z\pm[S]\pm(N)\pm(q=2)/t}$

$=\sum_{(i=S)}[(1/C_{(S\pm N\pm q)})^k\prod_{(i=q)}\{x_j\}/(1/C_{(S\pm N\pm(q=S))})^K\{x_1+x_2+\ldots+x_p\}^K+\ldots]^K$

$=\sum_{(i=S)}[(\{^{KS}\sqrt{D}\})/\{D_0\}]^{K(Z\pm[S]\pm(N)\pm(q=2)/t}$

$=\{\eta_1+\eta_2+\ldots+\eta_S\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$

$=\{0\text{ to }1\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$;

(1), [Proof]; Topological circle logarithm

Veda's theorem $B^2\leq 4AD$ is $(1-\eta^2)^K=(\sqrt{D}/D_0)^{K([S=2])/t}$, which can be extended to the general formula $(1-\eta^2)^K=(^{KS}\sqrt{D}/D_0)^{K(Z\pm[S]\pm(N)\pm(q))/t}$ forms the balance equation.

(2.9.14)

$\{X^2\pm 2XD_0+(\sqrt{D})^2\}^{K(Z\pm[S=2]\pm(N)\pm(q)/t}=\{X\pm(\sqrt{D})\}^{K(Z\pm[S=2]\pm(N)\pm(q)/t}$

$=[(1-\eta^2)(0,2)\{D_0\}]^{K(Z\pm[S=2]\pm(N)\pm(q)/t}$;

In the formula: $\{X-(\sqrt{D})\}=[(1-\eta^2)(0)\{D_0\}]$; $\{X+(\sqrt{D})\}=[(1-\eta^2)(2)\{D_0\}]$; $\{X\}^{K(Z\pm[S=2])/t}$The topological change between (0 and 2) with $(1-\eta^2)$ corresponding to $\{D_0\}$ as the center point.

Get: $\{x_A\}=(1-\eta)\{D_0\}$; $\{x_B\}=(1+\eta)\{D_0\}$;

(2.9.15)

$AX^{K(Z\pm[S]\pm(N)\pm(q=0)/t}\pm BX^{K(Z\pm[S]\pm(N)\pm(q=-1)/t}\{D_0\}^{K(Z\pm[S]\pm(N)\pm(q=+1)/t}+CX^{K(Z\pm[S]\pm(N)\pm(q=-2)/t}\{D_0\}^{K(Z\pm[S]\pm(N)\pm(q=+2)/t}+\ldots+(\sqrt{D})^2\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$

$=\{X\pm(^{KS}\sqrt{D})\}^{K(Z\pm[S]\pm(N)\pm(q))/t}$

$=[(1-\eta^2)(0,2)\{D_0\}]^{K(Z\pm[S]\pm(N)\pm(q)/t}$;

Obtain an elliptic function with a resolution of 2: $\{D_0\}=\{D_{0A}\}\cdot\{D_{0B}\}$

(2.9.16)

$\{x\}^{K(Z\pm[S]\pm(N)\pm(q)/t}=(1-\eta^2)\{D_{0AB}\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$

(2.9.17)

$\{x\}^{K(Z\pm[S]\pm(N)\pm(q)/t}=\{x_A\}\cdot\{x_B\}$

$=(1-\eta)(1+\eta)\{D_0\}^{K(Z\pm[S]\pm(N)\pm(q)/t}$

$=[(1-\eta^2)(0\leftrightarrow 2)\{D_0\}]^{2\pi K(Z\pm[S]\pm(N)\pm(q)/t}$;

In particular, the polynomial calculation result $[(1-\eta^2)(0,2)\{D_0\}]^{K(Z\pm[S]\pm(N)\pm(q)/t}$respectively forms two real symmetric functions, avoiding the need for The traditional complex number (imaginary number) representation method is conducive to the asymmetric expansion of the logarithmic factor of the circle (such as the logarithm of the eccentric circle).

(2),Topological circle logarithmic form

The topological circle logarithm has two forms: the real circle topological circle logarithm and the ring topological circle logarithm.

(a) Real circle (surface, sphere) topology: mean function $\{D_0\}^{(KW=+1)}=(1/2)[\{x_A\}+\{x_B\}]^{(+1)}$

(2.9.18)

$(1-\eta^2)^{(Kw=+1)}=[\{x_A\}-\{x_B\}]/[\{x_A\}+\{x_B\}]^{(Kw=+1)2\pi K(Z\pm[S]\pm(N)\pm(q)/t}$;

A solid circle (surface, sphere) topology represents a (simple connected) solid planar circle. The surface circle is the change of the topological state of the internal and external topological area (volume) with the perfect circle $\{D_0\}^{(K=+2)}$ as the homeomorphic center point. It is called "additive" topological circle logarithm.

(b) Torus (surface, body) topology: mean function $\{D_0\}^{(KW=-1)}=(1/2)[\{x_A\}-\{x_B\}]^{(-1)}$

(2.9.19)

$(1-\eta^2)^{(KW=-1)}=[\{x_A\}-\{x_B\}]/[\{x_A\}+\{x_B\}]^{(Kw=-1)2\pi K(Z\pm[S]\pm(N)\pm(q)/t}$;

Torus (surface, body) topology represents a hollow flat circle. The surface circle (doughnut) takes the perfect circle $\{D_0\}^{(K=-2)}$ as the center point of the two homeomorphic circles and the change of the topological state of the circle center curve. It is called "subtractive" topological circle logarithm.

Based on the fact that a real circle and a torus have the same logarithmic factor and are covariant, three topological states can appear randomly, namely, a real circle, a torus, and a two-dimensional real circle plus a torus, forming a three-dimensional high-dimensional vortex space. If it is mapped to plane and surface coordinates, it is the duality topological state of "graininess and waveness".

(2.9.20)

$(1-\eta^2)^K\cdot\{D_0\}=[(1-\eta^2)^{(KW=+1)}+(1-\eta^2)^{(KW=-1)}]\cdot\{D_0\}^{(Kw=2\pi k)K(Z\pm[S]\pm(N)\pm(q)/t}$;

2.11. [Theorem 10]: System and Controllable Circle Logarithmic Stability Theorem:

The system has the characteristics of multi-element, multi-parameter, multi-heterogeneous, and interactive calculus optimization circle logarithm and center-zero symmetry. The system represents area, level, ... tree structure: [S]={S,Q,…,M}

With stable and deterministic eigenmode $\{D_0\}^{K(Z\pm[S])/t}$and boundary value D conditions, the unique solution of controllable convergent circular logarithm is obtained. Conversely, with the characteristic modulus $\{D_0\}^{K(Z\pm[S])/t}$ and the controllable convergent logarithm, the boundary value D can be evaluated stably and solved to reflect the difference between the perfect circle mean function and any function, or The perfect circle mean function is the center point standard. In order to approach the zero point {0 or (1/2)} or the mean value function of the center of the perfect circle, the minimum distance of the perfect circle curve is the optimal and most stable.

(2.10.1)

$(1-\eta^2)^{K(Z\pm[S])/t}=[(1-\eta_H^2)\cdot(1-\eta_\omega^2)\cdot(1-\eta_T^2)]^{K(Z/t)}=\{0\to(1/2)\leftarrow1\}^{K(Z\pm[S])/t}$;

(2.10.2)

$(1-\eta^2)^{K(Z\pm[S])/t}=[(1-\eta_H^2)\cdot(1-\eta_\omega^2)\cdot(1-\eta_T^2)]^{K(Z/t)}=\{-1\to(0)\leftarrow+1\}^{K(Z\pm[S])/t}$;

Wherein:

One-dimensional linear space

$(1-\eta_1^2)^{K(Z\pm[S])/t}=(1-\eta^2)^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=1)/t)}$;

Two dimensional linear plane, surface, rotation space

$(1-\eta_2^2)^{K(Z\pm[S])/t}=(1-\eta^2)^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=2)/t)}$;

Three-dimensional sphere, number axis precession space

$(1-\eta_3^2)^{K(Z\pm[S])/t}=(1-\eta^2)^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=3)/t)}$;

Four-dimensional, five-dimensional, and six-dimensional are called medium-dimensional vortex spaces.

$(1-\eta_5^2)^{K(Z\pm[S])/t}=(1-\eta^2)^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=4,5,6)/t)}$;

System multi-level neural network;

$(1-\eta_{[S]}^2)^{K(Z\pm[S])/t}=(1-\eta^2)^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=[S]/t)}$;

$(1-\eta_{[S]}^2)^{K(Z\pm[S])/t}=\sum_{[i=s]}(1-\eta_{[i]}^2)=(1-\eta_1^2)+(1-\eta_2^2)+\ldots+(1-\eta_s^2)$ ={0to1};

2.11.2. Three "1 gauge invariances" of the probability-topology-central zero of the logarithm of a circle:

(2.11.3)

$(1-\eta^2)^K=[(1-\eta_\omega^2)(1-\eta_H^2)(1-\eta_T^2)]^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=[S]/t)}$ $=[(1-\eta_{[\omega+H+T]}^2)]^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=[S]/t)}$ $=\{0:(0\leftarrow1/2\to1):1\}^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=[S]/t)}$;

(1), the jump transition method between the outside of the integer function:

(2.11.4) $(1-\eta^2)^K=\{0$ 或 $1\}^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=[S]/t)}$;

(2), Continuous transition between integer functions:

(2.11.5)

$(1-\eta^2)^K=\{0:(0\leftarrow1/2\to1):1\}^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=[S]/t)}$;

2.11.3. The topological isomorphism of the system logarithm in the three-dimensional high-dimensional surface of the system.

(2.11.6)

$(1-\eta^2)^K=(1-\eta_{[xyz+uv]}^2)^K=(1-\eta^2)^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=0]/t)}+(1-\eta^2)^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=[1]/t)}+(1-\eta^2)^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=2]/t)}+\ldots+(1-\eta^2)^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=P]/t)}$;

2.11.4. Convergence-transformation-diffusion of the system circle logarithm in the three-dimensional high-dimensional space of the system.

(2.11.7)

$(1-\eta^2)^K=(1-\eta_{[yz][xyz+uv]}^2)^{(IK=+1)}+(1-\eta_{[zx][xyz+uv]}^2)^{(IK=+1)}+(1-\eta_{[xy][xyz+uv]}^2)^{(IK=-1)}$;

3. Theorem of multi-body (element) higher-order equations of the system

In 1824, Abel's quintic equation was unsolvable, and Lagrange-Vandermond-Raffiny-Cauchy and others all proved that general quintic equations were unsolvable, which made classical algebraic calculus equations and logical algebra pattern recognition calculations facing difficulties.

Here, the univariate fifth (higher) order calculus equation is solved, and the mathematical model integrating the calculus equation and pattern recognition two different fields is optimally integrated, and the circular logarithm-neural network is mapped.

3.1. System multi-body univariate higher-order circular logarithmic equation

Defining a system of many-body unary (many-body) [S]=[S±Q±…±M] has the same variable, {X}K(Z±S±Q±M±…±(N=0,1,2)±(q)/t form the area equation:

S area: $\{X\}^{KS}=\{x_1x_2\ldots x_S\}=A(\sqrt[S]{x})^{K(Z\pm S\pm N\pm(q=0)}\pm B(\sqrt[S]{x})^{K(Z\pm S\pm N\pm(q=1)}+\ldots+Px^{K(Z\pm S\pm N\pm(q=p-1)}\pm\ldots+\mathbf{D_S}$;

Qarea:

$\{X\}^{KQ}=\{x_1x_2\ldots x_Q\}=A(\sqrt[Q]{x})^{K(Z\pm Q\pm N\pm(q=0)}\pm B(\sqrt[Q]{x})^{K(Z\pm Q\pm N\pm(q=1)}+\ldots+Px^{K(Z\pm Q\pm N\pm(q=p-1)}\pm\ldots+\mathbf{D_Q}$;

Marea:
$\{X\}^{KM}=\{x_1x_2\ldots x_M\}=A(^M\sqrt{x})^{K(Z\pm M\pm N\pm(q=0)}\pm B(^M\sqrt{x})^{K(Z\pm M\pm N\pm(q=1)}+\ldots+Px^{K(Z\pm M\pm N\pm(q=p-1)}\pm\ldots+\mathbf{D_M}$;

System[S] :
$\{X\}^{K[S]}=\{x_1x_2\ldots x_{[S]}\}=A(^{[S]}\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=0)}\pm B(^M\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=1)}+\ldots+Px^{K(Z\pm[S]\pm N\pm(q=p-1)}\pm\ldots+\mathbf{D}_{[S]}$;

3.1.1. Analysis of the arithmetic alization of classical algebra (calculus equations) logic

Traditional classical algebra (traditional one-variable higher-order equations or higher-order calculus equations) has the disadvantage that the interference of elements cannot be escaped in the operation, and it can only approximate the calculation. It has always been a computational difficulty for mathematicians.

The circular logarithm adopts "calculation without specific elements", which removes all the numerical symbols of algebra, arithmetic, space, and group theory with specific content, removes the specific connotation of the numerical value, and converts it into an abstract bit value for calculation, which gets rid of the specific numerical value, The interference of element content, various parameters, heterogeneity, etc. on the calculation ensures zero-error calculation expansion. It is called "higher order equation - neural network".

Known conditions: degree of dimension, polynomial coefficient or average value, boundary conditions, and if the requirements of the discriminant are satisfied, any higher-order calculus equation can be established and converted into a logarithmic value of a circle (perfect circle mode). Next, solve the equation root element. called forward parsing.

Element features:
$\{X\}^{K(Z\pm[S]\pm N\pm(q)}=\{(x_1x_2\ldots x_S),(x_1x_2\ldots x_Q)(x_1x_2\ldots x_M)\}$;

(3.1.1)
$\{X\pm^S\sqrt{\mathbf{D}}\}^{K(Z\pm[S]\pm Q\pm M\pm\ldots\pm(N=0,1,2)\pm(q)/t}=A(^S\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=0)}\pm B(^S\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=1)}+\ldots+Px^{K(Z\pm[S]\pm N\pm(q=p-1)}\pm\ldots+\mathbf{D}$
$=(1-\eta^2)[(^S\sqrt{x})^{K(Z\pm[S]\pm N-(q=0)}\pm[D_0(^S\sqrt{x})]^{K(Z\pm[S]\pm N\pm(q=1)}+\ldots+[D_0(^S\sqrt{x})]^{K(Z\pm[S]\pm N\pm(q=p-1)}\pm[D_0]^{K(Z\pm[S]\pm N+(q=S)}$
$=(1-\eta^2)^K\cdot\{X_0\pm D_0\}^{K(Z\pm S\pm Q\pm M\pm\ldots\pm(N=0,1,2)\pm(q)/t}$
$=[(1-\eta^2)\cdot\{0,2\}\cdot\{D_0\}]^{K(Z\pm S\pm Q\pm M\pm\ldots\pm(N=0,1,2)\pm(q)/t}$;

According to $(^S\sqrt{\mathbf{D}})$ 、 $\{D_0\}$ to form a stable polynomial, convert to stable$(1-\eta^2)=\{0\text{ to }1\}^K$ circle logarithm and center zero analysis.

3.1.2. The cognition that the pattern recognition cluster set is the reverse combination of the perfect circle pattern.

Pattern recognition clustering feature: consists of cluster {X} and weight (distance to the center point of the perfect circle)$\{\omega_1r_1\}$respectively composed of $\{X_1\omega_1r_1\}$;

Each cluster of system multi-body is written as: where: system multi-body [S]=[S,Q,M]

(3.1.2)
$\{X\}^{K(Z\pm[S]\pm N\pm(q)}=\{X_1\omega_1r_1\}^{K(Z\pm[S]\pm N\pm(q)}$
$=\{(x_1\omega_1r_1,x_2\omega_2r_2\ldots x_S\omega_Sr_S),(x_1\omega_1r_1,x_2\omega_2r_2\ldots x_Q\omega_Qr_Q)(x_1\omega_1r_1,x_2\omega_2r_2\ldots x_M\omega_Mr_M)\}$;

(3.1.3)
$[\{0,2\}\{D_0\}]^{K(Z\pm S\pm Q\pm M\pm\ldots\pm(N=0,1,2)\pm(q)/t}$
$=\{X_0\pm D_0\}^{K(Z\pm S\pm Q\pm M\pm\ldots\pm(N=0,1,2)\pm(q)/t}$
$=A(^S\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=0)}\pm B(^S\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=1)}+\ldots+Px^{K(Z\pm[S]\pm N\pm(q=p-1)}\pm\ldots+\mathbf{D}]$
$=(1-\eta^2)^K[(^S\sqrt{x})^{K(Z\pm[S]\pm N-(q=0)}\pm[D_0(^S\sqrt{x})]^{K(Z\pm[S]\pm N\pm(q=1)}+\ldots+[D_0(^S\sqrt{x})]^{K(Z\pm[S]\pm N\pm(q=p-1)}\pm[D_0]^{K(Z\pm[S]\pm N+(q=S)}$
$=(1-\eta^2)^K\cdot\{X\pm^S\sqrt{\mathbf{D}}\}^{K(Z\pm[S]\pm(N=0,1,2)\pm(q)/t}$;

3.1.3. The logarithm of the system unary (body) circle is in the three-dimensional high-dimensional space of the system {i, J, K}.

Granularity circular logarithm (linear equation):

(3.1.4)
$(1-\eta^2)^k=(1-\eta_{[x]}{}^2)\mathbf{i}+(1-\eta_{[y]}{}^2)\mathbf{J}+(1-\eta_{[z]}{}^2)\mathbf{K}$;

Wave circular logarithm (surface equation):

(3.1.5)
$(1-\eta^2)^k=(1-\eta_{[yz]}{}^2)\mathbf{i}+(1-\eta_{[zx]}{}^2)\mathbf{J}+(1-\eta_{[xy]}{}^2)\mathbf{K}$;

Based on the unified description of isomorphic circle logarithm and circle logarithm factor, random wave-particle duality appears, and the spatial coordinates also have random duality.

3.2. The relationship between higher order of binary (many body) and circular logarithm

Define system binary (multi-body) series [S]=[S±Q±…±M]two series variables,$L=\{X,Y\}^{K(Z\pm S\pm Q\pm M\pm\ldots\pm(N=0,1,2)\pm(q)/t}$form the system area or level [L] system equation:

Xvariable:
$\{X\}^{K[L]}=\{x_1x_2\ldots x_{[S]}\}=A(^S\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=0)}\pm B(^{[S}\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=1)}+\ldots+Px^{K(Z\pm[S]\pm N\pm(q=p-1)}\pm\ldots+\mathbf{D}_{[S]}$;

Yvariable:
$\{Y\}^{K[L]}=\{y_1y_2\ldots y_{[S]}\}=A(^Q\sqrt{y})^{K(Z\pm[S]\pm N\pm(q=0)}\pm B(^{[S}\sqrt{y})^{K(Z\pm[S]\pm N\pm(q=1)}+\ldots+Py^{K(Z\pm[S]\pm N\pm(q=p-1)}\pm\ldots+\mathbf{D}_{[S]}$;

L system:
$\{L_{xy}\}^{K[L]}=\{x_1x_2\ldots x_{[S]}\}\{y_1y_2\ldots y_{[S]}\}=A(^M\sqrt{xy})^{K(Z\pm[L]\pm N\pm(q=0)}\pm B(^M\sqrt{xy})^{K(Z\pm[L]\pm N\pm(q=1)}+\ldots+P(^M\sqrt{xy})^{K(Z\pm[L]\pm N\pm(q=p-1)}\pm\ldots+\mathbf{D_S}$;

According to the reciprocity theorem and the system$(^{[L]}\sqrt{L})$，D_0 satisfies the discriminant and has a stable invariant group. Through the polynomial theorem, the definition domain of the logarithmic critical line of the stability circle is obtained from {0 to 1}.

(3.2.5)
$[(1-\eta^2)^{(KW=+1)}\cdot(1-\eta^2)^{(KW=-1)}]^{K(Z\pm S\pm Q\pm M\pm\ldots\pm(N=0,1,2)\pm(q)/t}=\{0,1\}^K$;

(3.2.6)
$[(1-\eta^2)^{(KW=+1)}+(1+\eta^2)^{(KW=-1)}]^{K(Z\pm S\pm Q\pm M\pm\ldots\pm(N=0,1,2)\pm(q)/t}=\{0,1\}^K$;

The circular logarithmic simultaneous equations (3.2.5)-(3.2.6) are solved algebraically to obtain the proof of the numerical equivalence limit of the central zero point.

(3.2.7) $(1-\eta^2)^K=\{({}^{[S]}\sqrt{x})/D_0\}^{K(Z\pm[S]\pm(N=0,1,2)\pm(q)/t}$ $=\{0 \text{ or } [0 \text{ to } (1/2) \text{ to } 1] \text{ or } 1\}^K$;

3.3. System multivariate (many body) higher-order equations

Known: L system [[L]=[S,Q,M]], power function K(Z±[[L]±N±(q)/t，

Mean function: $\mathbf{D_{0[L]}}=[\mathbf{D_{0[S]}},\mathbf{D_{0[Q]}},\mathbf{D_{0[M]}}]$

Boundary condition: $\mathbf{D_{[L]}}^{K(Z\pm[L]\pm N\pm(q)/t}=[\mathbf{D_{0[S]}}^{K(Z\pm[S]\pm N\pm(q)/t},\mathbf{D_{0[Q]}}^{K(Z\pm[Q]\pm N\pm(q)/t},\mathbf{D_{0[M]}}^{K(Z\pm[M]\pm N\pm(q)/t}]$;

System multivariate (many body) higher-order equations:

(3.3.1)
$\{L\pm({}^{[L]}\sqrt{D_L})\}^{K(Z\pm[L]\pm N\pm(q)/t}=A({}^{[L]}\sqrt{L})^{K(Z\pm[L]\pm N\pm(q=0)/t}\pm B({}^{[L]}\sqrt{L})^{K(Z\pm[L]\pm N\pm(q=1)/t}+\ldots+C({}^{[L]}\sqrt{L})^{K(Z\pm[L]\pm N\pm(q=2)/t}+P({}^{[L]}\sqrt{L})^{K(Z\pm[L]\pm N\pm(q=p-1)/t}+\mathbf{D_{[L]}}$
$=[(1-\eta_{[S]}^2)^K\cdot(0,2)\cdot\mathbf{D_{0[S]}}]^{K(Z\pm[S]\pm N\pm(q)/t}+[(1-\eta_{[Q]}^2)^K\cdot(0,2)\cdot\mathbf{D_{0[Q]}}]^{K(Z\pm[Q]\pm N\pm(q)/t}+[(1-\eta_{[M]}^2)^K\cdot(0,2)\cdot\mathbf{D_{0[M]}}]^{K(Z\pm[M]\pm N\pm(q)/t}$
$=[(1-\eta_{[L]}^2)^K\cdot(0,2)\cdot\mathbf{D_{0[L]}}]^{K(Z\pm[L]\pm N\pm(q)/t}$;

Each sub-equation of the system many-body has three results:

(3.3.2)
$\{L-({}^{[L]}\sqrt{D_L})\}^{K(Z\pm[L]\pm N\pm(q)/t}=[(1-\eta_{[L]}^2)^K\cdot(0)\cdot\mathbf{D_{0[L]}}]^{K(Z\pm[L]\pm N\pm(q)/t}$;

(3.3.3)
$\{L+({}^{[L]}\sqrt{D_L})\}^{K(Z\pm[L]\pm N\pm(q)/t}=[(1-\eta_{[L]}^2)^K\cdot(2)\cdot\mathbf{D_{0[L]}}]^{K(Z\pm[L]\pm N\pm(q)/t}$;

(3.3.4)
$\{L\pm({}^{[L]}\sqrt{D_L})\}^{K(Z\pm[L]\pm N\pm(q)/t}=[(1-\eta_{[L]}^2)^K\cdot(0\leftrightarrow 2)\cdot\mathbf{D_{0[L]}}]^{K(Z\pm[L]\pm N\pm(q)/t}$;

[L] The many-body equations of the system are generally highly parallel functions. In addition to satisfying the discriminant, the key is that the probability-topological superposition of the central zero point works. That is to say, all parallel functions are expanded at the center zero point (1/2) to the two sides with the synchronous symmetry of the circular logarithmic factor. It shows that the establishment of the system must satisfy the stable superposition of the logarithm of the center zero point circle under the condition of a perfect circle. Otherwise it cannot be established. Emphasizing the concept of "central zero" prevents mode confusion and mode collapse.

Multivariate (body) higher-order equations can be extended to infinite body equations of the system, and the calculation method remains unchanged.

Odd function symmetry:

(3.3.5)
$(1-\eta^2)^{k(infinity)/t}=[(1-\eta^2)^{(KW=+1)}+(1+\eta^2)^{(KW=\pm0)}+(1+\eta^2)^{(KW=-1)}]^{k(infinity)/t}$
$=\{({}^{[S]}\sqrt{L})/D_0\}^{k(infinity)/t}=\{0 \text{ to} 1\}^{K(infinity)/t}$;

Even function symmetry:

(3.3.6)
$(1-\eta^2)^{k(infinity)/t}=[(1-\eta^2)^{(KW=+1)}+(1+\eta^2)^{(KW=-1)}]^{k(infinity)/t}$
$=\{({}^{[S]}\sqrt{L})/D_0\}^{k(infinity)/t}=\{0 \text{ to} 1\}^{K(infinity)/t}$;

According to Brouwer's theorem: In a closed number field, the value of the center point is equivalent to the value of the boundary curve. Based on circular logarithmic factor

The symmetry of the child has equivalent permutation and covariance. The circular logarithmic factor {(η)，(1-η^2)} can be calculated or measured inversely to obtain random wave-particle duality, or the duality space of linear coordinates and surface coordinates.

3.4、Discuss:

(1), physics quantum entanglement $\{D_0\}^{(k=\pm1)(infinity)/t}({}^{[S]}\sqrt{L})$is a fixed value "obey the law of conservation of energy (calculus N=±0,1,2)" .

(2), Quantum entanglement in physics "does not obey the principle of locality", in the interaction region of the entangled state, the numerator$({}^{[S]}\sqrt{L})$ is the denominator of the constant value (quantum particle size, wavelength) $\{D_0\}^{(k=-1)(infinity)/t}$is infinitely small, localized as circular logarithm - {0 to 1}k(infinity)/t of the domain of definition of neural network infinity is controllably expanded, or to explain what Einstein said the "ghost particle".

(3), Disputes over "non-compliance with the principle of locality":

(a), it is said to be "infinite particles (such as dark matter, dark energy) $\{0 \text{ to} 1\}^{K(infinity)/t}$" infinite particles form the infinite azimuth and fast transmission of neural network nodes, if true, it is an important rule of nature one.

(b), it is said to be "superluminal speed≥$C=\{C_0\}^{(k=-1)(limited)/t}$, which is understood as the phenomenon of "superluminal average speed" diffusion transmission, which is the neural network node composed of finite particles in nature" Superluminal speed(k=-1)" fast transmission, since there is "superluminal speed", then there are also "zero light speed", "time bit pause", "time reversal", if true, it is also one of the important rules of nature.

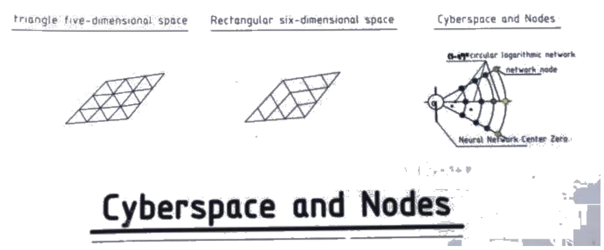
Who is right? It seems that there is still a lot of testing and measurement work to be done in physics!

3.4, high-dimensional space - neural network

The combination and transformation process of "a" higher-order equation, as well as the reciprocal inversion theorem of perfect circle and ellipse, are provided above. The question now raised: Is the decomposition of a high-dimensional function space into asymmetric "two" high-dimensional function spaces, or the combination of "two" asymmetric high-dimensional function spaces into one function space, or is it still the same rule?

This problem is related to the rules of spatial reciprocity transformation of highly parallel arbitrary functions composing neural networks. The answer is that it must satisfy the reciprocal theorem of perfect circle and ellipse, forming a neural network.

Let: the intersection of a perfect sphere and an ellipsoidal sphere is a perfect circle functionS_{AB} , $S_{AB}{}^{K(Z±S±N±(q)/t}$ is an ellipse defined on the number field $K^{(Z±S±N±(q)/t}$ A sphere, an ellipsoid with a constant surface area of the total ellipsoid, $S_{0AB}{}^{K(Z±S±N±(q)/t}$ is defined on the number domain $K^{K(Z±S±N±(q)/t}$ topological formation contains multiple The hierarchical perfect sphere $\{X_0\}^{K(Z±S±N±(q)/t}$ mean function, becomes the zero point of the conversion homeomorphic circle function, and the homeomorphic perfect circle function S_{AB} can be decomposed into an ellipsoid, an elliptical ring, and two A perfect sphere, and vice versa, the reverse combination is also established.



(Fig. 5 Schematic diagram of circular logarithmic information transmission)

There are four kinds of results for the combination or decomposition of the function space, and the homeomorphic topology expansion or contraction between {0 and 1} is unified to form a controllable three-dimensional three-dimensional neural network:

（1）、(K=+1), ellipsoid; (such as: adapting to physical gravity, weak force region, including revolution and rotation);

（2）、(K= -1), elliptical ring; (such as: adapting to physical electromagnetic force, strong area, including radiation and rotation);

（3）、(K=±0),perfect sphere; (eg: adapting to physical neutral photon force, neutrino region);

（4）、(K=±1),balance ball; (such as: adapting to the conversion of two positive and negative areas of physics);

3.4.1. The relationship between ellipsoid angle, curve, surface and circle logarithm

Let: the length of the arbitrary curve $S=R\theta_L=\{X_L\}^{(Kw=+1)K(Z±S±N±(q)/t}$; that is, the curve radius and the corresponding angle are composed.

The polynomial coefficients (a,b,c…p)are included in the curve length S, corresponding to the power function: K(Z±S±N±(q)/t;

Based on the arbitrary curve length, the curve radius is often out of sync with the corresponding angle change. The relationship between an arbitrary curve and a perfect circular curve must be established by the logarithm of the circle, and depending on this relative constant relationship, trigonometric functions can be applied.

Known conditions:

$(S_A≥S_0≥S_B)$, (S_A+S_B) is a perfect circle; (S_A-S_B) is a perfect circle;

$(S_A{}^2≥S_0{}^2≥S_B{}^2)$; $(S_A{}^2+S_B{}^2)$ is a perfect circle; $(S_A{}^2-S_B{}^2)$ is a perfect torus;

$(S_A{}^3≥S_0{}^3≥S_B{}^3)$; $(S_A{}^3+S_B{}^3)$ is a perfect circle; $(S_A{}^3-S_B{}^3)$ is a perfect torus;

$(S_A{}^n≥S_0{}^n≥S_B{}^n)$; $(S_A{}^n+S_B{}^n)$ is a perfect circle; $(S_A{}^n-S_B{}^n)$ is a perfect torus;

Angle function : $\theta_{0L}{}^K=(\theta_0\varphi_0\psi_0)^K=(\theta_0\varphi_0)^K=(\theta_0)^K=(\pi/4)^K$ is invariant; the parameters of the curve function are included in the curve eigenmode.

The logarithm of the circle means:

(1), angle function:

(3.4.1)

$(\theta\varphi\psi)^K=(1-\eta_{[PerfectCircle]}{}^2)^K\theta_0{}^K=[(1-\eta_{[PerfectCircle]}{}^2)^{(Kw=+1)}+(1-\eta_{[PerfectCircle]}{}^2)^{(Kw=+1)}]\theta_0{}^{(Kw=±1)}$

(2), curve function:

(3.4.2)

$\{R^n\cdot(\theta\varphi\psi)\}^K=(1-\eta_{[正圆]}{}^2)^K\{R_0{}^n\cdot(\theta_0\varphi_0\psi_0)\}^K$
$=[(1-\eta_{[curve]}{}^2)^{(Kw=+1)}+(1-\eta_{[curve]}{}^2)^{(Kw=+1)}]\cdot\{R_0{}^n(\theta_0\varphi_0\psi_0)\}^{K(Kw=±1)}$;

(3) The isomorphism of the logarithm of a perfect circle: it means that under the condition of a perfect circle, the logarithm of a circle can adapt to any dimension.

(a), One-dimensional curve (straight line) space:K(Z±S±(N=0,1,2)±(q=1)/t;

(3.4.3)

$(1-\eta_{[perfect\ circle]}{}^2)^K=r/R=(S_A-S_B)/(S_A+S_B)$
$=(S_A-S_0)/(S_A+S_0)]^{(Kw=+1)}=(S_0-S_B)/(S_A+S_0)]^{(Kw=+1)}$;

(b), two-dimensional surface (plane) space: K(Z±S±(N=0,1,2)±(q=2)/t;

(3.4.4)

$(1-\eta_{[Perfect\ circle]}{}^2)^K=r^2/R^2=(S_A{}^2-S_B{}^2)/(S_A{}^2+S_B{}^2)$
$=(S_A{}^2-S_0{}^2)/(S_A{}^2+S_0{}^2)]^{(Kw=+1)}=(S_0{}^2-S_B{}^2)/(S_A{}^2+S_0{}^2)]^{(Kw=+1)}$
;

(c), three-dimensional surface (plane) space: K(Z±S±(N=0,1,2)±(q=3)/t;

(3.4.5)

$(1-\eta_{[Perfect\ circle]}{}^2)^K=r^3/R^3=(S_A{}^3-S_B{}^3)/(S_A{}^3+S_B{}^3)$
$=(S_A{}^3-S_0{}^3)/(S_A{}^3+S_0{}^3)]^{(Kw=+1)}=(S_0{}^3-S_B{}^3)/(S_A{}^3+S_0{}^3)]^{(Kw=+1)}$
;

(d), high (n) dimensional surface (plane) space:

$K(Z\pm S\pm(N=0,1,2)\pm(q=n)/t$;

(3.4.6)

$(1-\eta_{[Perfect\ circle]}^2)^K=r^n/R^n=(S_A^n-S_B^n)/(S_A^n+S_B^n)$
$=(S_A^n-S_0^n)/(S_A^n+S_0^n)]^{(Kw=+)}=(S_0^n-S_B^n)/(S_A^n+S_0^n)]^{(Kw=+1)}$;

(e), algebraic equation:

Known conditions: dimensional space: $K(Z\pm S\pm(N=0,1,2)\pm(q=0,1,2,3,\ldots S)/t$;

Boundary condition: $D=\{({}^{KS}\sqrt{D})\}^{K(Z\pm S\pm N\pm(q)/t}$;

Mean function: $\{D_0\}^{K(Z\pm S\pm N\pm(q)/t}$;

(3.4.7)

$(1-\eta_{[Perfect\ circle]}^2)^K=[({}^{KS}\sqrt{D})/\{D_0\}]^{K(Z\pm S\pm N\pm(q)/t}$
$=(S_A^n-S_B^n)/(S_A^n+S_B^n)$
$=(S_A^n-S_0^n)/(S_A^n+S_0^n)]^{(Kw=+)}$
$=(S_0^n-S_B^n)/(S_A^n+S_0^n)]^{(Kw=+1)}$;

(4), geometric space:

Known conditions: dimensional space:

$K(Z\pm S\pm(N=0,1,2)\pm(q=0,1,2,3,\ldots S)/t$;

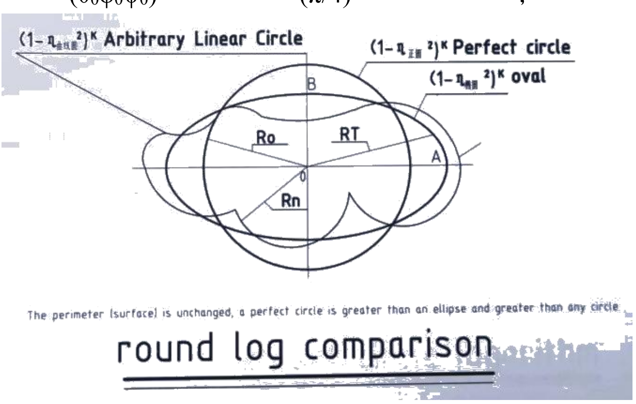
Boundary condition:

$D=\{({}^{KS}\sqrt{D})\}=\{R\cdot(\theta\varphi\psi)\}^{K(Z\pm S\pm N\pm(q)/t}$;

Mean function:

$\{D_0\}^{K(Z\pm S\pm N\pm(q)/t}=\{R_0\cdot(\theta_0\varphi_0\psi_0)\}^{K(Z\pm S\pm N\pm(q)/t}$;

$(\theta_0\varphi_0\psi_0)^{K(Z\pm S\pm N\pm(q=1)/t}=(\pi/4)^{K(Z\pm S\pm N\pm(q=0,1,2,3)/t}$;



(Fig. 6 Schematic diagram of the comparison of the logarithmic area of the circle)

(3.4.8)

$(1-\eta_{[Perfect\ circle]}^2)^K=[({}^{KS}\sqrt{D})/\{D_0\}]^{K(Z\pm S\pm N\pm(q)/t}=(S_A^n-S_B^n)/(S_A^n+S_B^n)$
$=(S_A^n-S_0^n)/(S_A^n+S_0^n)]^{(Kw=+)}=(S_0^n-S_B^n)/(S_A^n+S_0^n)]^{(Kw=+1)}$;

(5), the zero point of the center of the perfect circle curve:

(3.4.9) $S^{K(Z\pm S\pm N\pm(q)/t}=(1-\eta_{[Perfect\ circle]}^2)^K S_0^{K(Z\pm S\pm N\pm(q)/t}=0$;

(6) The ratio of ellipse function to perfect circle function:

The perfect circle function is synchronized with the angle function:

$(1-\eta_{[Perfect\ circle]}^2)^K=(1-\eta_{[Perfect\ circle\ R]}^2)^{(Kw=+1)}+(1-\eta_{[Perfect\ circle\theta]}^2)^{(Kw=-1)}=1$;

Ratio of arbitrary curve to elliptic function:

$(1-\eta_{[ellipse]}^2)^K=(1-\eta_{[ellipse]}^2)^K+(1-\eta_{[perfect\ circle]}^2)^K\le 1$;

Ratio of arbitrary curve to perfect circle function:

$(1-\eta_{[curve]}^2)^K=(1-\eta_{[curve]}^2)^K+(1-\eta_{[ellipse]}^2)^K+(1-\eta_{[perfect\ circle]}^2)^K\le 1$;

When the curves and surfaces around the closed curve remain unchanged:

The comparison is:

(3.4.10) $(1-\eta_{[Perfect\ circle]}^2)^K\ge(1-\eta_{[ellipse]}^2)^K\ge(1-\eta_{[curve]}^2)^K=\{0\ \text{to}\ 1\}$;

(9), the series of angular function (angular momentum):

(3.4.11)

$x_\theta^{K(Z\pm S\pm N\pm(q)/t}=(\cos(1-\eta^2)^K x_{0\theta})^{K(Z\pm S\pm N\pm(q=1)/t}+(\cos(1-\eta^2)^K x_{0\theta})^{K(Z\pm S\pm N\pm(q=2)/t}+\ldots$, (10) ,Elliptic function of spherical coordinates

Circular logarithmic factor discriminant: $(\delta\eta_L)=\{x_L\}/\{X_{0L}\}$;

(3.4.12)

$\{X_L\}^{K(Z\pm S\pm N\pm(q)/t}=\{R\theta_L\}^{(Kw=+1)K(Z\pm S\pm N\pm(q=n)/t}$
$=a(\cos x_L)^{K(Z\pm S\pm N\pm(q=0)/t}+b(\cos x_L)^{K(Z\pm S\pm N\pm(q=1)/t}+\ldots+p(\cos x_L)^{K(Z\pm S\pm N\pm(q=(p-1))/t}$
$=ax_L^{K(Z\pm S\pm N\pm(q=0)/t}+bx_L^{K(Z\pm S\pm N\pm(q=1)/t}+\ldots+px_L^{K(Z\pm S\pm N\pm(q=(P-1))/t}$
$=(1-\eta_L^2)^{(K=+1)}\cdot\{R_0\theta_{0L}\}^{(Kw=+1)K(Z\pm S\pm N\pm(q)/t}$
$=(1-\eta_L^2)^{(Kw=+1)}\{R_0\}\cdot(1-\eta_L^2)^{(Kw=-1)}\{\theta_{0L}\}^{(K=+1)K(Z\pm S\pm N\pm(q)/t}$
$=[(1-(\delta\eta_L)^2)^{(Kw=+1)}\cdot(1-(\delta\eta_L)^2)^{(Kw=-1)}]\{X_{0L}\}^{K(Z\pm S\pm N\pm(q)/t}$
$=(1-\eta_L^2)^{(K=+1)}\cdot\{X_{0L}\}^{(Kw=+1)K(Z\pm S\pm N\pm(q)/t}$;

(11), The logarithm of the center zero point circle satisfies the symmetry and the logarithm of the probability circle;

(3.4.13)

$\sum(\delta\eta_L)^2)^K=\sum(\delta\eta_L)^2)^{(Kw=+1)}+\sum(1-(\delta\eta_L)^2)^{(Kw=-1)}=\{1\}$; (topological symmetry);

(3.4.14)

$\sum(\delta\eta_L)^2)^K=\sum(\delta\eta_L)^2)^{(Kw=+1)}+\sum(1-(\delta\eta_L)^2)^{(Kw=-1)}=\{0\}$; (probability symmetry);

In the formula:$(\delta\eta_L)$ represents the angle function as the center zero point $\{X_{0L}\}$ as the symmetry factor on both sides of the center.

Formulas (3.4.1)-(3.4.14) indicate that all curve functions take the perfect circle curve function as the reference frame for comparison. The center zero point is the invariant homeomorphic center point (K=±1), and the values of the surrounding points change according to the logarithm of the circle $(1-\eta_L^2)^K$.

Geometric visualization:

(1), (Kw=+1) The ellipse is topologically shrunk from the boundary (curve, surface) to the center point according to the logarithmic rule of the circle; (Kw=-1) The ellipse and the perfect circle are from the boundary (curve, surface) according to the logarithm of the circle The rules expand topologically toward the center point.

(2), (Kw=+1) The elliptic ring is topologically contracted from the boundary (curve, surface) and the center curve of the elliptic ring to the center point according to the logarithmic rule of the circle; (Kw=-1) The elliptic ring and the perfect circle are from the boundary (Curve, surface) and elliptical ring center curve are topologically expanded to the center point according to the logarithmic rule of the circle.

3.4.2. Arbitrary infinite high-dimensional ellipsoid, elliptical spherical function and circle logarithm

Based on the isomorphism of the logarithm of the circle, the ellipsoid-elliptic ring function and the topological change rule of the homeomorphic center point:

$(1-\eta_{R\theta}{}^2)^{(Kw=+1)K(Z\pm S\pm N\pm(q=1,2,3\ldots)/t}\cdot\{X_R\}^{(K=+1)K(Z\pm S\pm N\pm(q=1,2,3\ldots)/t}$,

$\{X_R\}^{(K=+1)K(Z\pm S\pm N\pm(q=1,2,3\ldots)/t}=[(1/2)(R_A{}^2\theta_{AL}{}^2+R_B{}^2\theta_{BL}{}^2]^{K(Z\pm S\pm N\pm(q=1,2,3\ldots)/t}$

and circle logarithms for elliptical rings (two topologies: homeomorphic center to torus centerline and torus centerline to torus boundary):

$(1-\eta_{R\theta}{}^2)^{(Kw=-1)K(Z\pm S\pm N\pm(q=1,2,3\ldots)/t}\cdot\{X_R\}^{(K=-1)K(Z\pm S\pm N\pm(q=1,2,3\ldots)/t}$,

$\{X_R\}^{(K=-1)K(Z\pm S\pm N\pm(q=1,2,3\ldots)/t}=(1/2)(R_A{}^2\theta_{AL}{}^2 - R_B{}^2\theta_{BL}{}^2)^{(K=-1)K(Z\pm S\pm N\pm(q=1,2,3\ldots)/t}$

For the ellipsoid and ellipsoid, the corresponding planes, surfaces, bodies, and many bodies are all covariant and consistent. That is,

When the two side angles around the center zero point($\theta_{AL}{}^2\pm\theta_{BL}{}^2$) change the same, the angle and the average radius of the ellipse have a synchronous topology.

Let: $\{X_L\}^{K(infinity)/t}=(R^3\theta\varphi\psi)^{K(infinity)/t}$ infinite high-dimensional space;

$\{X_0\}^{K(infinity)/t}=\{R_0\theta_{0L}\}^{K(infinity)/t}=\{R_0{}^n\,\theta_{0L}\}^{K(infinity)/t}$;

$\theta_{0L}{}^{K(infinity)/t}=(\theta_0\varphi_0\psi_0)^{K(infinity)/t}=(\theta_0\varphi_0)^{K(infinity)/t}=(\theta_0)^{K(infinity)/t}=(\pi/4)^{K(infinity)/t}$ is not The three -dimensional space angle of degeneration;

$(1-\eta_{R\theta}{}^2)^K=(1-\eta_{R\theta}{}^2)^{K(infinity)/t}$;

(3.4.5)

$\{X_L\}^{K(infinity)/t}=(1-\eta_{R\theta}{}^2)^K\cdot\{R_0\theta_{0L}\}^{K(infinity)/t}$

$=[(1-\eta_{R\theta}{}^2)^{(K=+1)}+(1-\eta_{R\theta}{}^2)^{(K=-1)}]^{(infinity)/t}\{R_0\theta_{0L}\}^{K(infinity)/t}$

$=[(1-\eta_L{}^2)^K\{X_{0L}\}]^{K(infinity)/t}$;

Among them: curve, surface and sphere are in the equation, and various combinations of ($R^3\theta\varphi\psi$) respectively represent $a(\cos x_L)^{K(Z\pm[S]\pm(q=0)}$ (same boundary conditions), $b(\cos x_L)^{K(Z\pm S\pm N\pm(q=1)/t}$(linear), $c(\cos x_L)^{K(Z\pm S\pm N\pm(q=2)/t}$(surface), $d(\cos x_L)^{K(Z\pm S\pm N\pm(q=3)/t}$ (surface body), $P(\cos x_L)^{K(Z\pm S\pm N\pm(q=(P-1))/t}$(multiple body). Satisfy($\pm\eta_S$)=($\pm\eta_\theta$) and ($\pm\delta S=\pm\delta\theta$) , the ellipse angle and arc correspond to $(1-\eta_L{}^2)^K\neq1$, and the perfect circle angle and arc correspond to $(1-\eta_L{}^2)^K=1$. It is expressed as $(\theta_0=\pi/4)^{K(Z\pm[S]\pm(q=0,1,2,3)}$, $(S_0=\pi/4)^{K(Z\pm[S]\pm(q=0,1,2,3)}$ is the standard value, and the center point is expanded to the two sides to calculate the logarithm of the circle. That is, any center point to each point of the cluster set is the weight, which is called "topological radius".

According to this topological rule, through searching and learning, select any center point to each point of the cluster set as the weight, which is called "topological radius", and convert the environmental image of the (2D/3D) asymmetric object into a perfect circle mode (2D/ 3D) Symmetrically distributed environment image as the information output. The input terminal is the environmental image of the (2D/3D) asymmetric object after the information transmission arrives at the terminal and is still restored through the perfect circle mode.

3.4.3. Combination and decomposition of asymmetric high-dimensional space and circular logarithmic relationship

The combination and decomposition of asymmetric high-dimensional spaces are related to circular logarithms, that is, the positive meaning of the relative symmetry of Fermat's Last Theorem gets them to play a full role in mathematics. That is to say, the combination of two perfect circular functions becomes a relatively symmetrical elliptic function. Conversely, an elliptic function can be decomposed into two controllable perfect circle functions. Therefore, it can be said that it is a supplement to the previous proof of Fermat's Last Theorem.

Let: the two perfect circle functions of group combination multivariate are $A^n=\{x_{1a},x_{2a},x_{3a},x_{4a},x_{5a},x_{6a},\ldots\}$ corresponding to the radius of the perfect circle $\{R_{0A}\}^{K(Z\pm S\pm N\pm(q)/t}$; $B^n=\{x_{1b},x_{2b},x_{3b},x_{4b},x_{5b},x_{6b},\ldots\}$, corresponding to the positive circle Circle radius $\{R_{0B}\}^{K(Z\pm S\pm N\pm(q)/t}$; what if An and Bn are not perfect circle functions or other functions? Don't panic, according to the previous circle logarithm rule,

$A^n=(1-\eta_{A1}{}^2)^K\{x_{1a}x_{2a}x_{3a}x_{4a}x_{5a}x_{6a}\ldots\}$ and $B^n=(1-\eta_{B1}{}^2)^K\{x_{1b},x_{2b},x_{3b},x_{4b},x_{5b},x_{6b},\ldots\}$

Bn=(1-ηB12)K{x1bx2bx3bx4bx5bx6b…}, and can be converted into a perfect circle function by circular logarithm, and then can be processed according to the requirements of this section to the next level $(1-\eta_{A2}{}^2)^K$, $(1-\eta_{B2}{}^2)^K$; $(1-\eta_{A3}{}^2)^K$, $(1-\eta_{B3}{}^2)^K$; …;

Corresponding: $[(\eta_{A1})\pm(\eta_{A2})\pm(\eta_{A3})\pm\ldots]^K$ and $[(\eta_{B1})\pm(\eta_{B2})\pm(\eta_{B3})\pm\ldots]^K$;

or： $[(\eta_{A1}{}^2)\pm(\eta_{A2}{}^2)\pm(\eta_{A3}{}^2)\pm\ldots]^K$ and $[(\eta_{B1}{}^2)\pm(\eta_{B2}{}^2)\pm(\eta_{B3}{}^2)\pm\ldots]^K$,

this unique function belongs to a perfect circle, which is called "perfect circle mode".

In particular, it has been proved that the multiplication of circular logarithms, expressed as the continuous addition of circular logarithmic factors, does not affect the exact calculation of circular logarithms.

What does a power function in a function mean?

The power function of a multi-dimensional perfect circle describes the topological combination state inside a perfect circle (sphere) or ellipse (sphere) or any closed circle (sphere). Or the ellipse and radius changes of A^n and B^n Bn under the condition of constant ellipse (ball) boundary satisfy the above-mentioned $(1-\eta_L^2)^K$ rule, which can also be expressed as a power function.

The compatibility of A and B consists of AB characteristic modes $\{D_{0a}\},\{D_{0b}\}\{D_{0ab}\}$ and boundary condition values $({}^{KS}\sqrt{D})^{K(Z\pm S\pm N\pm(q)/t}$. Special attention: Under multivariate conditions, A and B respectively form higher-order equations:

$A=(1-\eta_A^2)^K\{D_{0A}\}^{K(Z\pm(Q=A)\pm N\pm(q)/t}$;

$B=(1-\eta_B^2)^K\{D_{0B}\}^{K(Z\pm(M=B)\pm N\pm(q)/t}$;

$A+B=(1-\eta_{AB}^2)^K\{D_{0AB}\}^{K(Z\pm(S=(A+B))\pm N\pm(q)/t}=(1-\eta_{AB}^2)^K\{Z_0\}^{K(Z\pm(S=(A+B))\pm N\pm(q)/t}$;

A and B and AB respectively pass through the probability-topology-central zero-point circular logarithm symmetry, which can be combined or analyzed as: the positive and negative circular logarithm or circular logarithm factor between two asymmetric functions and a relative symmetry function .

(1), A perfect circle logarithmic function:

A is combined into a unified eigenmode and positive and negative circular logarithms:

$A^n=(1-\eta_{ab}^2)^{(K=-1)}[A_0^n+B_0^n]=(1-\eta_{ab}^2)^{(K=-1)}[Z_0^n]$; $[Z_0^n]=(1/2)[A_0^n+B_0^n]$;

A^n also has their own "level $(\eta_{A2})^K$" forward and reverse functions inside, which are implicit in the previous level.

$A^n=\{(x_{1a}x_{3a}x_{5a}\ldots)^{(K=+1)},(x_{2a}x_{4a}\ldots)^{(K=-1)}\}^{(K=\pm1)}$,

$(1-\eta_{A2}^2)^{(K=\pm1)}=(1-\eta_{A2}^2)^{(K=+1)}\cdot(1-\eta_{A2}^2)^{(K=-1)}$;

and: $(1-\eta_{2A}^2)^{(K=\pm1)}=(1-\eta_{A2}^2)^{(K=+1)}+(1-\eta_{A2}^2)^{(K=-1)}$;

(2), B logarithmic function of perfect circle:

B combines into a unified eigenmode and positive and negative circular logarithms:

$B^n=(1-\eta_{ab}^2)^{(K=+1)}[A_0^n+B_0^n]=(1-\eta_{ab}^2)^{(K=+1)}[Z_0^n]$; $[Z_0^n]=(1/2)[A_0^n+B_0^n]$;

B^n also have their own "level$(\eta_{B2})^K$" forward and reverse functions, which are implicit in the previous level.

$B=\{(x_{1b}x_{3b}x_{5b}\ldots)^{(K=+1)},(x_{2b}x_{4b}\ldots)^{(K=-1)}\}^{(K=\pm1)}$,

$(1-\eta_{B2}^2)^{(K=\pm1)}=(1-\eta_{B2}^2)^{(K=+1)}\cdot(1-\eta_{B2}^2)^{(K=-1)}$;

and: $(1-\eta_{B2}^2)^{(K=\pm1)}=(1-\eta_{B2}^2)^{(K=+1)}+(1-\eta_{B2}^2)^{(K=-1)}$;

(3), A+B ellipse circle logarithmic function:

A+B is combined into an elliptic function with a uniform eigenmode and positive and negative circular logarithms:

$A^n+B^n=\prod_{([S]\pm N+q)}\{(x_{1ab}x_{3ab}x_{5ab}\ldots)^{(K=+1)},\prod_{([S]\pm N-q)}(x_{2ab}x_{4ab}x_{6ab}\ldots)^{(K=-1)}\}^{(K=-1)}$,

$A^n+B^n=(1-\eta_{ab}^2)^{(K=\pm1)}[A_0^n+B_0^n]=(1-\eta_{ab}^2)^{(K=\pm1)}[Z^n]$; $[Z^n]=[A_0^n+B_0^n]$;

$(1-\eta_{ab}^2)^{(K=\pm1)}=(1-\eta_{ab}^2)^{(K=+1)}\cdot(1-\eta_{ab}^2)^{(K=-1)}=\{0\text{ to }1\}$;

and: $(1-\eta_{ab}^2)^{(K=\pm1)}=(1-\eta_{ab}^2)^{(K=+1)}+(1-\eta_{ab}^2)^{(K=-1)}=\{0\text{ to }1\}$;

In particular, a function, with a resolution of 2, can be decomposed into two asymmetric functions $(x_1x_3x_5\ldots)\neq(x_2x_4x_6\ldots)$, through the probability center zero point, and the obtained asymmetric combined value.

$\prod_{([S]\pm N\pm q)}\{(x_{1a}x_{3a}x_{5a}\ldots)^{(K=+1)}\neq(x_{2ab}x_{4ab}x_{6ab}\ldots)^{(K=-1)}\}^{(K=\pm1)}$,

$\prod_{([S]\pm N\pm q)}\{(x_{1b}x_{3b}x_{5b}\ldots)^{(K=+1)}\neq(x_{2ab}x_{4ab}x_{6ab}\ldots)^{(K=-1)}\}^{(K=\pm1)}$,

The probability circular logarithm satisfies the circular logarithmic symmetry distribution requirements:

$(1-\eta_H^2)^{(K=+1)}=(x_1x_3x_5x_7x_9\ldots)/(X_0)=(1-\eta_H^2)^{(K=+1)}=\{1/2\}^{(K=+1)}(1-\eta_H^2)$,

$(1-\eta_H^2)^{(K=-1)}=(x_2x_4x_6x_8x_{10}\ldots)/(X_0)=(1-\eta_H^2)^{(K=-1)}=\{1/2\}^{(K=+1)}(1-\eta_H^2)$,

(3.3.1) $(1-\eta_a^2)^{(K=\pm1)}=(1-\eta_a^2)^{(K=\pm1)}+(1-\eta_a^2)^{(K=\pm1)}=\{0\text{ to }1\}$;

(3.3.2) $(1-\eta_b^2)^{(K=\pm1)}=(1-\eta_b^2)^{(K=\pm1)}+(1-\eta_b^2)^{(K=\pm1)}=\{0\text{ to }1\}$;

(3.3.3) $(1-\eta_{ab}^2)^{(K=\pm1)}=(1-\eta_{ab}^2)^{(K=\pm1)}+(1-\eta_{ab}^2)^{(K=\pm1)}=\{0\text{ to }1\}$;

Among them: The above probability circle logarithm unitity proof, with the Poincaré topology conjecture involved:

(a), elliptical sphere (called simply connected curve) $(1-\eta_L)^{(Kw=\pm1)}\{R_0\}^{(Kw=\pm1)}$ has corresponding $(1-\eta_L)^{(Kw=+1)}$ convergence and $(1-\eta_L)^{(Kw=-1)}$ expansion;

$(1-\eta_L)^{(Kw=+1)}$ ring sphere (called double connected curve, donut):

(1), From the center point to the center line of the ring: $(1-\eta_L)^{(Kw=\pm1)}$ $\{R_0\}^{(Kw=\pm1)}$ there is a corresponding $(1-\eta_L)^{(K=+1)(Kw=+1)}$ convergence and$(1-\eta_L)^{(K=+1)(Kw=-1)}$ expansion;

(2), From the center line of the ring to the inner and outer boundaries of the ring $(1-\eta_L)^{(K=-1)(Kw=\pm1)}\{R_0\}^{(Kw=\pm1)}$The corresponding$(1-\eta_L)^{(K=+1)(Kw=+1)}$convergence and$(1-\eta_L)^{(K=+1)(Kw=-1)}$ expansion.

In particular, it is proved by the logarithm of the center zero point circle that the elliptical sphere and the annular sphere have {R0}(Kw=±1) and {R0}(Kw=±1) corresponding to (1-ηL)(Kw=±1)) corresponding to (1-ηL)(Kw=+1) and (1-ηL)(Kw=-1) synchronously converge and expand, forming a circular neural network and a radial neural network of non-Euclidean surfaces, with multi-directional Synchronized information transfer.

In particular, it is proved by the logarithm of the center zero point circle that the elliptical sphere and the annular sphere have $\{R_0\}^{(K=+1)(Kw=\pm1)}$ and $\{R_0\}^{(K=-1)(Kw=\pm1)}$ corresponding to

$(1-\eta_L)^{(Kw=\pm1)}$corresponding to $(1-\eta_L)^{(Kw=+1)}$ and $(1-\eta_L)^{(Kw=-1)}$ synchronously converge and expand, forming a circular neural network and a radial neural network of non-Euclidean surfaces, with multi-directional Synchronized information transfer.

In this way, mathematics proves that infinite arbitrary straight lines, curves, surfaces, spheres, multi-spheres, and the distance from the center point to the boundary of the neural network are controllable circle logarithms in $(1-\eta_L{}^2)^{(K=\pm1)(Kw=\pm1)}=\{-1\leftrightarrow0\leftrightarrow+1\}^{(K=\pm1)(Kw=\pm1)}$ or $(1-\eta_L{}^2)^{(K=\pm1)(Kw=\pm1)}=\{0\leftrightarrow(1/2)\leftrightarrow+1\}^{(K=\pm1)(Kw=\pm1)}$; topological control, for high-dimensional space computer $\{D、2D、3D\}^{(K=\pm1)(Kw=\pm1)}$, and information transmission High-dimensional algorithms and images provide reliable mathematical basis.

(4)、Optimize higher-order equations integrating calculus and clustering sets

During the Ming Dynasty in China from 1367 to 1750, the Chinese mathematician Wang Wensu left behind about 500,000 words in the mathematical monograph "Arithmetic Treasures", which solved higher-order equations more than 200 years earlier than Horner of England and Ruffini of Italy. In solving algebraic equations, Newton-Leibniz in the 1660s and 1770s respectively proposed calculus 100 years earlier. Due to the loss of Chinese tradition, there is no solution to the "one-variable quintic equation". In the future, calculus can only go through many crises, continue to reform and improve, and achieve consensus, recognize the theoretical framework of modern mathematics such as real number theory, limit theory, and mathematical logic, and become a central subject that is indispensable to calculus equations in any subject.

The long experience of calculus, from the differential method and integration method proposed by Newton-Leibniz in the 1760s and 1770s, found that they were the method of unity of opposites, called the basic principle of calculus, and took the first step of calculus, In the future, the math masters Cauchy, Riemann, Liu Weier, and Weierstrass rescued the difficulties and endowed the calculus with special rigor and precision. However, with the expansion and depth of application, various complex problems emerged one after another. , continued to cause confusion in the field of analysis, and finally, Cantor, Volterra, Bell, and Lebesgue in the early 20th century proposed the Lebesgue integral, established the so-called calculus process and reached the so-called "end point" . However, there is still room for expansion and reform in calculus.

4.1. The urgency of calculus reform.

Calculus is a method of calculus that mathematicians sometimes call "logical calculus" or "probability calculus." In technical language, differentiation involves measuring "change" and integration involves measuring superposition. In fact, it is: "Describe the dynamic state of the combination of polynomial elements". When modern physics applies calculus dynamic control, there are some doubts:

(1) When the object of our study enters the microscopic state, the properties of time and space are in the quantum state, and the continuity and correlation performance of calculus cannot be adapted?

(2) When the object of our study enters the macroscopic state, the properties of time and space are in a state of wave-particle compatibility, and the continuity and correlation performance of calculus cannot be unified?

(3) Corresponding to the comparison of relativity, will the ratio expressed in mathematics as "infinity and infinity, infinitesimal and infinitesimal, infinitesimal and infinity, and infinity and infinitesimal" be restricted by the multi-variable calculus?

(4) Computers can only perform rational number calculations, can they adapt to asymmetric (input and output calculations are asymmetric) and correlation (calculation elements have interactive effects) calculations? A serious question is raised, can it provide a basis for the calculation methods used by computers without relying on the theory of real numbers?

(5) It is difficult for logical calculations to meet the modern scientific development of relevance

In 1847, the British mathematician Boole proposed a logical mathematical calculation method for dealing with the relationship between two values, including union, intersection, and subtraction. This logic operation method is used in graphics processing operations to generate new shapes from simple combinations of basic graphics. And from two-dimensional Boolean operations to three-dimensional graphics Boolean operations. Among them, the logic calculation that emphasizes the principle of symmetry in the operation is a special case of the calculus equation. For a large number of asymmetry and correlation interaction phenomena, how to convert asymmetry into symmetry, and the analysis of "ellipse mode" lack interpretability and mathematical rigorous proof. This problem has so far not been satisfactorily dealt with.

The above shows that many scientific fields such as modern physics, life sciences, and computer science have been ahead of traditional mathematics. Mathematics, including traditional calculus and pattern recognition cluster set equations, will become an obstacle to scientific progress if no reform is carried out. Calculus and pattern recognition are facing a crisis, and reform has already reached a height of urgency.

4.2, Calculus - the connection between circular

logarithms and Boolean logic algorithms

Boolean logic takes its name from George Boole, an English mathematician at Cork University (now the National University of Ireland, Cork) who first defined the algebraic system of logic in the mid-nineteenth century. Boolean logic has many applications in electronics, computer hardware and software. In 1937, Claude Shannon showed how Boolean logic could be used in electronics.

There are four types of Boolean logical operators: and (logical and), or (logical or), not (logical negation), and XOR (logical exclusive or). and (logical sum). In life, logic and explanation are synonymous with "and". &; invokes logical AND, and the result is true only if both operands are true. & is called a concise "and" or "short circuit", and the result is true if only two operands are true. or (logical or) The logical or operator returns the boolean value true if one or more operands are true; the result is false only if all operands are false. not (logical negation) logical....

Boolean logic adapts to discrete-type cluster sets for engineering statistical computing. The analytical ability related to the correlation is insufficient, and the approximation calculation is used. As the mathematical rigor, the logical calculation is not rigorous. Mathematicians expect to have a simple and unified formula that satisfies "logical arithmeticalization, arithmetical logicalization", and realizes arithmetical logic calculation with zero error.

In May 2018, the American Nobel Prize-winning statistician Nash proposed: "Similar to the principle of relativity" to reform mathematics and calculus, and apply it to economic micro-analysis and generalized quantitative particle mathematical models. There are also many scholars and experts at home and abroad who have proposed reforming calculus.

Calculus-circular logarithm is called higher-order equation, which can convert nonlinear equations into symmetrical symmetry analysis, which is applied to probability analysis, probability circular logarithm of random equations, fractal and chaotic analysis applied to topological circular logarithm, through In the center zero processing, the two circle logarithms are combined with each other, which is reflected as a synchronous expansion of a common power function.

The core problem of calculus is whether it can deal with the rule of "multiplication and addition reciprocity" - the inherent defect of calculus. Novel calculus equations for the "Fusion of Compatibility and Completeness". Otherwise it will be difficult to achieve substantial calculus reform.

The goal of calculus reform envisaged by mathematicians at home and abroad is: controllable "arithmeticization of logical algebra and logicalization of arithmetic calculation", which should include both the eight theorems of the continuity of traditional calculus and the discrete pattern recognition interface and ellipse mode. In addition, it is necessary to deal with the "asymmetry and correlation" of calculus, integrate it with discrete pattern recognition, and establish algebraic equations without derivatives, limits, and logical symbols; and limited to arithmetic "addition, subtraction, multiplication, and division. Square" notation. The specific performance is the unification of calculus algorithm and Boolean logic algorithm.

4.2.1, Wronskian determinant and circular logarithm

Wronskian determinant (Wronskian), in mathematics, named after the Polish mathematician Josef Horne Wronski, is a function used to calculate the solution space of differential equations.

For given S (S-1) successively differentiable functions, $f_1, f_2, ..., f_S$, their Ronsky determinants

W $(f_1, f_2, ..., f_n)$ are:

(4.2.1)

$$W(f_1,\dots,f_n)=\begin{vmatrix} f_1 & f_2 & \cdots & f_n \\ f_1' & f_2' & \cdots & f_n' \\ \vdots & \vdots & \ddots & \vdots \\ f_1^{(n-1)} & f_2^{(n-1)} & \cdots & f_n^{(n-1)} \end{vmatrix}$$

If W(f1,f2,...,fn) are linearly related on an interval [a,b], due to the linearity of the differential operator, there are coefficientsC_1~$C_S$that are not all zero so that on the interval [a,b] An arbitrary(x) of such that the following S equations hold.

(4.2.2) $C_1f(x)+C_2f(x)+\ldots+C_Sf(x)=0$; (zero-order calculus equation);

$C_1f`(x)+C_2f`(x)+\ldots+C_Sf`(x)=0$; (calculus second-order equation);

$C_1f''(x)+C_2f''(x)+\ldots+C_Sf''(x)=0$; (calculus first-order equation);

$C_1f^{(S-1)}(x)+C_2f^{(S-2)}(x)+\ldots+C_Sf^{(S-P)}(x)=0$; (higher-order calculus equation);

At this time, the Lansky determinant of these S functions is 0. When solving linear differential equations, the Ronsky determinant can be calculated using Abel's identity.

Here the Wronskian determinant (Wronskian) is written as a system of higher-order (calculus) equations, which are:

(1), system calculus zero-order equation;

(4.2.3)

$W=W\{f(x)\}=\sum_{(Z\pm[S]\pm(N=0)}f(x)^{K(Z\pm S\pm(N=0)\pm(q)/t}$

$=\sum_{(Z\pm[S]\pm(N=0)}(1/C_{(Z\pm S\pm(N=0)\pm q)})^K x^{K(Z\pm S\pm(N=0)\pm(q)/t}$
$=(1-\eta^2)^K=\{({}^{[S]}\sqrt{x})/D_0\}^{K(Z\pm[S]\pm(N=0)\pm(q=0,1,2,3\ldots n)/t}$
$=\{0$ or $[0$ to $(1/2)$ to $1]$ or $1\}^K$;

(2), the first-order equation of system calculus;

(4.2.4)
$W=W\{f(x)\}=\sum_{(Z\pm[S]\pm(N=1)}f(x)^{K(Z\pm S\pm(N=1)\pm(q)/t}$
$=\sum_{(Z\pm[S]\pm(N=1)}(1/C_{(Z\pm S\pm(N=1)\pm q)})^K x^{K(Z\pm S\pm(N=1)\pm(q)/t}$
$=(1-\eta^2)^K=\{({}^{[S]}\sqrt{x})/D_0\}^{K(Z\pm[S]\pm(N=1)\pm(q=0,1,2,3\ldots n)/t}$
$=\{0$ or $[0$ to$(1/2)$ to$1]$ or$1\}^K$;

(3), system calculus second-order equation;

(4.2.5)
$W=W\{f(x)\}=\sum_{(Z\pm[S]\pm(N=2)}f(x)^{K(Z\pm S\pm(N=2)\pm(q)/t}$
$=\sum_{(Z\pm[S]\pm(N=2)}(1/C_{(Z\pm S\pm(N=2)\pm q)})^K x^{K(Z\pm S\pm(N=2)\pm(q)/t}$
$=(1-\eta^2)^K=\{({}^{[S]}\sqrt{x})/D_0\}^{K(Z\pm[S]\pm(N=2)\pm(q=0,1,2,3\ldots n)/t}$
$=\{0$ or $[0$ to$(1/2)$ to$1]$ or$1\}^K$;

(4), system calculus high (P) order equation;

(4.2.6)
$W=W\{f(x)\}=\sum_{(Z\pm[S]\pm(N=P)}f(x)^{K(Z\pm[S]\pm(N=0,1,2\ldots P)\pm(q)/t}$
$=\sum_{(Z\pm[S]\pm(N=P)}(1/C_{(Z\pm S\pm(N=P)\pm q)})^K x^{K(Z\pm[S]\pm(N=0,1,2\ldots P)\pm(q)/t}$
$=(1-\eta^2)^K=\{({}^{[S]}\sqrt{x})/D_0\}^{K(Z\pm[S]\pm(N=0,1,2\ldots P)\pm(q=0,1,2,3\ldots n)/t}$
$=\{0$ or $[0$ to$(1/2)$ to$1]$ or$1\}^K$;

Equations (4.2.1)-(4.2.6) can be inversely mapped to a controllable and stable circular logarithmic neural network for analysis and cognition.

4.2.2, Feynman path integral and circular logarithm connection

In 1942, Feynman proposed a "summation by path" method of wave function in his doctoral dissertation.

(4.2.7)
$\psi(t,x)=$"$\int_{[\gamma:\gamma(t)=x]}\exp\{t/h\}S_t(\gamma)\varphi(\gamma(0))D\gamma$"

Where :
$S_t(\gamma)=(m/2)\int^t_0\{\gamma(S)\}^2ds-\int^t_0V\{\gamma(S)\}ds$

Formula (4.2.7) integrates the result, and obtains a "quartic equation (S=4)" and Dɣ ("flat measure" on the path space), which is called Feynman path integral.

The foundation of quantum mechanics is the Schrodinger equation, which is actually a second-order equation of calculus-circular logarithm. The whole equation has "second derivative" plus "first derivative" plus "space term". in:

1. The "first derivative" is the Dirac equation.
2. The "second derivative" is a second quantization, called the energy equation.
3. The "space term" belongs to the original function or zero-order equation.

The definition of the path integral (integration over all possible quantum paths of the field), so that the value of most path integrals are real infinite (inverse infinity) functions. (K=+1.0.-1), the original wave function is written as a "function", its input is also a function, and this function is Lorentz conservation, called the field quantum characteristic mode and reflecting the field quantum unified change rule circle logarithm.

When solving the Schrodinger equation, "imaginary numbers (√(-1))" often appear. Among the three calculation results of "unary [S] second-order (-N=0,1,2) wave equation" (0,2,1↔2), the "2" in it has transformed the asymmetry equation For the relative symmetry equation of a real number, it avoids the trouble of "imaginary number (√(-1))".

Therefore, the original integration of the wave function, a very ordinary time-space integration, becomes an integration of the field quantum (called the eigenmode, the median and inverse mean function) and the logarithm of the circle reflecting the unified change rules of their respective quantum. It is necessary to calculate the logarithmic integral of the circle for all possible paths of the field quantum, which is the meaning that the so-called path integral is equivalent to the logarithm of the circle.

Feynman's greatest contribution is that he created a set of methods for calculating this path integral, which is the famous Feynman diagram. Feynman diagrams are very vivid and intuitive to classify the path integrals that cannot be calculated at all, list them layer by layer, and replace them with higher-order dynamic equations.

The Schrödinger equation-Feynman path integral's real principle $S_t(\gamma)$ is transformed into an eigenmode, and the "flat measure" of Dɣ is the logarithm of the circle. Described by group combination-circle logarithm, it is called path integral-circle logarithm.

(4.2.8)
$W=\{f(x)\}=\sum_{(Z\pm[S]\pm(N=P)}f(x)^{K(Z\pm[S]+(N=0,1,2)\pm(q)/t}$
$=\sum_{(Z\pm[S]\pm(N=P)}(1/C_{(Z\pm S\pm(N=P)\pm q)})^K x^{K(Z\pm[S]+(N=0,1,2)\pm(q)/t}$
$=\sum_{(Z\pm[S]\pm(N=P)}\{({}^{[S]}\sqrt{x})/D_0\}^{K(Z\pm[S]+(N=2)\pm(q=0,1,2,3\ldots n)/t}$
$+\sum_{(Z\pm[S]\pm(N=P)}\{({}^{[S]}\sqrt{x})/D_0\}^{K(Z\pm[S]+(N=1)\pm(q=0,1,2,3\ldots n)/t}$
$+\sum_{(Z\pm[S]\pm(N=P)}\{({}^{[S]}\sqrt{x})/D_0\}^{K(Z\pm[S]+(N=0)\pm(q=0,1,2,3\ldots n)/t}$
$=(1-\eta^2)^K\{D_0\}^{K(Z\pm[S]+(N=0,1,2\ldots P)\pm(q)/t}$
$=\{0$ or $[0$ to $(1/2)$ to $1]$ or $1\}^K\cdot\{D_0\}^{K(Z\pm[S]+(N=0,1,2\ldots P)\pm(q)/t}$;

Satisfy the energy conservation equation expressed by St(ɣ), described by circular logarithmic equilibrium

(4.2.9) $(1-\eta^2)^K=(1-\eta^2)^{(kw=+1)}+(1-\eta^2)^{(kw=-1)}=0$;

The significance of the path integral-circle logarithm is that its value is:

(1) The invariant characteristic mode field quantum is $D=({}^{[S]}\sqrt{x})^{K(Z\pm[S]+(N=0,1,2\ldots P)\pm(q)/t}$ 等价 equivalent $S_t(\gamma)$, the field quantum equivalent mean function $S_t(0)=\{D_0\}$, the $S_t(0)$ of the path integral is closely related to the calculus polynomial coefficients (A, B, C…),

(2),

$\{D_0\}=\sum_{(Z\pm[S]\pm(N=P)}(1/C_{(Z\pm S\pm(N=P)\pm q)})^K x^{K(Z\pm[S]+(N=0,1,2\ldots P)\pm(q)/t}$

(3) The Lorentz conservation here is represented by taking out each quantity separately and solving it by the method of the equivalent circular logarithmic factor of the perturbation theory. $(1-\eta^2)^K=(1-\eta^2)^{(KW+1)}+(1-\eta^2)^{(KW+1)}=\{0 \text{ or } 1\}$;

Where: $\{0\}^{K(Z\pm[S]+(N=0,1,2\ldots P)\pm(q)/t}$ is rotation conservation; $\{1\}^{K(Z\pm[S]+(N=0,1,2\ldots P)\pm(q)/t}$is the conservation of precession.

(4), $(1-\eta^2)^K=\{({}^{[S]}\sqrt{x})/D_0\}^{K(Z\pm[S]+(N=0,1,2\ldots P)\pm(q)/t}$ is controllable The logarithm of the circle spreads between {0 or 1}.

A conjecture about a topological invariant of three-dimensional manifolds—Schwarz—Witten—Attia, reflected as $(1-\eta^2)^K\{D_0\}^{K(Z\pm[S]+(N=0,1,2\ldots P)\pm(q)/t}$, From here, go forward and enter the world of quantum field theory unified computing, tree diagram, single circle, double circle, one of renormalization Series Superiority Algorithms.

4.2.3, Taylor formula - Fourier series - polynomial and circular logarithm

In mathematics, Taylor's formula is known as the "peak calculus". Taylor's formula is a formula that uses the information of a function to describe the value near a point. If the function is smooth enough, Taylor's formula can use these derivative values as coefficients to construct a polynomial to approximate the value of the function in the neighborhood of this point, given the values of the derivatives of the function at a certain point. Taylor's formula also gives the deviation between this polynomial and the actual function value.

French mathematician J.-B.-J. Fourier proposed boundary value problem and Fourier transform when studying partial differential equations, that is, a function is decomposed into the sum of several sine and cosine functions. Mr. Hua Luogeng, a famous Chinese mathematician, believes that , the operation of expanding a known function into a Fourier series is called harmonic analysis, and harmonic analysis is also developed from the Fourier series and Fourier transform. General functions can be expanded into the form of Taylor series, we can't help but ask, in addition to the expansion method of Taylor series, is there any other series expansion method? The answer is yes.

In 1807, when French mathematician Baron, Jean, Baptiste, Joseph, Fourier solved the heat conduction equation, he found that the solution function could be represented by a series of trigonometric functions. Research on the problem of coding partial differential equations.

In 1822, Fourier published the monograph "Analytical Theory of Heat", which developed the method of Euler、Bernoulli and others using triangular series into a general theory with rich content. It has to be said that Fourier transform is a powerful tool for solving numerical solutions of differential equations, which is determined by the calculus invariance of trigonometric functions, that is, if the sine and cosine functions are derived, only their amplitude and phase are changed. , without changing its original function shape.

In 1950, Cheng Minde, an academician of the Chinese Academy of Sciences, first obtained the result of the uniqueness of a multiple triangular series, and was called the pioneer of multivariate harmonic analysis. And thus initiated the study of multivariate harmonic analysis in China. Created the research direction of multivariate triangular approximation.

In 1973, starting from the high-dimensional Walsh transformation, began to study pattern recognition and image processing. In 1978, he conducted a systematic and complete analysis of the high-dimensional Walsh transform, proved the convergence theorem and the sampling theorem, and demonstrated the superiority of the Walsh transform for digital image band compression. Together with Academician Shi Qingyun and their doctoral students, he has carried out research in the fields of image data compression, wavelet transform, machine proof, mathematical mechanization, pattern recognition, monocular vision and binocular vision.

In the seventh century AD in the Tang Dynasty, Wang Xiaotong's "Ancient Suanjing" has recorded that the numerical solution was obtained by "dividing it from the open cube (the linear average value related to the polynomial coefficient)" (unfortunately, the original solution was lost). And the 17th century Veda theorem "quadratic equation" discriminant "$B^2-4AC\geq0$"is"$\sqrt{C}/B\leq1$". The circular logarithm believes that the operations of all functions themselves are addition, subtraction and multiplication of finite terms, which hides that the "rule of reciprocity of multiplication and addition" has never been discovered. According to the achievements of Chinese and Western senior mathematicians, it is easy to deduce "$(1-\eta^2)^K=\{{}^S\sqrt{\mathbf{D}}/\mathbf{D_0}\}^S\leq1$". This rule is the "rule of multiplication and addition reciprocity", which can be successfully proved by algebraic equations that do not require the concept of infinitesimal and equal order to the limit. (Introduce the high-order power function $K(Z\pm[S]\pm\ldots\pm(N=0,1,2)\pm(q)/t$dynamic equation of the system).

Among them, the "multiplication" is the control boundary function $\{{}^S\sqrt{\mathbf{D}}\}={}^S\sqrt{(\mathbf{D}_1\mathbf{D}_2\ldots\mathbf{D}_S)}$. "Add" is the known linear mean value associated with the polynomial coefficients $\{\mathbf{D_0}\}=\sum_{(i-S)}(1/S)(\mathbf{D}_1+\mathbf{D}_2+\ldots+\mathbf{D}_S)$. When these two values are determined, the controllable circular logarithm $(1-\eta^2)^K$ can be determined. Similarly, given any two of the above three conditions, the third value of uniqueness can be controlled.

In particular, through the property function (K=+1,±0±1,-1),

When:

(1), $\{^{S}\sqrt{\mathbf{D}}\}\leq\{\mathbf{D_0}\}$, $(1-\eta^2)^{(kw=+1)}\leq1$, ensure that the function converges;

(2), $\{^{S}\sqrt{\mathbf{D}}\}\geq\{\mathbf{D_0}\}$, $(1-\eta^2)^{(kw=-1)}\leq1$, to ensure that the function converges;

(3), $\{^{S}\sqrt{\mathbf{D}}\}\leq\{\mathbf{D_0}\}$, $(1-\eta^2)^{(kw=\pm1)}=1$, to ensure the symmetrical balance of the function and($2\pi\mathbf{k}$) periodic rotation expansion;

(4), $\{^{S}\sqrt{\mathbf{D}}\}\leq\{\mathbf{D_0}\}$, $(1-\eta^2)^{(\pm0)}=0$, to ensure the conversion between the positive and inverse functions and the center symmetry balance inside the function. called the zero point function;

(A), Taylor formula - polynomial and circular logarithm description:

Taylor's formula is actually a special case of polynomials. It is a formula that uses the information of a function at a certain point to describe the value near it. If the function is smooth enough, Taylor's formula can use these derivative values as coefficients to construct a polynomial approximation function to obtain the value in the neighborhood of this point, given the known values of the derivatives of the function at a certain point. This is the regret that Newton, Maclaurin and Lagrange wanted to do but failed to do it.

(4.2.1)

$$P_S(x)=\{X_0\}^{K(Z\pm[S]\pm\ldots\pm(N=0,1,2)\pm(q)/t}=A(^{S}\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=0)/t}\pm B(^{S}\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=1)/t}+\ldots+Px^{K(Z\pm[S]\pm N\pm(q=p-1)/t}\pm\ldots=[(1-\eta^2)\cdot\{D_0\}]^{K(Z\pm[S]\pm\ldots\pm(N=0,1,2)\pm(q)/t};$$

(B), Fourier formula - polynomial and circular logarithm description:

Consider the following functions f (x); f(x)f(x), continuous in [a , b] ; [a,b] , if you want to accumulate them with different cosine functions, it has the following form: It has been proved in Ma's Last Theorem that the angle of the high-dimensional space of a three-dimensional solid is invariant.

(4.2.2)

$$P_S(x)=A\cos(k_0x)+B\cos(k_1x)+C\cos(k_2x)+\ldots+P\cos(k_px)=A(^{S}\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=0)/t}\pm B(^{S}\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=1)/t}+\pm C(^{S}\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=2)/t}\ldots+Px^{K(Z\pm[S]\pm N\pm(q=p-1)/t}$$
$$=[(1-\eta^2)\cdot\{D_0\}]^{K(Z\pm[S]\pm\ldots\pm(N=0,1,2)\pm(q)/t};$$

In this way, any function (Taylor formula - Fourier series - polynomial) can be mapped to "no specific element content" circular logarithm - the computation of the neural network.

The circular logarithms$(1-\eta^2)$ of equations (4.2.1)-(4.2.2) form the simultaneous equations:

(4.2.,3) $(1-\eta^2)\cdot(1-\eta^2)=(0,1)$;
$(1-\eta^2)+(1-\eta^2)=(0,1)$;

Get the numerical solution for the circle logarithm:

(4.2.4) $(1-\eta^2)=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}$;

Among them:

$(1-\eta^2)=\{0 \text{ or } 1\}$ is a jump transition between stable dynamic values, including discrete completeness;

$(1-\eta^2)=\{(0 \text{ to } (1/2) \text{ to } 1)\}$ is a continuous transition between the values of the controllable dynamics, which includes continuous compatibility.

This algebra solves circular logarithmic numerical values, completely avoiding the "infinity-limit" language and avoiding the concept of "real numbers (arbitrary numerical values or generalized natural numbers)" evaluation.

(1), Ensure that any function (including harmonic series, the diffusion type becomes a convergent negative power function) can realize the convergence calculation expansion.

(2), To ensure that any numerical value (including "N (natural number), Z (integer), Q (rational number), R (real number: rational number + irrational number), C (complex number)" known as Russian nesting dolls is called a generalized natural number N).

Through circular logarithms in the form of {η2 or η}: "irrelevant mathematical content", "without specific elements, numerical content" calculations (analysis and combination), the reformed calculus equations and pattern recognition cluster sets have become high Second-order equations can be combined with computer logic symbols and neural network algorithms. In this way, any function, Taylor's formula-Fourier formula-polynomial, is based on the "multiplication and addition reciprocal group term", through the circular logarithm not only obtains numerical solutions and controllable and stable higher-order equations Dynamic control principle. At present, Taylor's formula is mainly used in gradient iteration in machine learning. The concept of group combination-circular logarithm is introduced, and the "gradient, divergence, curl" composed of any higher-order equations can be directly controlled by the power function (time series), as well as the probability-topology-center zero unity, any function Depth, breadth, algorithm, computing power, infinite elements and program expansion, meet the calculation requirements of zero error (threshold 100%).

In particular, when approximation is traditionally used, it must be expanded from a certain point on the function image. If you want to find the value of a very complex function at a certain point, it cannot be achieved directly. At this time, you can use the Taylor formula-Fourier series-polynomial-Cheng Minde formula to approximate the value and the expansion of the image. Finally, through the symmetry theorem of circle logarithm and circle logarithm center zero point, the neural network and neural network node can be established, and the synchronous change of center zero point and boundary can be directly closed in {0 or (0 to 1/2 to 1) or 1 $\}^K$ description, and the "equivalent permutation" of node analysis and combination summation through the central zero point composition tree coding, respectively become the multi-directional (three-dimensional, three-dimensional, five-dimensional-six-dimensional basic space) of the circular neural network and the radial neural network. Synchronous fast transfer of the network.

Higher-order equations are based on the dynamic control principle of calculus [±(N=0,1,2)]/t. In fact, it is the combined mean function of infinite element group combined multivariate combined with the dynamic expansion of "one-dimensional time (/t)",

(1), High-order differential equation(K=±1): Represents the reduction of the polynomial average $\{D_0\}$ term order. Infinity in the power function (Z) any finite K{S-N±q}/t={N=(-0,1,2,3,…≤S)±(q=S…4,3,2,1}/t.is equal to the order of the derivative (combination of unknown variables) decreasing power terms.

(2), higher-order integral equation (K=±1): it represents the increase of the polynomial average $\{D_0\}$ term order, which is infinite (Z) in the power function and arbitrarily finite K{S-N±q}/t={N=(-0,1,2,3,…≤S)±(q=S…4,3,2,1}/tis equal to the order of integral (known variable combination) increasing power term .

(3), higher-order integral balance equation(K=±1): power function K{S-N±q}/t={N=(-0,1,2,3,…≤S)±(q=S…4,3,2,1}/t. It is called the zero-order calculus equation or the original function. behave as

(K=±1) balance=(K=+1)forward function convergence] and (K=-1) inverse function function diffusion reciprocal combination.

(4), High-order integral conversion equation(K=±0): power function K{S-N±q}/t={N=(-0,1,2,3,…≤S)±(q=S…4,3,2,1}/t.The conversion between positive and negative is called the conversion function or zero-point function. behave as

(Kw=+1)Forward Function Convergence]→(Kw=±0) Middle Function, Transformation]←(Kw=-1)Inverse Function Function Diffusion.

4.2.4. Logical algebra is discrete calculation

Logical algebra (discrete calculation)$P_S(x,D)$ is a combination and decomposition represented by logical symbols, and becomes a special case of dynamic control in the higher-order calculus [(±N=0,1,2)] equation:

(4.2.4)

$P_S(x,D)=A(^S\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=0)}-B(^S\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=1)}+\ldots+P\,x^{K(Z\pm[S]\pm N\pm(q=p-1)}-(^S\sqrt{\mathbf{D}})$

$=[(1-\eta^2)\cdot\{x-(^S\sqrt{\mathbf{D}})\}]^{K(Z\pm[S]\pm\ldots\pm(N=0,1,2)\pm(q)/t}$

$=[(1-\eta^2)\cdot(0)\cdot\{D_0\}]^{K(Z\pm[S]\pm\ldots\pm(N=0,1,2)\pm(q)/t}=0$;

(4.2.5) $(1-\eta^2)=\{0 \text{ or } 1\}^{K(Z\pm[S]\pm\ldots\pm(N=0,1,2)\pm(q)/t}$;

Formula (4.2.4) (4.2.5) This is the characteristic of logic algebra (discrete calculation) calculation that emphasizes symmetry, and can be combined with computer logic symbol calculation. Brings pattern recognition interpretability and avoids the pitfalls of pattern confusion and pattern collapse.

In particular, traditional computer theory uses elliptic functions. Except for the four points on the axis of the ellipse, which can be solved, the distributions on other elliptic curves (angles and line segments vary asynchronously) are uncertain. Here, the logarithm of the circle reflects the gap between the ellipse and the perfect circle. The perfect circle mode is adopted (encircling all clusters with a perfect circle, and obtaining the relationship between the average distance from each cluster to the center point of the perfect circle and the perfect circle), on the perfect circle curve The distribution of (the angle changes synchronously with the line segment) is stable and deterministic. This is the reason why the perfect circle mode in the pattern recognition proposed in this paper is more convenient, accurate, simple and zero error than the traditional interface mode and ellipse mode, and the power function expansion does not produce error accumulation expansion.

5. Calculus Equations - Order Value Theorem of Pattern Recognition Clustering Sets

In 1732 Euler pointed out that the expression for the solution of any equation of degree n might look like this:

$A(^n\sqrt{x})^{(S-0)}\pm B(^n\sqrt{x})^{(S-1)}+C(^n\sqrt{x})^{(S-2)}\pm\ldots+P(^n\sqrt{x})^{(S-p+1)}\pm\ldots$;

In 1827, the mathematician Abel proved that "there is no algebraic solution to the general quintic equation". For hundreds of years, many mathematicians have not obtained satisfactory general solution calculations except Galois's discrete special case calculations. Here, discover the rules of calculus polynomial roots and coefficients, prove the relationship between Euler's logarithm and calculus order, and the solution of any Euler's equation of degree n.

Traditional calculus and pattern recognition deal with numbers and shapes and their dynamics, respectively. The novel calculus equation optimizes the two different mathematical fields of classical algebra and logical algebra into an abstract and controllable circular logarithm in {0 to 1} cognition and analysis.

5.1. Extension of traditional calculus order value

The order value is calculated as the calculus order value(±N=1)"$dx=[^{KS}\sqrt{\{x_1x_2\ldots x_S\}}]$ 和

$dx=[(1/S)\{x_1+x_2+\ldots+x_S\}]$". Increment or decrease one by one is called iterative method. The following is a proof of the order change of the "mean function $\{X_0\}^{KS}$":

The easiest way to choose is from the second term of the zero-order polynomial $B=SD_0$, $D_0$is the mean function, the boundary condition $\mathbf{D}=({}^{K[S]}\sqrt{\mathbf{D}})^{K[S]}$, based on $\mathbf{D_0}$ and $\mathbf{D}=({}^{K[S]}\sqrt{\mathbf{D}})^{K(Z\pm[S]\pm(N)\pm(q))/t}$ is uniquely determined, then the circular logarithm $(1-\eta^2)^K=\{({}^S\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{K(Z\pm[S]\pm(N)\pm(q))/t}$ is also uniquely determined, and each unit variable-cluster $\{x_1x_2\ldots x_S\}$ in the group combination is also uniquely determined. Obviously, it is known that $\mathbf{D_0}$ is an invariant group, which controls the change of $(1-\eta^2)^K$, that is, controls ($\mathbf{D}$), which is called analysis. Conversely, controlling the change of ($\mathbf{D}$), that is, controlling the establishment of $(1-\eta^2)^K$, is called recognition and cognition.

Let: D be the multivariate combination, and $\mathbf{D_0}$ be the mean function of the multivariate combination. The polynomial regularization combined coefficients are introduced into the mean function:

Property function;

$\{X\}^{K(Z\pm S\pm N+(q=+1)/t}=\prod_{(Z\pm S\pm(q=0orS))}\{x_1x_2\ldots x_S\}^K$; $K=\pm1,\pm0=(-1)\cdot(+1)$;

Called positive linear function;

$\{X_0\}^{K(Z\pm S\pm N+(q=+1)/t}=[(1/S)^{(+1)}\{x_1^{(+1)}+x_2^{(+1)}+\ldots+x_S^{(+1)}\}]^{K(Z\pm S+(q=+1)}$;

Called inverse linear function;

$\{X_0\}^{K(Z\pm S\pm N+(q=+1)/t}=[(1/S)^{(-1)}\{x_1^{(-1)}+x_2^{(-1)}+\ldots+x_S^{(-1)}\}]^{K(Z\pm S+(q=-1)}$;

Called neutral or zero transfer function;

$\{X_0\}^{K(Z\pm S\pm N+(q=\pm1)/t}=[(1/S)^{(\pm1,\pm0)}\{x_1^{(\pm1)}+x_2^{(\pm1)}+\ldots+x_S^{(\pm1)}\}]^{K(Z\pm S\pm(q=\pm1)}$;

Newton's binomial is sequentially expanded by an iterative method, which is credible under the condition of zero-point order, but it is not suitable for introducing the change of calculus order value. The univariate order value extended multivariate mean function has a similar form with different connotations. The derivative ($-N=1=dx$), $\{X_0\}^{K(Z\pm S\pm(-N)+(q)/t}$is lowered by one order; the integral ($+N=1=\int xdx$), $\{X_0\}^{K(Z\pm S\pm(+N)+(q)/t}$ is raised by one order. Comparison of order value changes of univariate and multivariate mean functions.

5.1.1. Differential equation (-N=0,1,2,3...); (p-1) item order is {q} differential combination (reduced order) form.

(1), Univariate: Univariate satisfies the integer change of unit order value with the "function {X} invariance feature".

(5.1.1)

$U\to du/dx$; $x^2\to2x$; $x^3\to3x^2$;…; $x^n\to nx^{(n-1)}$;

$U\to\int udx$; $x^2\to(1/3)x^3$; $x^3\to(1/4)x^4$;…; $x^n\to(1/(n+1)x^{(P+1)}$;

Formula (5.1.1) The change of calculus order value can only be adapted to univariate, not to multivariate "direct univariate individuals".

(2), Multivariate: Multivariate satisfies the integer change of unit order value with the "mean value function $\{X_0\}$ invariance characteristic".

(5.1.2)

$U\to du/dx_0$; $x_0^2\to2x_0$; $x_0^3\to3x_0^2$; …; $x_0^n\to(n+1)x_0^{(n+1)}$;

(5.1.3)

$d^n\{X^S\}=\{X^S\}/dx^n=d^n\{X\}^{K(Z\pm S\pm(N=0,1,2\ldots n)\pm(q))/t}=(1-\eta^2)^K\{X_0\}^{K(Z\pm S-(N=0,1,2\ldots n)\pm(q))/t}$
$=(S-(N-n)+(q-n))(1-\eta^2)^K\{X_0\}^{K(Z\pm S-(N=0,1,2\ldots n)\pm(q))/t}$;

5.1.2. Integral equation (+N=0,1,2,3…);

p represents the polynomial term order, and the(p+1) term order is the combination form of {q} integral (increasing order).

(5.1.4)

$U\to\int udx_0$; $x_0^2\to(1/3)x_0^3$; $x_0^3\to(1/4)x_0^4$; …; $x_0^n\to(1/(n+1)\{X_0\}^{(n+1)}$;

(5.1.5)

$\int^n\{X_0\}^{K(Z\pm S-(N=0,1,2\ldots n)\pm(q))/t}dx^n=(1-\eta^2)^K\{X_0\}^{K(Z\pm S+(N=0,1,2\ldots n)\pm(q)}$;

5.2. Multiplication and addition reciprocal theorem of calculus equations

5.2.1. The reciprocity theorem and the linear logarithm:

The above circular logarithm proves: from the coefficients of the quadratic equation (a, b, c), the Veda theorem discriminant"$b^2-4ac\geq0$", written as $(1-\eta^2)=(\sqrt{c}/b)^2=(0\text{ To }1)$, introduce high-dimensional sub-variables, prove "isomorphism", and expand the logarithm of circles.

[Proof 5.2.1]: For (N=1) nonlinear combination (q=1-1 combination) mean function (that is, polynomial combination q=(p-1) term,

According to the principle of polynomial regularization coefficient symmetry, the second sub-term $B=(1/S)^{(+1)}\{X_0\}^{(+1)}=(1/S)^{(-1)}\{X_0\}^{(-1)}$,

(5.2.1)

$\sum_{(S\pm q)}(1/S)^{(-1)}\{[\prod_{(Z\pm S\pm(q=-1))}\{x_1x_2\ldots x_S\}^K+\ldots]^{(-1)}\cdot\{X\}^{K(Z-S)}\}$
$=\sum_{(S\pm q)}(1/S)^{(-1)}\{x_1^{(-1)}+x_2^{(-1)}+\ldots x_S^{(-1)}\}^{(-1)}=\{X_0\}^{K(Z\pm S+(q=-1)}$;

(5.2.2)

$\{X\}^{K(Z\pm S\pm q)}=\{X\}^{K(Z\pm S\pm(q=-1)}\cdot\{X\}^{K(Z\pm S\pm(q=+1)}$
$=(1-\eta^2)^K\cdot\{X_0\}^{K(Z\pm S\pm(q=1)}$;

5.2.2. Reciprocity theorem and nonlinear logarithm:

[Proof 5.2.2]: For (N≥2) nonlinear combination (q=2-2 to P-P combination) mean function (that is, polynomial q≥(p-1) term, we have

(5.2.3)

$\sum_{(S\pm q)}(1/C_{(S\pm(N=\geq2)\pm(q=-2))})^{(-1)}[\prod_{(Z\pm S\pm(q=-p))}\{x_1x_2\ldots x_S\}^{(-1)}+\ldots]^{(N=\geq2)}\cdot\{X\}^{(S\pm(N=\geq2)\pm(q=-2))}$
$=\sum_{(S\pm q)}(1/C_{(S\pm(N=\geq2)\pm(q=-))})^{(+1)}[\prod_{(Z\pm S\pm(q=-p))}\{x_1x_2\ldots x_S\}^{(-1)}+\ldots]^{(N=\geq2)}\cdot\{X\}^{(S\pm(N=\geq2)\pm(q=-2))}$

$=\{X\}^{K(S\pm(N=\geq2)\pm(q=-2))}$;

(5.2.4)

$\{X\}^{K(S\pm(N=\geq2)\pm(q=2))}=\{X\}^{K(S\pm(N=\geq2)\pm(q=+2))}\cdot\{X\}^{K(S\pm(N=\geq2)\pm(q=-2))}$

$=(1-\eta^2)^K\cdot\{X_0\}^{K(S\pm(N=\geq2)\pm(q=2))}$;

5.3. The circular logarithm $(1-\eta^2)^K$ is equivalent to Euler's natural logarithm (e^x)

Traditional calculus is established on the assumption that a single variable is an invariant group, and the sub-terms of the calculus are composed of a pair of asymmetric reciprocal "group mean functions", in which the reciprocity theorem includes the relationship of "root and coefficient reciprocity".

When: the order value changes, one element group is differential (decreased by n order), and the other is integral (increased by n order). Newton's binomial calculus order value change, in the polynomial, becomes "differential(du/dx) · integral(∫udx)":

5.3.1. Univariate and Euler's natural logarithm e^x

(5.3.1)

$[\sum_{(S\pm N\pm q)}(du/dx)\cdot(\int udx)]\rightarrow[nx^{(n-1)}\cdot(1/(n+1)x^{(P+1)}]$

$=[n/(n+1)]x^{(n-1)}\cdot x^{(n+1)}$

$=e^x\cdot x^{(n\pm1)}$;

Here, $e^x=[n/(n+1)]^n$is proved by the $[n/(n+1)]^n$ "limit" that$x^{K(S\pm(N=n)\pm(q=-n)}$univariate does not variable, $\{X\}^{K(S\pm(N=n)\pm(q=-n)}$ group combined multivariate mean function invariant. It can also be obtained without the "limit" algebraic equation. It is proved that the variable constant circular logarithm is equivalent to the invariant Euler logarithm.

5.3.2. Multivariate mean function and circular logarithm $(1-\eta^2)^K$

(5.3.2)

$[\sum_{(S\pm N\pm q)}(du/dx)\cdot(\int udx)]\rightarrow[nx_0^{(n-1)}\cdot(1/(n+1)x_0^{(P+1)}]$

$=[n/(n+1)][x_0^{(n-1)}\cdot x_0^{(n+1)}]$

$=(1-\eta^2)^K\cdot\{X_0\}^{(n\pm1)}$;

Here, $(1-\eta^2)^K=\prod_{(S\pm N\pm q)}[n/(n+1)]^n=\sum_{(S\pm N\pm q)}[(P-1)!/(S-0)!]$, obtained by the "multiply and add reciprocity" rule, the invariant group combines the multivariate mean function $\{X_0\}^{K(S\pm(N=n)\pm(q=-n)}$

In particular, natural logarithms and isomorphic circular logarithms make the rate of change of certain quantities proportional to themselves, as derivatives and integrals as functions equal to themselves. Satisfy $e^x=(1-\eta^2)^K$. where $e^x=2.718281828\ldots$. Since it is a fixed value, the application is limited. $(1-\eta^2)^K$ solves complex multi-body system optimization for controllable, reliable, feasible, and unified neural network circular logarithm is widely used.

5.3.3. Calculus for polynomials (n-order and combinatorial form synchronization (q=n) and unification

(5.3.4)

$d^n\{\sum_{(S\pm N\pm q)}[\{X_0\cdot\mathbf{D}_0\}]$ or

$\int^n\{\sum_{(S\pm N\pm q)}\{X_0\cdot\mathbf{D}_0\}dx]^{K(Z\pm[S]\pm(N=-n])-(q=n)/t}$

$=\sum_{(S\pm N\pm q)}\{X_0\cdot\mathbf{D}_0\}^{K(Z\pm S\pm(N+n)\pm(q=n))/t}$

$=\{X_0\pm\mathbf{D}_0\}^{K(Z\pm S\pm(N=0,1,2\ldots n)\pm(q=n))/t}$

$=(1-\eta^2)^K\{0\leftrightarrow2\}\{\mathbf{D}_0\}^{K(Z\pm S\pm(N=0,1,2\ldots n)\pm(q=n))/t}$;

$(n=\pm0,1,2,3\leq S)$;

(5.3.5)

$(1-\eta^2)^K=\{0$ or $(-1\leftrightarrow0\leftrightarrow+1)$ or $1\}K(Z\pm S\pm(N0,1,2\ldots n)\pm(q=n))/t$;

Formula (5.3.1)-(5.3.5) calculus order value method:

(1), The change of the differential (unknown) order value is equivalent to moving the sub-items on the right side of the polynomial to the right in a decreasing jumping manner. The known boundary conditions are the opposite.

(2), The change of the order value of the integral (unknown quantity) is equivalent to the integral movement of each sub-item on the right side of the polynomial to the left in a decreasing jump way, and the known boundary conditions are opposite.

The perfect circle mode is a special case of the logarithm of the circle. Under the condition that the total length of any multivariate curve is constant, the area enclosed by the curve is smaller than the area enclosed by the ellipse curve, and smaller than the area enclosed by the perfect circle curve. The area enclosed by the perfect circle curve is also called the mean function. The functions of calculus and pattern recognition can be the area enclosed by any curve. Therefore, their perfect circle pattern theorems are consistent, which are respectively the circle analysis and analytical process represented by calculus; pattern recognition represents the perfect circle combination and cognitive process. Analysis and composition are reciprocal.

5.4. [Proof 5.4]: The connection between calculus and the perfect circle model

5.4.1. Perfect circle mode: The internal system has different cluster sets, and each cluster corresponds to a large perfect circle with a large enough radius $\{R_0\}$ that does not change, including all (S,Q,M) clusters in the known image. class, each cluster $\{x_i\omega_i r_k\}$, the distance from each level to the center point $\sum(\omega_i),\sum(r_i)$is the weight, which becomes this hierarchical clustering set,

Such as: (S) hierarchical clustering set $\sum_{(i=S)}\{X_i\omega_S\}$ (called ω_S level), (Q) hierarchical clustering set $\sum_{(i=Q)}\{X_i\omega_Q\}$ (called ω_Q level); (M) level The clustering set $\sum_{(i=M)}\{X_i\omega_m\}$ (called the ω_M level), can also continue to be assembled into the next new hierarchical clustering set$\{\omega_i r_k\}=\prod_{(i=S)}\{\omega_i r_1 r_2 r_k\ldots r_k\}$(called the R_k level).

Written in algebraic form, called the perfect circle mode

$\{X\}=\{x_1+x_2+\ldots+x_S\}+\{x_1+x_2+\ldots+x_Q\}+\{x_1+x_2+\ldots+x_M\}$; the distance from each weight point to the center point of the perfect circle $\{R\}=\{r_1+r_2+\ldots+r_S\}+\{r_1+r_2+\ldots+r_Q\}+\{r_1+r_2+\ldots+r_M\}$ is called the corresponding weight of each level;

One-dimensional, two-dimensional, three-dimensional, high-dimensional circles with constant circle radius $\{R_0\}$ and space spherical angle bring constant circle logarithm;

$\{XR\}^S=\{x_1r_1+x_2r_2+\ldots+x_Sr_S\}+\{x_1r_1+x_2r_2+\ldots+x_Qr_Q\}+\{x_1r_1+x_2r_2+\ldots+x_Mr_M\}$;

For example:

or: $\{r_0\}=\{x_1r_1+x_2r_2+\ldots+x_Sr_S\}/\{x_1+x_2+\ldots+x_S\}$;

$\{X_0\}=\{x_1r_1+x_2r_2+\ldots+x_Sr_S\}/\{r_1+r_2+\ldots+r_S\}$;

or: $\{X^2r\}=\{x_1^2r_1+x_2^2r_2+\ldots+x_S^2r_S\}$;

$\{X_0^2\}=\{x_1^2r_1+x_2^2r_2+\ldots+x_S^2r_S\}/\{r_1+r_2+\ldots+r_S\}$

or: $\{Xr^2\}=\{x_1r_1^2+x_2r_2^2+\ldots+x_Sr_S^2\}$;

$\{r_0^2\}=\{x_1r_1^2+x_2r_2^2+\ldots+x_Sr_S^2\}/\{x_1+x_2+\ldots+x_S\}$

or: $\{X^nr\}=\{x_1^nr_1+x_2^nr_2+\ldots+x_S^nr_S\}$;

$\{X_0^n\}=\{x_1^nr_1+x_2^nr_2+\ldots+x_S^nr_S\}/\{r_1+r_2+\ldots+r_S\}$

or: $\{Xr^n\}=\{x_1r_1^n+x_2r_2^n+\ldots+x_Sr_S^n\}$;

$\{r_0^n\}=\{x_1r_1^n+x_2r_2^n+\ldots+x_Sr_S^n\}/\{x_1+x_2+\ldots+x_S\}$

or: $\{X^nr\}=\{x_1^nr_1+x_2^nr_2+\ldots+x_S^nr_S\}$;

$\{r_0\}=\{x_1^nr_1+x_2^nr_2+\ldots+x_S^nr_S\}/\{x_1^n+x_2^n+\ldots+x_S^n\}$

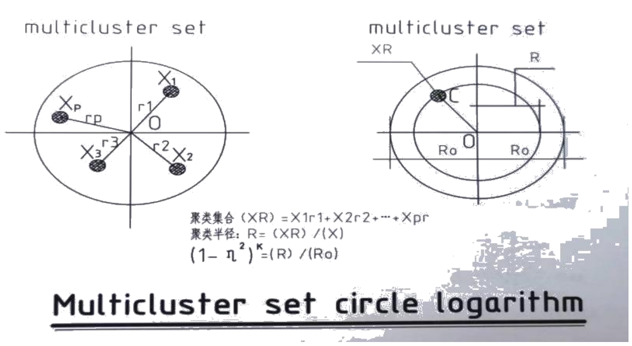
Here, only under the condition of a perfect circle (called a perfect circle mode), the change of the angle of the center point and the change of the boundary curve can be established. At this time, the ratio of the radius and the ratio of the area of the circle is synchronized. Based on the logarithmic radius of the circle, it can be rotated, and the angle influence of the vector is eliminated in the calculation. If it is an arbitrary space, the above vector effects cannot be eliminated.

(5.4.1) $\omega_S=\sum_{(i=S)}\{X_i\omega_i\}/\sum_{(i=S)}\{X_i\}$;

(5.4.2) $R_S=\sum_{(i=S)}\{X_i\omega_ir_k\}/\sum_{(i=S)}\{X_i\omega_i\}$;

(5.4.3)

$(1-\eta^2)^K=\{r_0\}/R_0=\{r_0/R_0\}^2=\{x_0/R_0\}^3=\ldots=\{^{KS}\sqrt{\{X_i\omega_ir_k\}}/R_0\}^n=\{0 \text{ to } 1\}$;



(Fig. 7 Schematic diagram of the perfect circle pattern of cluster set combination)

Such as: (S) hierarchical clustering set (called ωS level), (Q) hierarchical clustering set (called ωQ level); (M) hierarchical clustering set ∑(i=M){XiωM} (called ωM level), You can also continue to collect as the next new hierarchical clustering set (called Rk level).

Written in algebraic form, called the perfect circle mode

The distance from each heavy object point to the center point of the perfect circle is called the corresponding weight of each level;

One-dimensional, two-dimensional, three-dimensional, high-dimensional circles with constant circle radius R_0 and space spherical angle bring constant circle logarithm;

Here, only under the condition of a perfect circle (called a perfect circle mode), the change of the angle of the center point and the change of the boundary curve can be established. At this time, the ratio of the radius and the ratio of the area of the circle is synchronized. Based on the logarithmic radius of the circle, it can be rotated, and the angle influence of the vector is eliminated in the calculation. If it is an arbitrary space, the above vector effects cannot be eliminated.

Formula (5.4.1) (5.4.3) is the average value of the first-level cluster set $\{\omega_S\}$, divided by the perfect circle with constant radius(ω_0) to obtain the logarithm of the perfect circle in the perfect circle mode. Reflects the asymmetry of its elements changing at the radius(ω_0) boundary.

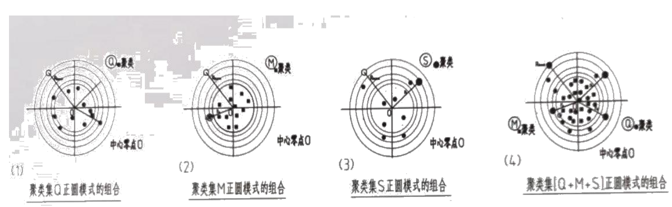
Under the perfect circle condition, the perfect circle (R_0) boundary represents the average value of its invariance. At this time, in addition to the (S) level in the system($S=\sum_{(i=S)}\{X_i\omega_Sr_{kS}\}$) there are ($Q=(Q=\sum_{(i=Q)}\{X_i\omega_Qr_{kQ}\}$)、($M=\sum_{(i=M)}\{X_i\omega_Mr_{kM}\}$). In this system, the logarithm of the perfect circle at the first level is obtained.

The mean value Ri of each hierarchical clustering set reflects the asymmetry of its elements at the boundary.

(5.4.4) $(1-\eta_{\omega S}^2)=\{^{KS}\sqrt{\omega_Sr_{kS}}\}/(R_0)$;

(5.4.5) $(1-\eta_{\omega Q}^2)=\{^{KS}\sqrt{\omega_Qr_{kQ}}\}/(R_0)$;

(5.4.6) $(1-\eta_{\omega M}^2)=\{^{KS}\sqrt{\omega_Mr_{kM}}\}/(R_0)$;



(Fig. 8 Schematic diagram of the perfect circle pattern of cluster set combination)

5.4.2. System complex multi-body, multi-parameter, heterogeneous clustering set:

Similarly: formulas (5.4.4)-(5.4.6) can continue to form a new second, third, fourth... hierarchical clustering set, with a new invariant radius $\{R_0\}$(S,Q,M)hierarchical clustering class set:

$[\sum_{(i=S)}\{X_i\omega_S r_S\}^{K(Z\pm S\pm(N=0,1,2\ldots n)\pm(q=n))/t}$, $\sum_{(i=S)}\{X_i\omega_Q r_Q\}$, $\sum_{(i=S)}\{X_i\omega_M r_M\}]=\sum_{(i=L)}\{X_i\omega_L R_L\}$

The average value of the n-th hierarchical cluster set $\{\omega_{2S}\}\{\omega_{2Q}\}\{\omega_{2M}\}$, divided by a perfect circle with a constant radius $\{R_0\}$, to obtain the logarithm of the perfect circle with a uniform pattern of perfect circles. Reflects the asymmetry of its elements changing at the boundary of the second radius $R_{02}\}$. Under the perfect circle condition, the perfect circle $\{R_0\}$ boundary represents the average value of its invariance.

The same is extended to the n-th hierarchical clustering set mean$[\{\omega_S\}\{\omega_Q\}\{\omega_M\}]^{K(Z\pm[S]\pm(N=0,1,2\ldots n)\pm(q=n))/t}$ is also established.

(5.4.7)

$$\{R\}^{K(Z\pm[S]\pm(N=0,1,2\ldots n)\pm(q=n))/t}$$
$$=[\sum_{(i=S)}\{X_i\omega_S r_S\}^{n}\cdot\sum_{(i=S)}\{X_i\omega_Q r_Q\}^{n}\cdot\sum_{(i=S)}\{X_i\omega_M r_M\}^{n}]/\sum_{(i=L)}\{X_i^{n}\omega_L\}$$
$$=\sum_{(i=S)}\{X_i\omega_i r_k\}^{n}/\sum_{(i=S)}\{X_i\omega_i^{n}\}^{K(Z\pm[S]\pm(N=0,1,2\ldots n)\pm(q=n))/t};$$

(5.4.8)

$$(1-\eta_{[\omega r]}^{2})^{K}=[\ \{R\}/(R_0)]^{K}$$
$$=[\{^{KS}\sqrt{\{X_i\omega_L r_{LM}\}}/(R_0)]^{K(Z\pm S\pm(N=0,1,2\ldots n)\pm(q=n))/t};$$

At this time, the logarithm of the perfect circle at each level is obtained in the system. The mean value Ri of each hierarchical clustering set reflects the asymmetry of its elements at the boundary.

In the same way, the time series constituting the tree coding structure is deduced according to the sequence (power function **K**(Z)/t=**K**(Z±S±(N=0,1,2…n)±(q=n))/t. The above-mentioned "symmetry concept is clear and the structure is unified" unique to the circular logarithm, which overcomes the defects of pattern confusion and pattern collapse in traditional pattern recognition.

The traditional ellipse mode has asymmetry, and traditionally adopts the "Discontinnuos Galerkin variational method" and its "finite element dimension (discrete) subspace, that is, the coordinated finite element method" derived from Feng Kang of China in 1965. The overall idea of DG can be understood as the artificial elimination of two interface approximations from the four variable system to become an "ellipse model", that is, a numerical method for second-order ellipse problems, and a unified analysis framework is given, and then the variable dimension is continuously expanded to obtain a solution. Lowest-order hybridizable hybrid finite element capable of maintaining stress symmetry.

The defect of this method: In addition to the four points connecting the major and minor axes of the ellipse to the boundary, when the "variable dimension of the second-order ellipse on the boundary curve continues to expand", from a geometric point of view, it brings about the distribution of ellipse elements (arcs). It is difficult to determine, because the ellipse angle changes are not synchronized with the elliptic curve changes, increasing the risk of uncertainty, and can only approximate the error estimate.

Apply the difference between the perfect circle and the unity, and use the logarithm of the circle to convert the ellipse function into a second-order perfect circle function, and the center zero point (curvature center) is synchronized with the boundary curve change, and the center zero point of the moving ellipse overlaps the zero point of the center of the perfect circle. The angle change of the perfect circle is synchronized with the change of the perfect circle curve, so that the angle change represents the consistency of the curve change.

For the multi-parameter and heterogeneity of the perfect circle model: it means that each single variable contains multiple parameters, the weight parameter $\{\omega_i=\omega_\alpha\omega_\beta\omega_\gamma\ldots\}$, the heterogeneity parameter (network level parameter) $\{R_k=r_\alpha r_\beta r_\gamma\ldots\}$, combined with multiple The univariate root $\{X_0\}=\{x_{j0}\omega_{i0}R_{k0}\}$, the circle logarithm control maintains multi-parameter characteristics, does not affect the calculation of circle logarithm, the analytical process maintains the independence of each parameter, avoids the interference of specific elements, and ensures zero error calculation. The calculation method of specific elements and numerical content has the advantage of universal application.

5.5. Unity of completeness and compatibility of isomorphism of higher-order equations

Prove the unity of completeness and compatibility of isomorphism of higher-order equations of calculus, including 8 major theorems of calculus that are traditionally proved.

5.5.1. [Proof 5.5.1] Completeness proof:

Refer to the online article, section 8.3 of the video "Mathematics Education to Educational Mathematics".

There are 6 propositions of the traditional textbook and real number Dedekind and so on, and then adding "continuous induction" and "calculus real number continuity and continuous function properties" become 8 calculus propositions

Now extend the proof to completeness proof by "circular logarithm $(1-\eta^2)^K$" and "eigenmode (mean value of inverse function) $\{D_0\}^{K(Z\pm S)/t}$.

Definition A generalized natural number N is a numerical content including "natural number **N**, integer **(Z)**, rational number **(Q)**, real number **(R)**, irrational number (J), and complex number **(C)**". The reason for the inclusion is that the convergence function has a unique value. In the calculation of "no specific content" converted to circular logarithms, numerical values and logical algebraic values are not considered, and only the corresponding digits are considered in the expansion, which does not affect the combination and decomposition of functions. calculation. Therefore, the use of generalized natural numbers **N** (including logical algebra values) is feasible, safe, and expands the computational object.

Let: generalized natural numbers

N=$\{^{KS}\sqrt{x}\}^{K(Z\pm S)/t}$=$\{^{KS}\sqrt{x}\}^{K(infinity)/t}$, $\{X\}^{K(Z\pm S)/t}$=$[(1-\eta^2)^K\{D_0\}]^{K(Z\pm S)/t}$=$[(1-\eta^2)^K\{D_0\}]^{K(infinity)/t}$, Z=K(Z±S)/t=(infinity)/t of the power function, which means infinite elements.(The same below)

There are: isomorphism circular logarithm

$(1-\eta^2)^K=(1-\eta^2)^{K(Z\pm S)/t}=(1-\eta^2)^{K(infinity)/t}$ ={0 to 1}K(infinity) /t;

Completeness: Unified proof of the circular logarithmic model by continuous induction.

(1), Mathematical induction on "generalized natural numbe **N**=$\{^{KS}\sqrt{x}\}^{K(Z\pm S)/t}$: Let $\mathbf{P_S}$ be a proposition involving a generalized natural number $\{^{KS}\sqrt{x}\}^{K(infinity)/t}\neq\{D_0\}^{K(infinity)/t}$ if,

(a), There is a certain .$\{D_{0a}\}^{K(Z\pm S)/t}$ and $\{D_{0b}\}^{K(Z\pm S)/t}$, so that for all a≤b, there is $\{P_S\}^{K(Z\pm S)/t}$ real，

(b), If all $\{P_S\}^{K(Z\pm S)/t}$ and $\{D_0\}^{K(infinity)/t}$, so that for all S≤K(Z±S)/t=(infinity)/t, there are $\{P_S\}^{K(infinity)/t}$ alsoreal. Then all $\{P_S\}^{K(Z\pm S)/t}$ and $\{P_S\}^{K(infinity)/t}$ are true.

(2) , Mathematical induction on "circle logarithm $(1-\eta^2)^K=\{(^{KS}\sqrt{x})/D_0\}^{K(infinity)/t}$"; Let $\mathbf{P_S}$ be a proposition involving a $\{X\}^{K(infinity)/t}\neq(1-\eta^2)^K\{D_0\}^{K(infinity)/t}$";

(a), There is a certain $\{x_{0a}\}^{K(infinity)/t}$and $(1-\eta^2)^K\{x_{0b}\}^{K(infinity)/t}$, so that for all a≤b, there is $\{(1-\eta^2)^K\{P_S\}^{K(infinity)/t}$ true.

(b), If all $\{(1-\eta^2)^K\{P_S\}\}^{K(infinity)/t}$ and$\{(1-\eta^2)^K\{D_{0S}\}\}^{(infinity)}$", so that for all S≤K(Z±S)/t=(infinity)/t, there is $\{(1-\eta^2)^K P_S\}^{K(Z\pm S)/t}$ also true.

The circular logarithm has isomorphism consistency, and the circular logarithm corresponding to any polynomial is synchronous and isomorphic. Then all $\{P_S\}^{K(Z\pm S)/t}$ and $(1-\eta^2)^K\{D_{0S}\}^{K(infinity)/t}$ are true.

In particular, the previous circular logarithmic values have been proved by algebraic methods that do not rely on real numbers: $(1-\eta^2)^K$={0 or (0 to (1/2) to 1) or 1}K(Z±S)/t, It also satisfies$(1-\eta^2)^K$={0 or (0 to (1/2) to 1) or $1\}^{K(infinity)/t}$ completeness condition.

5.5.2. [Proof 5.5.2] Compatibility proof:

Compatibility refers to the ability of each component of two (multiple) functions of asymmetry to accommodate each other to form a macroscopic uniform function (eigenmode).

A large number of practical research results show that there is a great difference in the mutual accommodation ability of two (multiple) pairs of asymmetric functions. Some asymmetric two function pairs can have excellent compatibility; while other asymmetric two function pairs have only limited compatibility; and some asymmetric function pairs. There is little compatibility between the two function pairs. Therefore, it can be divided into complete compatibility, partial compatibility and incompatibility according to the degree of compatibility. Corresponding polymer pairs can be called fully compatible systems, partially compatible systems and incompatible systems, respectively. However, under the concept of circular logarithm, these asymmetries include "symmetry and asymmetry, uniformity and inhomogeneity, continuous and discontinuous, dense and sparse, fractal and chaos", which are uniformly transformed into compatible characteristic modulus and circular logarithm. .

The feature is the asymmetric element distribution inside the eigenmode, which is converted into the probability-topological circle logarithm and becomes the symmetry of the circle logarithm factor through the central zero point to ensure its compatibility. The question now is whether the circular logarithm can be adapted to the eight theorems of calculus that are compatible with continuous-jumping properties?

The demonstration of a series of fundamental theorems of traditional calculus all rely on the theory of real numbers to prove continuity. In the numerical proof of the central zero, the above is extended to the generalized natural number $\{^{KS}\sqrt{x}\}^{K(infinity)/t}$, as well as the "continuous and discontinuous, uniform and non-uniform, fractal and chaos" of irrelevant mathematical models. These calculus theorems have nothing to do with real number theory.

Eight theorems of calculus: there is a loop rule, → Corsi convergence criterion → interval set theorem → Dedekind segmentation theorem → Definite bound theorem → finite coverage theorem → gathering point theorem → Column compaction theorem → Corsi convergence criterion → All can be summed up as a circle Logarithmic description:

(K=+1), $(1-\eta^2)^{(K=+1)}=\{(^{KS}\sqrt{x})/X_0\}^{K(infinity)/t}\leq1$, $(^{KS}\sqrt{x})$ is smaller than $\{X_0\}$ and tends to be infinitely small, then it is called a convergence function.

(K=-1) , $(1-\eta^2)^{(K=-1)}=\{(^{KS}\sqrt{x})/X_0\}^{K(infinity)/t}\leq1$, $(^{KS}\sqrt{x})$ is greater than $\{X_0\}$ and tends to infinity, then it is called the diffusion function.

(K=±1), $(1-\eta^2)^{(K=\pm1)}=\{(^{KS}\sqrt{x})/X_0\}^{K(infinity)/t}\leq1$, $(^{KS}\sqrt{x})$ is arbitrarily balanced and symmetrical to $\{X_0\}$, then it is called a balance function.

(K=±0), $(1-\eta^2)^{(K=\pm0)}=\{(^{KS}\sqrt{x})/X_0\}^{K(infinity)/t}\leq1$, $(^{KS}\sqrt{x})$ is arbitrarily rotated at $\{X_0\}$ discretely, then it is called a transfer function.

(5.5.1)

$(1-\eta^2)^K=(1-\eta^2)^{(K=+1)(infinity)/t}\cdot(1-\eta^2)^{(K=-1)(infinity)/t}=\{0$ to $1\}^{(K=\pm1)(infinity)/t}$;

The formula (5.5.1) reflects the continuous induction equivalence cycle mutual extension of isomorphic circular logarithms, and is compatible with the numerical value, function, and space of any function. Convergence, certainty, balance, and transformation. The circular logarithm is proved by algebra, and the unity describes the unity of "jump and continuity" with "completeness and compatibility".

(1), $(1-\eta^2)^K=\{0 \text{ or } 1\}^{(K=\pm1)(infinity)/t}$ is the transition between values in a complete jumping manner.

(2), $(1-\eta^2)^K=\{(0 \text{ to } (1/2) \text{ to } 1)\}^{(K=\pm1)(infinity)/t}$ is the transition of the internal completeness of the numerical value.

(3), $(1-\eta^2)^K=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}^{(K=\pm1)(infinity)/t}$ neural network,

$(1-\eta^2)^K$ corresponds to the eigenmode $\{D_0\}^{(K=\pm1)(infinity)/t}$ is based on the invariant eigenmode, converted to "no specific content", with abstract circular logarithmic factor bits Values (including numbers, logical algebra, computer algorithms) are controllable, simple, and clear framework and heterogeneous, multi-parameter, multi-directional efficient computing power, providing credible, feasible and reliable theoretical basis, making calculus and model The integration of identification has the unity of isomorphic "security and compatibility", and leads to a broader application prospect.

5.6. Higher-order equations have isomorphism consistent completeness and compatibility unity

Are higher order equations complete? First, consider whether the eight theorems of traditional calculus have completeness proofs. That is, whether they can adapt to the (infinty) condition is represented by the completeness of circular logarithms. Note that traditional calculus uses the "median value theorem", the concept is not clear,

(5.6.1) $F(p)\leq[f(u)-f(v)]/(u-v)\leq F(q)$;

How does the intermediate process of [f(u)-f(v)] behave? Because the median value theorem can only prove: the average value comparison from the "starting point to the end point", the defect is that it cannot describe the intermediate change process and cannot carry out effective dynamic control.

Using the eigenmode, the invariant mean function $\{D_0\}$, contains the "completeness theorem". It is well represented by the closed $[(1-\eta^2)\cdot(0\leftrightarrow2)\cdot\{D_0\}]$, which is converted to an eigenmode by an arbitrary function, and then converted to a controllable circle logarithm, from "start point to center zero point to Variation of the "continuous or jump" transition in between.

In addition, the isomorphism of circular logarithms also has a controllable transition time series change process, that is, "simple polynomials and complex polynomials" have time calculation sequences consistent in form and content (called "P=NP problem")".

5.7, perfect circle mode - neural network

The perfect circle mode has: the "variable dimension continues to expand" on the perfect circle boundary curve. From an intuitive geometric point of view, it brings about the controllability of the perfect circle distribution. The angle change is synchronized with the change of the perfect circle curve, which overcomes the uncertainty of the ellipse mode. risk and obtain accurate calculation results. It is numerically convenient to analyze (see the example of "one-dimensional higher-order equation" in the following) to ensure zero error in the analysis. This method is extended to neural networks and neural network nodes.

How is a neural network composed?

The multivariate calculus of "group combination-circular logarithm", and the characteristic modules obtained through the controllable perfect circle mode analysis are composed of neural network nodes. Applying the superiority of center-zero symmetry, the known multivariate element-clustering (including multi-parameter, heterogeneity) can be used to classify, identify, and summarize the symmetry, forming two groups of symmetry asymmetric symmetry elements, Mapping to the center zero of the logarithm of the probability circle yields:

(5.7.1) $\prod\{x_1x_3x_5\ldots x_A\}\neq\prod\{x_2x_4x_6\ldots x_B\}$;

(5.7.2) $\sum\{\eta_1\eta_3\eta_5\ldots\eta_A\}=\sum\{\eta_2\eta_4\eta_6\ldots\eta_B\}$;

(5.7.3)

$(1-\eta_\omega^2)^{K(Z\pm[S]\pm(N=0,1,2)\pm(q)]/t)}=\{0\leftarrow(1/2)\rightarrow1\}^K$; (1/2) is the symmetry expansion of the center zero point;

(5.7.4)

$(1-\eta^2)^{K(Z\pm[S]\pm(N=0,1,2)\pm(q)]/t)}=\{-1\leftarrow(0)\rightarrow+1\}^K$; (0)is the symmetry expansion of the center zero point;

Its graphics processing is to form a mean value function - a perfect circle function within the range of the center point of a perfect circle and a sufficiently large radius for information transmission images, and then use symmetry to convert to the original image.

Multivariate elements based on group combination form symmetry through the central zero point, and the two group values have equivalent substitution properties, forming a vortex space and a high-dimensional network space, in which the eigenmode represents the network node, and the equivalent ring network is separated from the node. And radial network, for synchronous information transmission in all directions. When the group combination eigenmode contains more elements, the more layers and the more bursts are encoded through the tree, the stronger the information transmission, the stronger the computing effect, the higher the computing power, and it is commendable that it always maintains the ability to expand with zero error.

In particular, any highly parallel function is in the perfect circle mode, superimposed at the center zero point of the perfect circle mode, and unfolds synchronously symmetrically between {0 and 1}. Image procedures that implement 2D or 3D: can be "outward topological or linear transfer of the center zero of the neural network" or "inward center zero topology or linear transfer of the boundary of the neural network".

The above mathematics strictly proves that the phenomenon of element-cluster asymmetry-discreteness-correlation is uniformly optimized into any high-order calculus dynamic equation through the perfect circle model, and mapped to the symmetrical controllable perfect circle model as the core. , a "circular logarithm-neural network" without derivatives, limits, and logical symbols, and a classical algebraic calculation method with zero error.

"Circle logarithm-neural network" mainly consists of probability circle logarithm, topological circle logarithm, perfect circle circle logarithm (including center zero point, multi-parameter, multi-heterogeneous, multi-level), etc., which form a highly parallel and highly serialized network. Tree encoding distribution and normalized logarithm of circles, uniformly controlled between {0 to 1}. It is called circular loggauge invariance.

6. The calculus equation-pattern recognition optimization is integrated into a higher-order equation

The idea of optimizing the calculus equation-pattern recognition as a higher-order equation: "perfect circle pattern-mean value function" is the expansion of the calculus order value of the invariant group bottom. in:

(1) Pattern recognition is to classify, identify, induct and combine known univariate elements-clusters (including multi-parameters and heterogeneity) to form higher-order calculus of "mean function and multiplication and addition reciprocity" equation. :

(2) The calculus equation analyzes each univariate element-cluster in order according to the "mean function and the reciprocity of multiplication and addition". The above two different fields form a forward and reverse unified computing system.

(3) According to the optimized higher-order equation, it is mapped to the circular logarithm-neural network to describe the state and dynamics of group combination information transmission.

Known conditions: power dimension element and number S; average value $\mathbf{D}_0$ or polynomial coefficient (ABC...P); boundary condition $\mathbf{D}=\{{}^S\sqrt{D}\}^{K(Z)/t}$; power function condition $K(Z)/t=K(Z\pm[S]\pm(N=0,1,2)\pm(q)/t$

Discriminant-circular logarithm: $(1-\eta^2)^K=(({}^S\sqrt{\mathbf{D}})/D_0)^K\leq 1$; based on isomorphic circular logarithm, the calculus order value form is invariant.

$\{X\}^{K(Z)/t}=\{x_1x_2\ldots x_S\}=[(1-\eta^2)\{X_0\}]^{K(Z)/t}=(1-\eta^2)^K$;

$d^n(1-\eta^2)^{K(Z\pm[S]\pm(N=0)\pm(q=+n)/t}=(1-\eta^2)^K=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to} 1 \text{ or } 1\}^K$;

$\int^n(1-\eta^2)^{K(Z\pm[S]\pm(N=0)\pm(q=-n)/t}dx^n=(1-\eta^2)^K=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to} 1 \text{ or } 1\}^K$;

When: the zero-order algebraic equation of calculus (±N=0) is a Newton binomial expansion, it is proved by the reciprocity theorem that each sub-function of calculus has a reciprocal relationship between "root and coefficient". where the element combination is synchronized with the one-dimensional time variation. Represents the high-dimensional space construction of calculus zero-order (primitive function, polynomial, higher-order equation) equations.

When: (±N=n), it represents the motion state of high (S) order space abstract structure, energy, behavior, etc. of n-order calculus equation.

6.1. The calculus equation is a discrete calculus equation calculation example

(6.1.1)

$$P_S(x,D)=A({}^S\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=0)}\pm B({}^S\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=1)}+\ldots +Px^{K(Z\pm[S]\pm N\pm(q=p-1)}\pm({}^S\sqrt{\mathbf{D}})$$

$$=[(1-\eta^2)\cdot\{x\pm({}^S\sqrt{\mathbf{D}})\}]^{K(Z\pm[S]\pm\ldots\pm(N=0,1,2)\pm(q)/t}$$

$$=[(1-\eta^2)\cdot(0,2)\cdot\{D_0\}]^{K(Z\pm[S]\pm\ldots\pm(N=0,1,2)\pm(q)/t};$$

(6.1.2) $(1-\eta^2)^K=\{0 \text{ or } 1\}^{K(Z\pm[S]\pm\ldots\pm(N=0,1,2)\pm(q)/t}$;

6.2. The calculus equation is an entangled (associative) calculus equation calculation example

(6.2.1)

$$P_S(x,D)=A({}^S\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=0)}\pm B({}^S\sqrt{x})^{K(Z\pm[S]\pm N\pm(q=1)}+\ldots+Px^{K(Z\pm[S]\pm N\pm(q=p-1)}\pm({}^S\sqrt{\mathbf{D}})$$

$$=[(1-\eta^2)\cdot\{x\pm({}^S\sqrt{\mathbf{D}})\}]^{K(Z\pm[S]\pm\ldots\pm(N=0,1,2)\pm(q)/t}$$

$$=[(1-\eta^2)\cdot(0,2)\cdot\{D_0\}]^{K(Z\pm[S]\pm\ldots\pm(N=0,1,2)\pm(q)/t};$$

(6.2.2)

$(1-\eta^2)^K=\{0\leftrightarrow(1/2)\leftrightarrow 1\}^{K(Z\pm[S]\pm\ldots\pm(N=0,1,2)\pm(q)/t}$;

Formulas (6.1.1) (6.2.2) realize the unified description of "discrete and entangled computations" in higher-order equations. The expansion of three-dimensional solid five- and six-dimensional basic spaces expressing calculus multivariate. The multivariate elements are distributed symmetrically through the center zero point, so that the tree encodes the nodes of the hierarchical neural network, and separates the equivalent permutable toroidal surface network expansion and radial network connection to carry out information (images) in all directions (including heterogeneity), Synchronous transmission.

6.3. First-order calculus (±N=0,1)

First-order calculus (±N=0,1): Indicates the speed, kinetic energy and other high (S) dimensional neural network structure, motion, behavior state.

(6.3.1)

$[d\{x\pm^{K[S]}\sqrt{\mathbf{D}}\}^{K(Z\pm[S]\pm(N=0)\pm(q=0)/t}$ or $\int\{x\pm^{K[S]}\sqrt{\mathbf{D}}\}^{K(Z\pm[S]\pm(N=-1)\pm(q=-1)/t}dx]$

$=(1-\eta^2)^K\cdot[\underline{Ax^{K(Z\pm S\pm(N=1)\pm(S-0))/t}}\pm Bx^{K(Z\pm S\pm(N=1)\pm(q=1))/t}+Cx^{K(Z\pm[S]\pm(N=1)\pm(q=2))/t}\pm Px^{K(Z\pm[S]\pm(N=1)\pm(q=P-1))/t}+\ldots+Lx^{K(Z\pm[S]\pm(N=1)\pm(q=L-1))/t}\pm\underline{\mathbf{D}}]$

$=(1-\eta^2)^K\cdot[(1/(S-0)]^K(x\cdot D_0)^{K(Z\pm[S]\pm(N=1)\pm(q=-1))/t}\pm\ldots+[(P-1)!/(S-0)!]^K(x\cdot D_0)^{K(Z\pm[S]\pm(N=1)\pm(q=-(P-1))/t}\pm[(L-1)!/(S-0)!]^K(x\cdot D_0)^{K(Z\pm[S]\pm(N=1)\pm(q=-(L-1))/t}]$

$=\sum_{(Z\pm(S,Q,M))}(1-\eta^2)^K\cdot\{X_0\cdot\mathbf{D_0}\}^{K(Z\pm[S]\pm(N=1)\pm(q=1))/t}$

$=(1-\eta^2)^K\cdot\{X_0\pm\mathbf{D_0}\}^{(Z\pm[S]\pm(N=1)\pm(q=1))/t}$

$=[(1-\eta^2)\cdot(0\leftrightarrow2)\cdot\{\mathbf{D}_0\}]^{K(Z\pm[S]\pm(N=1)\pm(q=1))/t}$;

(6.3.2) $(1-\eta^2)^K=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}^{K(Z\pm S\pm(N=1)\pm(q=1))/t}$;

In the formula: a horizontal line is placed under the item with negative value in the combined form (q=(0,1,2,3...)±1), the integral corresponds to (q=-1); the differential corresponds to (q=+1). Indicates that this item does not exist during differentiation, and returns to zero-order calculus (original function) during integration.

6.4. Second-order calculus (±N=0,1,2)

Second-order calculus (±N=0,1,2): Indicates acceleration, energy, etc. (S) dimensional neural network structure, motion, and behavior state.

(6.4.1)

$[d^2\{x\pm^{K[S]}\sqrt{\mathbf{D}}\}^{K(Z\pm[S]\pm(N=1)\pm(q=0)/t}$ or $\int^2\{x\pm^{K[S]}\sqrt{\mathbf{D}}\}^{K(Z\pm[S]\pm(N=1)\pm(q=-2)/t}dx^2]$

$=(1-\eta^2)^K\cdot[\underline{Ax^{K(Z\pm[S]\pm(N=2)\pm(q=0))/t}+Bx^{K(Z\pm[S]\pm(N=2)\pm(q=1))/t}}+Cx^{K(Z\pm[S]\pm(N=2)\pm(q=2))/t}+Px^{K(Z\pm[S]\pm(N=2)\pm(q=P-2))/t}+\ldots+Rx^{K(Z\pm[S]\pm(N=2)\pm(q=R-2)/t}+\underline{Lx^{K(Z\pm[S]\pm(N=2)\pm(q=L-2))/t}}+\mathbf{D}$

$=(1-\eta^2)^K\cdot[(2/(S-0)(S-1)]^K(x\cdot D_0)^{K(Z\pm[S]\pm(N=2)\pm(q=-2))/t}\pm\ldots+[(P-1)!/(S-0)!]^K(x\cdot D_0)^{K(Z\pm[S]\pm(N=2)\pm(q=-(P-2))/t}\pm[(R-1)!/(S-0)!]^K(x\cdot D_0)^{K(Z\pm[S]\pm(N=2)\pm(q=-(R-2))/t}]$

$=\sum_{(Z\pm(S,Q,M))}(1-\eta^2)^K\cdot\{X_0\cdot\mathbf{D_0}\}^{K(Z\pm[S]\pm(N=2)\pm(q=-2))/t}$

$=(1-\eta^2)^K\cdot\{X_0\pm\mathbf{D_0}\}^{(Z\pm S\pm(N=2)\pm(q=-2))/t}$

$=[(1-\eta^2)\cdot(0\leftrightarrow2)\cdot\{\mathbf{D}_0\}]^{K(Z\pm S\pm(N=2)\pm(q=-2))/t}$;

(6.4.2)

$(1-\eta^2)=[\{^5\sqrt{\mathbf{D}}\}/\{\mathbf{D_0}\}]^{K(Z\pm S\pm(N=2)\pm(q=-2))/t}=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}^{K(Z\pm S\pm(N=1)\pm(q=2))/t}$;

In the formula: a horizontal line is placed under the item with negative value in the combined form (q=(0,1,2,3...)±2), the integral corresponds to (q=-1,-2); the differential corresponds to (q= +1, +2). Indicates that this item does not exist during differentiation, and returns to zero-order calculus (original function) during integration.

6.5. Arbitrary higher-order calculus equations and analysis of complex many-body systems

System: Known conditions and boundary conditions are multi-region, multi-parameter, multi-heterogeneity, and multi-level interaction characteristics.

System Elements - Clustering: $\{X\}=\{x_j\omega_i r_K\}=\{\{X^S\}\in(x_1x_2x_3\ldots x_Tx_Lx_R\ldots x_4x_5\ldots x_S)$; $\{X^Q\}\in(x_1x_2x_3\ldots x_Tx_Lx_R\ldots x_4x_5\ldots x_Q)$; $\{X^M\}\in(x_1x_2x_3\ldots x_Tx_Lx_R\ldots x_4x_5\ldots x_M)$; each system is formed by non-repetitive combination set according to system, region and level, which satisfies the stable calculus-pattern recognition clustering set balance equation of discriminant.

Power function $K(Z)/t=K(Z\pm[S]\pm(N=0,1,2\ldots n\leq[S])\pm(q=-0,1,2\ldots n)/t$,

High Parallel[S]=[Z±(S,Q,M…)];High Serial[S]=[Z±(S±Q±M…)];

Calculus high ((N)≤[S]) order (±N=0,1,2…n)/t: respectively represent speed; acceleration, energy, force; super acceleration, super energy, supernatural force, etc., the composition system is infinitely high [S]-dimensional neural network spatial motion states.

Calculus equations and analysis (complete description includes zero-order, first-order, second-order...n-order calculus).

6.5.1. Arbitrary high (N) order differential equation:

(6.5.1)

$\partial^n\{X\pm^{K[S]}\sqrt{\mathbf{D}}\}^{K(Z\pm[S]\pm(N=\mathbf{0})\pm(q=0))/t}=(1-\eta^2)^K\cdot\partial^n\{X\pm\mathbf{D_0}\}^{K(Z\pm[S]\pm(N=\mathbf{0})\pm(q=0))/t}$

$=(1-\eta^2)^K\cdot[\{(P-1)!/(S-0)!(x\cdot\mathbf{D}_0)^{K(Z\pm S\pm(N=-\mathbf{n})\pm(q=P-\mathbf{n}))/t}$
$\pm\{(Q-1)!/(Q-0)!(x\cdot\mathbf{D}_0)^{K(Z\pm Q\pm(N=-\mathbf{n})\pm(q=Q-n))/t}+\ldots$
$+\{(M-1)!/(M-0)!(x\cdot\mathbf{D}_0)^{K(Z\pm M\pm(N=-\mathbf{n})\pm(q=M-n))/t}]$

$=\sum_{(Z\pm(S,Q,M))}(1-\eta^2)^K\cdot\{x\cdot\mathbf{D_0}\}^{K(Z\pm[S]\pm(N=-\mathbf{n})\pm(q=-n))/t}$

$=(1-\eta^2)^K\cdot\{X_0\pm\mathbf{D_0}\}^{K(Z\pm[S]\pm(N=-n)\pm(q=-\mathbf{n}))/t}$

$=[(1-\eta^2)^K\cdot(0\leftrightarrow2)\cdot\{\mathbf{D_0}\}]^{K(Z\pm[S]\pm(N=-\mathbf{n})\pm(q=-n))/t}$;

(6.5.2)

$(1-\eta^2)=[\{^5\sqrt{\mathbf{D}}\}/\{\mathbf{D_0}\}]^{K(Z\pm S\pm(N=2)\pm(q=-n))/t}=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}$;

6.5.2. Arbitrary high(N) order integral equation:

(6.5.3)

$\int^n\{x\pm^{K[S]}\sqrt{\mathbf{D}}\}^{(Z\pm S\pm(N=-n)\pm(q))/t}dx^n=(1-\eta^2)^K\cdot\int^n\{x\pm\mathbf{D_0}\}^{(Z\pm S\pm(N=-n)\pm(q))/t}d^nx$

$=\{(P-1)!/(S-0)!(x\cdot\mathbf{D_0}\}^{K(Z\pm[S]\pm(N=+\mathbf{n})\pm(q=P+n+1))/t}$
$\pm\{(P-1)!/(Q-0)!(x\cdot\mathbf{D_0}\}^{K(Z\pm[Q]\pm(N=+\mathbf{n})\pm(q=P+n+1))/t}+\ldots$
$+\{(P-1)!/(M-0)!(x\cdot\mathbf{D_0}\}^{K(Z\pm[M]\pm(N=+\mathbf{n})(N=+\mathbf{n})\pm(q=P+n+1))/t}$

$=\sum_{(Z\pm(S,Q,M)}(1-\eta^2)^K\cdot\{X_0\cdot\mathbf{D_0}\}^{K(Z\pm[S]\pm(N=+\mathbf{n})(N=+\mathbf{n})\pm(q=+n))/t}$

$=(1-\eta^2)\{X_0\pm\mathbf{D_0}\}^{K(Z\pm[S]\pm(N=+\mathbf{n})\pm(q=+n))/t}$

$=[(1-\eta^2)\cdot(0\leftrightarrow2)\cdot\{\mathbf{D_0}\}]^{K(Z\pm[S]\pm(N=+\mathbf{n})\pm(q=+n))/t}$;

(6.5.4)

$(1-\eta^2)=[\{^5\sqrt{\mathbf{D}}\}/\{\mathbf{D_0}\}]^{K(Z\pm S\pm(N=+\mathbf{n})\pm(q=+n))/t}=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}$;

6.5.3. Circular logarithmic calculus equation (abbreviation)

(Z±[S]±(N)/t=K(Z±[S]±(N=n)±(m)±(q=n))/t; (the same below)

The circular logarithmic calculus equation is expanded:

(6.5.5)

$(1-\eta^2)^K=\sum_{(Z\pm(S,Q,M))}[\{^S\sqrt{\mathbf{D}}\}/\{\mathbf{D_0}\}])^{K(Z\pm[S]\pm(N)/t}=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}$;

6.5.4. Circular logarithmic calculus isomorphism

(6.5.6)

$(1-\eta^2)^K=(1-\eta^2))^{K(Z\pm[S]\pm(N)/t}=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}$;

6.5.5. Symmetry expansion of the center zero point of circular logarithmic calculus

(6.5.7)

$(1-\eta^2)^K=(1-\eta^2))^{K(Z\pm[S]\pm(N)/}=\{(0\leftrightarrow(1/2)\leftrightarrow1)\}^K$ or $\{(-1\leftrightarrow(0)\leftrightarrow+1)\}^K$;

Indicates that any high-dimensional and high-parallel space in the system is synchronously expanded toward the common boundary with {1/2} or {0} as the center symmetry point.

6.6. Three results of arbitrary calculus equations:

(6.6.1) $(x_0-\sqrt{\mathbf{D}_0})^{K(Z\pm[S]\pm(N)/t}=[(1-\eta^2)\cdot\{0\}\cdot\mathbf{D_0}]^{K(Z)/t}$; two-dimensional rotation, conversion , torus, complex space subtraction;

(6.6.2)

$(x_0+\sqrt{\mathbf{D}_0})^{K(Z\pm[S]\pm(N)/t}=[(1-\eta^2)\cdot\{2\}\cdot\mathbf{D_0}]^{K(Z)/t}$; three-dimensional precession, surface, Sphere, complex space addition;

(6.6.3)

$(x_0\pm\sqrt{\mathbf{D}_0})^{K(Z\pm[S]\pm(N)/t}=[(1-\eta^2)\cdot[\{0\leftrightarrow2\}\cdot\mathbf{D_0}]^{K(Z)/t}$; five-dimensional Vortex basic neural network and motion state;

(6.6.4)

$(1-\eta^2)^K=[\{^S\sqrt{\mathbf{D}}\}/\{\mathbf{D_0}\}]^{K(Z\pm[S]\pm(N)/t}=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}$;

A vortex space composed of a three-dimensional three-dimensional high-dimensional arbitrary (public rotation + self-rotation).

6.7. Three-dimensional spatial relationship:

{q} arbitrary space (including multiple parameters); $\{q_{(xyz+uv)}\}$ belongs to the five-dimensional basic space; $\{q_{(jik)}\}$ belongs to the three-dimensional triple generator basic space **(j,i,k)** satisfies the basic equation of calculus of (±N=0.1.2).

(6.7.1)

$\{q\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}\in\{q_{(xyz+uv)}\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}\in\{q_{(jik)}\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}$;

In the calculus process, the dimension (S) invariant group corresponds to the expansion of the mean function {D0}

(6.7.2)

$\{D_0\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}=\{D_0\}^{K(Z\pm[S]\pm(N)\pm(q=0)/t}+\{D_0\}^{K(Z\pm[S]\pm(N)\pm(q=1)/t}+\ldots+\{D_0\}^{K(Z\pm[S]\pm(N)\pm(q=[S])/t}$;

The boundary condition {S√D} corresponding to the mean function changes accordingly with the order value, the combination coefficient and the combination form.

(6.7.3)

$\{^S\sqrt{D}\}^{K(Z\pm[S]\pm(N)\pm(q=0)/t},\{^S\sqrt{D}\}^{K(Z\pm[S]\pm(N)\pm(q=1)/t},\ldots,\{^S\sqrt{D}\}\{D_0\}^{K(Z\pm[S]\pm(N)\pm(q=[S])/t}$;

(1) For multi-parameter and heterogeneity: that is, the multi-parameter and heterogeneity of the system is hidden in the single variable and the corresponding circular logarithm, which does not affect the calculation of the circular logarithm accuracy. The interference of multi-element, multi-parameter and heterogeneity in the calculation process is avoided, and the phenomenon of mode confusion and mode collapse is prevented. Ensure computational stability, reliable optimization, supervised learning, robustness, and interpretability.

6.7.4)

$\{X\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}=\{x_j\cdot(\omega_{i=\alpha\beta\gamma\ldots})\cdot(R_{K=\alpha\beta\gamma\ldots})\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}\leftrightarrow(1-\eta^2)\{x_{0j}\cdot(\omega_{0i=\alpha\beta\gamma\ldots})\cdot(R_{0K=\alpha\beta\gamma\ldots})\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}$;

(2), high parallel group combination - circle logarithm and concentric circles:

The asymmetry function of any reciprocity is transformed into a symmetrical expansion centered on the logarithm of the central zero point circle. The superposition of the center zero points is called concentric circles.

(a), "Concentric circles"$(1-\eta^2)^K=\{1/2\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}$, the control is synchronously expanded in the range of {0 to 1}.

(6.7.5)

$(1-\eta^2)^K=\{0:(0\leftrightarrow(1/2)\leftrightarrow1):1\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}$

$=\{0:(\eta_{(0)}\leftrightarrow\eta_{(1/2)}\leftrightarrow\eta_{(1)}):1\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}$

$=\{0:(x_1x_2x_3\ldots x_T)\leftrightarrow(x_0=(1/2))\leftrightarrow(x_V\ldots x_4x_5\ldots x_S):1\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}\pm\{0:(x_1x_2x_3\ldots x_Tx_U)\leftrightarrow(x_0=(1/2)\leftrightarrow(x_Ux_V\ldots x_4x_5\ldots x_Q):1\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}\pm\{0:(x_1x_2x_3\ldots x_Tx_Ux_V)\leftrightarrow(x_0=(1/2)\leftrightarrow(x_Tx_Ux_V\ldots x_4x_5\ldots x_M)\}:1\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}$;

(b)、"Concentric circles"$(1-\eta^2)=\{0\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}$, Controls are expanded synchronously in the range {-1 to 0 to +1}.

(6.7.6)

$(1-\eta^2)^K=\{0: (-1\leftrightarrow(0)\leftrightarrow+1) :1\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}$

$=\{0: (\eta_{(0)}\leftrightarrow\eta_{(0)}\leftrightarrow\eta_{(1)}): 1\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}$

$=\{0:(x_1x_2x_3\ldots x_T)\leftrightarrow(x_0=(0)\leftrightarrow(x_V\ldots x_4x_5\ldots x_S):1\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}\pm\{0:(x_1x_2x_3\ldots x_Tx_U)\leftrightarrow(x_0=(0)\leftrightarrow(x_Ux_V\ldots x_4x_5\ldots x_Q):1\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}\pm\{0:(x_1x_2x_3\ldots x_Tx_Ux_V)\leftrightarrow(x_0=(0)\leftrightarrow(x_Tx_Ux_V\ldots x_4x_5\ldots x_M)\}:1\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}$;

The asymmetry function of any reciprocity is transformed into a symmetrical expansion centered on the logarithm of the central zero point circle. The superposition of the center zero points is called concentric circles.

(3), High parallel group combination - logarithm of circle and homeomorphic circle (including sphere and torus structure):

"Homeomorphic circle" $(1-\eta^2)^K=\{0:(-1\leftrightarrow(0)\leftrightarrow+1):1\}^{K(Z\pm[S]\pm(N=n)\pm(q)/t}$, high string

The group combination of rows-circle logarithm control is expanded synchronously in the range of {-1 to 0 to +1}, which is the so-called "one-variable N degree" calculus equation.

To sum up, the complex many-body system is composed of a mixture of "homeomorphic circles" and "concentric circles". Their logarithmic forms are the same, but the corresponding characteristic modules are different. It becomes "$(1-\eta^2)^K\{D_0\}^{K(Z\pm M\pm(N=n)\pm(q)/t}$"; in the end, the "root" of the element-set class is phylogenetically encoded tree code sequence, and multiple Area, multi-level, multi-parameter, heterogeneity, form combination or decomposition of composition.

7. Analysis and cognition of system higher-order equations

The complex multi-body system consists in the form of multi-level tree coding in a mixed way of high parallel and high serial. In the end, it is expanded according to the sequence in the form of element-cluster set combination "$\{q\}^{K(Z\pm[S]\pm(N=n)\pm(q=S,Q,M)/t}$"; the logarithm of the center zero point circle $(1-\eta^2)^K$ The corresponding eigenmode level $\{D_0\}^{K(Z\pm[S]\pm(N=n)\pm(q=S,Q,M)/t}$ is expanded as a symmetrical balanced tree code decomposition point.

7.1. Find the logarithm of the internal center zero point circle of the function

The logarithm of the center zero point circle corresponds to $(1-\eta^2)^K\ \{D_0\}^{K(Z\pm[S]\pm(N=n)\pm(q=S,Q,M)/t}$

(7.1.1)

$(1-\eta^2)^K=(1-\eta_\omega^2)\cdot(1-\eta_T^2)\cdot(1-\eta_H^2)=\sum_{(z\pm s\pm q)}\{x_i\}/\{D_0\}=\{0:(0\leftrightarrow(1/2)\leftrightarrow1):1\}^K$;

(7.1.2)

$(1-\eta^2)^K=(1-\eta_\omega^2)\cdot(1-\eta_T^2)\cdot(1-\eta_H^2)=\sum_{(z\pm s\pm q)}\{x_i\}/\{D_0\}=\{0:(-1\leftrightarrow(0)\leftrightarrow+1):1\}^K$;

Taking the two sides of the two asymmetric functions with the resolution of $\{D_0\}$ corresponding to the center zero point of 2, the reciprocal asymmetric distribution is generated:

(7.1.3)

$\prod_{(z\pm s+a)}\{x_{a1}x_{a2}\dots x_{as}\}\neq_{(z\pm s-b)}\{x_{b1}x_{b2}\dots x_{bs}\}$;

Circular logarithmic symmetry yields reciprocal symmetric distributions, respectively:

(7.1.4)

$\sum_{(z\pm s+\eta a)}\{\eta_{a1}\dots\eta_{aS}\}=\sum_{(z\pm s-\eta b)}\{\eta_{b1}\dots\eta_{bS}\}$;

(7.1.5)

$\sum_{(z\pm s+\eta a)}\{+\eta_{a1}{}^2+\dots+\eta_{aS}{}^2\}=\sum_{(z\pm s-\eta b)}\{-\eta_{b1}{}^2-\dots-\eta_{bS}{}^2\}$;

7.2. Satisfy the symmetry of the zero point of the center of the logarithm of the circle

Any function can decompose two symmetric circular logarithmic factors of resolution 2.

(7.2.1)

$|\Sigma_{(S=(a1,a2\dots aS))}(1-\eta^2)^{+1}|=|\Sigma_{(S=(b1,b2\dots bS))}(1-\eta^2)^{-1}|$;

(7.2.2)

$|\Sigma_{(\eta=(a1,a2\dots aS))}(+\eta)|=|\Sigma_{(\eta=(b1,b2\dots bS))}(-\eta)|$;

7.3. Solve the root

In the process of system calculus, the total elements ([S] and $\mathbf{D_0}$) are invariant groups. Once the boundary condition **D** is determined, the logarithm of the circle is determined and controlled to obtain the unique certainty of zero error (root element). According to probability $(1-\eta_H^2)=\{0or1\}$, two symmetrical forms of center-zero symmetry are obtained

(7.3.1)

$\{X_i\}=\{[(1-\eta_{a1}{}^2),\dots(1-\eta_{aS}{}^2)]\ ;\ (1-\eta_0{}^2)\ ;\ [(1-\eta_{b1}{}^2),\dots(1-\eta_{bS}{}^2)]\}\cdot\{D_0\}^{K(1)}$;

(7.3.2)

$\{X_i\}=\{(\eta_{a1},\eta_{a2},\dots,\eta_{aS});\ (\eta_{b1},\eta_{b2},\dots,\eta_{bS})\}\cdot\{D_0\}^{K(1)}$; ($\eta_0$is between elements);

(7.3.3)

$\{X_i\}=\{(\eta_{a1},\eta_{a2},\dots,\eta_{aS});\ (\underline{\eta_0});\ (\eta_{b1},\eta_{b2},\dots,\eta_{bS})\}\cdot\{D_0\}^{K(1)}$; ($\eta_0$is among the elements) ;

If the central zero point cannot be found at one time, the root solution can be continuously searched in the next tree coding level $\{\eta_{a1}\eta_{a2}\dots\eta_{aS}\},\{\eta_{b1}\eta_{b2}\dots\eta_{bS}\}$ Category solution, until the remaining two elements get the symmetry root solution. At this point, all the parsing is done to get the root element parsing. Recognize patterns in the opposite way.

7.4, the principle of circular logarithm application

When a network node contains more element-aggregate group teams, the network transmission speed is faster. (Figure 6 is quoted from the online public account, and "Nature: 50 Years of Brain Space Navigation" expresses special thanks to the author). Explains that a neuron of an associative neural network can quickly transmit to the perception and parsing of each node of the overall network. It expresses information transformation, interaction and balance.

(Figure 9 neuron transmission and interaction)

In the three-dimensional three-dimensional five-dimensional spatial neural network, $\{X\}=\{q_{xyz}\}=\{x_1x_2x_3\dots\}$ forms a toroidal neural network (toroidal convex-concave function), and

$\{X\}=\{q_{xyz}\}=\{x_4x_5...\}$ forms a radial neural network .

The said weight parameter $\{q_{(xyz+uv)}\}=\{X_j\omega_iR_k\}$ such as temperature, mechanics
Transport characteristics, material properties, etc. are represented by $\{\omega_i=\alpha,\beta,\gamma...\}$, which are included in group variables and single variables. The circle logarithm has a closed group for all arbitrary functions (images), and the total elements [S]=[S, Q, M] are invariant groups, and the corresponding variable {X} obtains the mean value function (positive, medium, and inverse properties). modulo) $\{D_0\}^{K(Z)/t}$, it also has an invariant group, and the remaining operation is the calculation of the three-dimensional three-dimensional five-dimensional space circle logarithm $(1-\eta_{(xyz+uv)}{}^2)^{K(Z)/t}$, avoids the influence of inability to leave the element-clustering, and satisfies the zero-error calculation.

(7.4.1)

$\{X\}^{K(Z)/t}=(1-\eta_{(xyz+uv)}{}^2)^K\{D_0\}^{K(Z)/}$
$=\{0：(0\text{ to }(1/2)\text{ to }1)：1\}\cdot\{D_0\}^{K(Z)/t}$;

The information transmission of neural network values has self-organizing nodes and jump transitions between levels:

(7.4.2)

$(1-\eta_{(xyz+uv)}{}^2)^K\{D_0\}^{K(Z)/t}=\{0\text{ or }1\}\cdot\{D_0\}^{K(Z)/t}$;

The numerical value and network information transmission at the nodes of the neural network have self-organizing internal continuous transitions or equilibrium convergence transition points:

(7.4.3) $(1-\eta_{(xyz+uv)}{}^2)^K\{D_0\}^{K(Z)/t}=\{(0\text{ to }(1/2)\text{ to }1)\}\cdot\{D_0\}^{K(Z)/t}$;

The circular logarithm can be converted into the chip architecture in a table or programming language, reflecting that each neuron of the neural network is correspondingly converted into the chip architecture through the calculation of "irrelevant mathematical model, no specific element content". It can avoid the defects of mode collapse and mode confusion of traditional computer programs, as well as the advantages of high computing power and high efficiency with robustness, security, and zero error.

7.5. Principle of 3D and 5D space image processing

Image conversion principle: According to Brouwer's theorem, the center point represented by{X} is equivalent to a perfect circle boundary. Continuously pass through $(1-\eta^2)^K=\{0:(0\text{ to }(1/2)\text{ to }1):1\}^K$ from the boundary of a perfect circle; convert it into a face and a body full of arbitrary shapes. A three-dimensional space or plane image is formed through the symmetrical and synchronous expansion of the controllable center zero point within the boundary range.

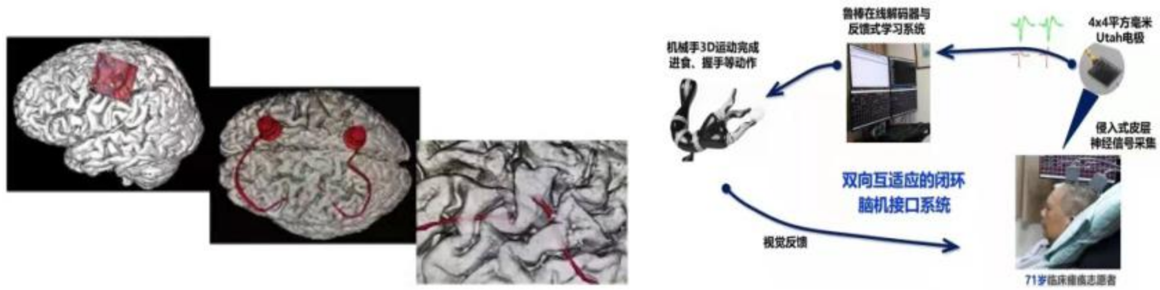
Computer video, language, audio and other image collectors, collect the original image clustering to form a clustering set based on a circular logarithmic rule program, and form a neuron synaptic node and a multi-level higher-order equation with a characteristic modulus, which becomes an ellipse (The original asymmetric image information) to the topologically deformed perfect circle mode (converted to symmetrical image information) image output; the receiving end receives the perfect circle mode image, and converts the deformed perfect circle mode image into a higher-order equation according to the logarithmic rule of the circle. , to restore its real image.

The collection method of images and information: it can be the clustering of objects from the collection center to the closed surrounding environment, or the clustering of the surrounding environment objects collected from the boundary to the closed center point, and the topology changes from ellipse to perfect circle, and vice versa , from a perfect circle to an ellipse, which is called restoring image and information. In particular, the ellipse or perfect circle composed of images and information, whose center zero point is always in a closed and superimposed state, is robust and ensures overcoming the defects of mode confusion and instability.

The controllable "three-dimensional three-dimensional five-dimensional spatial neural network" network node in the program $\{D0\}\leftrightarrow(1-\eta_{(\text{normal body})}{}^2)$ perfect circle $\leftrightarrow(1-\eta_{(\text{ellipse})}{}^2)$ ellipse (body) $\leftrightarrow(1-\eta_{(\text{Arbitrary body})}{}^2)$ Surfaces and bodies of arbitrary shapes. The opposite is also true. It is called "conformal" of the perfect circle mode.

7.6. 2D/3D image processing application example

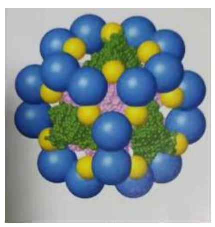
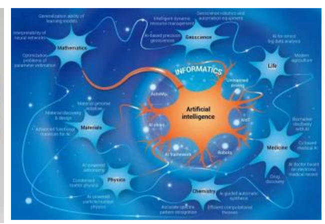
In 2021, the operation case of the Second Hospital of Zhejiang University is to use a 0.1mm surgical robot to place 100 electrode needles on two 4mm × 4mm chips and send them to the established fifth layer deep in the brain. cell location. Acquire the intelligence of recognition and perception neurons, and replace the hemiplegic neurons to restore movement consciousness. Algebraic models (polynomials) can be applied to explain: the brain has 1012 neurons to form a multi-level, multi-regional three-dimensional equation, implanted with 100 electrodes, a needle chip, and connected to neurons $\{X_{xp}{}^{10}\}^2=(1-\eta^2)\cdot\{D_{0xp}\}^{K(Z\pm[S]\pm(N)\pm(m)\pm q))/t}$。$\{X_{DN}{}^{10}\}$，$\{D_{0DN}\}$与$\{X_{xp}{}^{10}\}$，$\{D_{0xp}\}$are the unknown network function and the known network function, respectively. Implantation of a chip supervises the control of hemiplegic neurons and brain consciousness.



((Figure 10 Image source: According to an online report on November 19, 2021: An operation case at the Second Hospital of Zhejiang University).

7.7. Universal application of circular logarithm-three-dimensional three-dimensional five-dimensional space neural network

In the three-dimensional three-dimensional five-dimensional spatial neural network, $\{X\}=\{q_{xyz}\}=\{x_1x_2x_3\ldots\}$ constitutes a circular neural network, and $\{X\}=\{q_{uv}\}=\{x_4x_5\ldots\}$ constitutes a radial neural network.

High-dimensional perfect sphere network High-dimensional neural network High-dimensional biological gene;

High-dimensional turbine blade network High-dimensional planetary network High-dimensional artificial intelligence

(Figure 10 Image source: Internet public account)

Three-dimensional three-dimensional high-dimensional neural network is used in many scientific fields such as mathematics, physics, astronomy, chemistry, biology, etc., to establish calculus-cluster set equations, map to circular logarithmic neural networks and tables, in$(1-\eta^2)^K=\{0 \text{ to} 1\}^K$\{ Cognition and analysis .

(1) ,Analytical root-seeking and cognitive combination

(7.7.1) $$\{x\pm{}^{KS}\sqrt{D}\}^{K(Z)/t}\leftrightarrow(1-\eta^2)\cdot\{x_0\pm D_0\}^{K(Z)/t};$$

(2) ,Jump and continuous combination of circular logarithms

(7.7.2) $$(1-\eta^2)^K=\{0 \text{ or } [0\leftrightarrow(1/2)\leftrightarrow1] \text{ or } 1\}^{K(Z)/t};$$

Where: circle logarithm$(1-\eta^2)^K=\{0:(0 \text{ to } (1/2) \text{ to } 1):1\}^K$. The K function can be converted into the operating language of a computer program.

The circle logarithm $(1-\eta^2)^K=\{0 \text{ or } 1\}^K$ also represents the boundary or center zero point of the circle logarithm and the corresponding electronic circuit switch.

The center zero point $(1-\eta^2)^K=\{1/2\}^K$ circle logarithm corresponds to the symmetrical balance transition point of the two neurons (the bright spot in the figure),

7.8. Logarithm of probability circle and center zero

Probability circle logarithm $(1-\eta_H^2)^K=\sum_{(Z\pm S\pm N\pm q)}[(X_i)/\{X\}]=\{0 \text{ or } 1\}$;

The logarithm of the center zero point circle $(1-\eta_C^2)^K=\sum_{(Z\pm S\pm N\pm q)}[(X_i)/\{X_0\}]=\{0\}$;

【Table 1】 Probability circle logarithmic value

serial number	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
0.0	$(1-\eta_{01})^K$	$(1-\eta_{02})^K$	$(1-\eta_{03})^K$	$(1-\eta_{04})^K$	$(1\pm\eta_{05})^K$	$(1+\eta_{04})^K$	$(1+\eta_{03})^K$	$(1+\eta_{02})^K$	$(1+\eta_{01})^K$	$(1\pm\eta_{10})^K$
0.1	$(1-\eta_{11})^K$	$(1-\eta_{12})^K$	$(1-\eta_{13})^K$	$(1-\eta_{14})^K$	$(1\pm\eta_{15})^K$	$(1+\eta_{14})^K$	$(1+\eta_{13})^K$	$(1+\eta_{12})^K$	$(1+\eta_{11})^K$	$(1\pm\eta_{20})^K$
0.2	$(1-\eta_{21})^K$	$(1-\eta_{22})^K$	$(1-\eta_{23})^K$	$(1-\eta_{24})^K$	$(1\pm\eta_{25})^K$	$(1+\eta_{24})^K$	$(1+\eta_{23})^K$	$(1+\eta_{22})^K$	$(1+\eta_{21}{}^2)^K$	$(1\pm\eta_{30})^K$
0.3	$(1-\eta_{31})^K$	$(1-\eta_{32})^K$	$(1-\eta_{33})^K$	$(1-\eta_{34})^K$	$(1\pm\eta_{35})^K$	$(1+\eta_{34})^K$	$(1+\eta_{33})^K$	$(1+\eta_{32})^K$	$(1+\eta_{31})^K$	$(1\pm\eta_{40}{}^2)^K$
0.4	$(1-\eta_{41})^K$	$(1-\eta_{42})^K$	$(1-\eta_{43})^K$	$(1-\eta_{44})^K$	$(1\pm\eta_{45})^K$	$(1+\eta_{44})^K$	$(1+\eta_{43})^K$	$(1+\eta_{48})^K$	$(1+\eta_{41})^K$	$(1\pm\eta_{50})^K$
0.5	$(1-\eta_{51})^K$	$(1-\eta_{52})^K$	$(1-\eta_{53})^K$	$(1-\eta_{54})^K$	$(1\pm\eta_{55})^K$	$(1+\eta_{56})^K$	$(1+\eta_{57})^K$	$(1+\eta_{58})^K$	$(1+\eta_{59})^K$	$(1\pm\eta_{60})^K$
0.6	$(1-\eta_{61})^K$	$(1-\eta_{62})^K$	$(1-\eta_{63})^K$	$(1-\eta_{64})^K$	$(1\pm\eta_{65})^K$	$(1+\eta_{64})^K$	$(1+\eta_{63})^K$	$(1+\eta_{62})^K$	$(1+\eta_{61})^K$	$(1\pm\eta_{70})^K$
0.7	$(1-\eta_{71})^K$	$(1-\eta_{72})^K$	$(1-\eta_{73})^K$	$(1-\eta_{74})^K$	$(1\pm\eta_{75})^K$	$(1+\eta_{74})^K$	$(1+\eta_{73})^K$	$(1+\eta_{72})^K$	$(1+\eta_{71})^K$	$(1\pm\eta_{80})^K$
0.8	$(1-\eta_{81})^K$	$(1-\eta_{82})^K$	$(1-\eta_{83})^K$	$(1-\eta_{84})^K$	$(1\pm\eta_{85})^K$	$(1+\eta_{84})^K$	$(1+\eta_{83})^K$	$(1+\eta_{82})^K$	$(1+\eta_{81})^K$	$(1\pm\eta_{90})^K$
0.9	$(1-\eta_{91})^K$	$(1-\eta_{92})^K$	$(1-\eta_{93})^K$	$(1-\eta_{94})^K$	$(1\pm\eta_{95})^K$	$(1+\eta_{94})^K$	$(1+\eta_{93})^K$	$(1+\eta_{92})^K$	$(1+\eta_{91})^K$	$(1\pm_{100})^K$

The probability circle logarithm$\mathbf{(1\pm\eta_{ij})^{K(Z)/t}=\{10\}^{K(Z)/t}}$ of the “irrelevant mathematical model” converted to$\mathbf{q=\{0\leftrightarrow 10\}}$ in the {**10**} base corresponds to the eigenmode.

The $\mathbf{q=\{0,1,2\ldots\}}$ in the {**q**} system is converted into the probability value circle$\mathbf{(1\pm\eta_{ij})^{K(Z)/t}=\{D_0\}^{K(Z)/t}}$ corresponding feature of the "irrelevant mathematical model" mold.

$\{\eta_{ji}\}$ represents the circular logarithmic factor of real numbers; calculus, levels, digits **N=(+1,0,-1)** calculus order **(N=0,1,2,…**natural numbers); **K=(+ 1,0,-1);**

(A),10decimal $\mathbf{X_i=(1-\eta_{(x\pm j)}{}^2)^K\{10\}^{K(Z)/t}}$; $\mathbf{(1-\eta_{(x\pm j)}{}^2)^K=(1-\eta_{(x\pm j)})\cdot(1+\eta_{(x\pm j)})=\{0 \text{ or } 1\}}$; $\mathbf{(1-\eta_{(0\pm j)})^{K(Z)/t}=\{0,1\}^{K(Z)/t}}$;

(B),Prime base $\mathbf{X_i=(1-\eta_{(x\pm j)}{}^2)^K\{5\}^{K(Z)/tt}}$; $\mathbf{(1-\eta_{(x\pm j)}{}^2)^K=(1-\eta_{(x\pm j)})\cdot(1+\eta_{(x\pm j)})=\{0 \text{ or } 1\}}$; $\mathbf{(1-\eta_{(0\pm j)})^{K(Z)/t}=\{0,1\}^{K(Z)/t}}$;

(C), P-ary $\mathbf{X_i=(1-\eta_{(x\pm j)}{}^2)^K\{D_0\}^{K(Z)/t}}$; $\mathbf{(1-\eta_{(x\pm j)}{}^2)^K=(1-\eta_{(x\pm j)})\cdot(1+\eta_{(x\pm j)})=\{0 \text{ or } 1\}}$; $\mathbf{(1-\eta_{(0\pm j)})^{K(Z)/t}=\{0,1\}^{K(Z)/tt}}$;

Where: $\mathbf{(1-\eta_{(4\pm j)})^K=0.1^K}$; $\mathbf{(1-\eta_{(3\pm j)})^K=0.2^K}$; $\mathbf{(1-\eta_{(2\pm j)})^K=0.3^K}$; $\mathbf{(1-\eta_{(1\pm j)})^K=0.4^K}$; $\mathbf{(1\pm\eta_{(5\pm j)})^K=0.5^K}$;

$\mathbf{(1+\eta_{4\pm j)})^K=0.6^K}$; $\mathbf{(1+\eta_{(3\pm j)})^K=0.7^K}$; $\mathbf{(1+\eta_{(2\pm j)})^K=0.8^K}$; $\mathbf{(1+\eta_{(1\pm j)})^K=0.9^K}$; $\mathbf{(1+\eta_{(10\pm j)})^K=1^K}$;

Let: the natural number function element probability circle logarithmic bit value representation (m represents the sequence of bit values),

(1), Example: $\{x_{(0\pm j)}\}^{K(Z\pm S\pm N\pm q)/t}{}_j=(1-\eta_{H(0\pm j)})^{K(\pm Z)/t}\cdot 10^{K[(Z+(m=4))+(3N+3))+(2N+9))+(1N+4)]/t}$

K=+1; area (m=+4); total position (S=3); (…, 2N, 1N, q corresponds to the number of elements)

$394=0394\times 10^{(+4)}=(1-\eta_{(0\pm j)})^{+(Z+(M=4))+(3N+3))+(2N+9))+(1N+4)/t}\times 10^{+(+N)/t}=10^{+0394}$;

In this way, the traditional natural number writing method is converted into the natural number writing method of the probability circle logarithmic power function.

(2), Example: The topological circle logarithm of the elements of the natural number function, the circle logarithm is represented by a power function to represent the topological structure of infinite natural numbers, and the invariant circle logarithm is the base function to carry out any finite element (S), area (M), high-level/higher-order calculus (N), topological state expansion of the sequence of the number of combined elements (q).

7.9. Topological circle logarithmic value and image processing

Topological circle logarithm: $\{x^2\}^{K(Z\pm S\pm N-q)/t}=(1-\eta_T{}^2)^K\{D_0\}^{K(Z\pm S\pm N+q)/t}$;

The searcher video can collect clusters in 3D/2D around any center of the object environment as asymmetric images, or collect clusters around the object environment in 3D/2D as asymmetric images (including Video, audio, language, text, password, specific symbols - high parallel function space), and then converted into a perfect circle pattern according to the circular logarithmic topology rule to form a symmetrical image to become quantum information, as the output layer ↔ terminal receiver as the input layer , and convert the symmetrical image of the information into the original asymmetrical image (including video, audio, language, text, password, specific symbols—highly parallel function space) according to the circular logarithmic topology rule. The quantum information features composed of these highly parallel function spaces: the center zeros of all functions are superimposed at the center point of the perfect circle and become the invariant characteristic mode. To ensure that the mode will not collapse and not be confused, and realize the efficient, high computing power, multi-directional and fast information transmission of the neural network.

The topological circle logarithm forms a neural network, which is transmitted in abstract bits with "no concrete element content, irrelevant mathematical model".

Topological circle logarithm $(1-\eta_T^2)^K=\sum_{(Z\pm S\pm N\pm q)}[(X_{i0})/\{X_0\}]=\{0$ 到 $1\}$;

【Table 2】 Topological circle logarithmic value

0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1	
0.1	$(1-\eta_{01}^2)^K$	$(1-\eta_{02}^2)^K$	$(1-\eta_{03}^2)^K$	$(1-\eta_{04}^2)^K$	$(1-\eta_{05}^2)^K$	$(1-\eta_{06}^2)^K$	$(1-\eta_{07}^2)^K$	$(1-\eta_{08}^2)^K$	$(1-\eta_{09}^2)^K$	$(1-\eta_{10}^2)^K$
0.2	$(1-\eta_{11}^2)^K$	$(1-\eta_{12}^2)^K$	$(1-\eta_{13}^2)^K$	$(1-\eta_{14}^2)^K$	$(1-\eta_{15}^2)^K$	$(1-\eta_{16}^2)^K$	$(1-\eta_{17}^2)^K$	$(1-\eta_{18}^2)^K$	$(1-\eta_{19}^2)^K$	$(1-\eta_{20}^2)^K$
0.3	$(1-\eta_{21}^2)^K$	$(1-\eta_{22}^2)^K$	$(1-\eta_{23}^2)^K$	$(1-\eta_{24}^2)^K$	$(1-\eta_{25}^2)^K$	$(1-\eta_{26}^2)^K$	$(1-\eta_{27}^2)^K$	$(1-\eta_{28}^2)^K$	$(1-\eta_{29}^2)^K$	$(1-\eta_{30}^2)^K$
0.4	$(1-\eta_{31}^2)^K$	$(1-\eta_{32}^2)^K$	$(1-\eta_{33}^2)^K$	$(1-\eta_{34}^2)^K$	$(1-\eta_{35}^2)^K$	$(1-\eta_{36}^2)^K$	$(1-\eta_{37}^2)^K$	$(1-\eta_{38}^2)^K$	$(1-\eta_{39}^2)^K$	$(1-\eta_{40}^2)^K$
0.5	$(1-\eta_{41}^2)^K$	$(1-\eta_{42}^2)^K$	$(1-\eta_{43}^2)^K$	$(1-\eta_{44}^2)^K$	$(1-\eta_{45}^2)^K$	$(1-\eta_{46}^2)^K$	$(1-\eta_{47}^2)^K$	$(1-\eta_{48}^2)^K$	$(1-\eta_{49}^2)^K$	$(1-\eta_{50}^2)^K$
0.6	$(1-\eta_{51}^2)^K$	$(1-\eta_{52}^2)^K$	$(1-\eta_{53}^2)^K$	$(1-\eta_{54}^2)^K$	$(1-\eta_{55}^2)^K$	$(1-\eta_{56}^2)^K$	$(1-\eta_{57}^2)^K$	$(1-\eta_{58}^2)^K$	$(1-\eta_{59}^2)^K$	$(1-\eta_{60}^2)^K$
0.7	$(1-\eta_{61}^2)^K$	$(1-\eta_{62}^2)^K$	$(1-\eta_{63}^2)^K$	$(1-\eta_{64}^2)^K$	$(1-\eta_{65}^2)^K$	$(1-\eta_{66}^2)^K$	$(1-\eta_{67}^2)^K$	$(1-\eta_{68}^2)^K$	$(1-\eta_{69}^2)^K$	$(1-\eta_{70}^2)^K$
0.8	$(1-\eta_{71}^2)^K$	$(1-\eta_{72}^2)^K$	$(1-\eta_{73}^2)^K$	$(1-\eta_{74}^2)^K$	$(1-\eta_{75}^2)^K$	$(1-\eta_{76}^2)^K$	$(1-\eta_{77}^2)^K$	$(1-\eta_{78}^2)^K$	$(1-\eta_{79}^2)^K$	$(1-\eta_{80}^2)^K$
0.9	$(1-\eta_{81}^2)^K$	$(1-\eta_{82}^2)^K$	$(1-\eta_{83}^2)^K$	$(1-\eta_{84}^2)^K$	$(1-\eta_{85}^2)^K$	$(1-\eta_{86}^2)^K$	$(1-\eta_{87}^2)^K$	$(1-\eta_{88}^2)^K$	$(1-\eta_{89}^2)^K$	$(1-\eta_{90}^2)^K$
1.0	$(1-\eta_{91}^2)^K$	$(1-\eta_{92}^2)^K$	$(1-\eta_{93}^2)^K$	$(1-\eta_{94}^2)^K$	$(1-\eta_{95}^2)^K$	$(1-\eta_{96}^2)^K$	$(1-\eta_{97}^2)^K$	$(1-\eta_{98}^2)^K$	$(1-\eta_{99}^2)^K$	$(1-\eta_{100}^2)^K$

(A), **q={0↔10}** in decimal is converted to the topological circle logarithm of the "independent mathematical concrete model".

(B), **q** element combination system **q={0,1,2,3…natural number}** is converted to the topological circle logarithm of "independent mathematical concrete model".

(C), $w=(1-\eta^2)^{K(Z\pm(M=i))\pm(S\pm j)\pm((S\pm1)\pm(N+i)\ldots\pm(1N+i)\pm(q+j)/t}\cdot\{D_0\}^{K(Z)/t}$;**(j)** represents any combination of natural number elements. where: **(M=i)** represents the accuracy of the logarithmic calculation of the topological circle. For example, 10 elements $(1-\eta_{ji}^2)^{K(Z\pm(M=i)}$ are multiples of $\{10^2\}^{KM}$; $\{10^2\}^{KM}$ natural numbers.

7.10. Perfect circle mode - superiority of higher-order equations

The circle logarithm table reflects: the group combination-circle logarithm effectively makes any function optimally transformed into a parallel-serial high-order equation, mapped to the center zero of the circle logarithm, and aggregated and superimposed at the center of the perfect circle, satisfying the circle logarithm In the inner imaginary infinity {0↔(1/2)↔1}, {-1↔0↔+1} synchronous continuous expansion, outer jump between real infinity {0 or 1}, {-1 or +1} Sexual expansion. In this way, circular logarithmic tables can be written into computer programs and chip fabrication. At the same time, it clarifies that the traditional discrete calculation plus circular logarithm constitutes a new and universal computer theory.

7.10.1. Advantages of perfect circle mode:

Describes the uniform gap between the asymmetric function combination and the mean function. That is to say: reflect the gap between the traditional elliptic function and the perfect circle function. Existing pattern recognition includes interface mode and ellipse mode. The key problem is that the uneven distribution of element-set classes has not been solved in time. Due to the imprecise calculation structure of approximation, 100% zero error cannot be obtained. It is due to the movement of the center zero point and the curvature of the boundary curve. inconsistent.

In this paper, through the logarithm of the weight parameter, the asymmetric distribution is converted into a relatively symmetrical distribution, which is called the perfect circle mode, which satisfies the coincidence of the center zero position and the curvature of the boundary curve, and the consistency between the angle change and the curve change. The complex programming language is Simple programming language, high-order equations - calculus equations are converted into circular logarithmic neural network cognitive, recognition and supervised learning, with reliable interpretability.

7.10.2. Superiority of higher-order equations:

(1), Integrate classical algebra and logical algebra into a unified "group combination-circular logarithm" to form a unified cognition and analysis of high-order calculus equations for artificial intelligence. Expand the new concepts and functions of mathematics. Such as: mathematical functional analysis, finite element method, matrix calculation; logical algebra (Jacob Lurie); category theory; Fisher of interactive information describes information encoding and decoding with information; stochastic dynamics, etc., can be optimized into controllable circle pairs Number {0: [0 to (1/2) to 1]: 1} or {1: [-1 to (0) to -1]: 1} State and process of zero error and cognition and analysis.

(2), Improve computer functions: replace "interface mode and ellipse mode" with "perfect circle mode", form high-order calculus equations, called "higher-order equations", abandon the "approximation calculation" method, and overcome mode collapse and mode confusion . Effectively unify "artificial intelligence-quantum computing-semiconductor (connecting people, robots)" into the circular logarithm of neural network, cognition and analysis of zero error in $\{0 \text{ to } 1\}^K$.

(3), The circular logarithm becomes a controllable neural network shared space composed of various functions: today's mathematics involves all fields of science. As the American mathematician Langlands Conjecture said in 1967, "contemporary mathematics and various fields of science exist in a situation of mutual penetration, mutual connection, and mutual support, which can achieve grand unification." Therefore, it is very difficult for anyone to decipher an issue individually.

8. Engineering application example

8.1. [Engineering Example 1] The connection between Maxwell's electromagnetic equation and circular logarithmic equation

We are familiar with the agreement of Maxwell's electromagnetic mechanics equation-Einstein's electrodynamic equation, which can be converted into a circular logarithm equation with an equivalence relationship, which becomes the circular logarithm-electromagnetic force equation.

The multivariate (body) equations of the system are typically Maxwell's electromagnetic equations and Einstein's electrodynamics equations, which are about the nature of the electrodynamic force generated by motion in the magnetic field, and are valid for the static system K.

Let: Electromagnetic equation element $[S]=\{Q\}^{K(Z\pm[S]\pm(N=1)\pm(q=6)/t}=\{X,Y,Z,L,M,N\}^{K(Z\pm[S]\pm(N=1)\pm(q)/t}$;

$A=\{X,Y,Z\}$ represents the electric force vector, $B=\{L,M,N\}$ represents the magnetic force vector,

Mean function: $\{D_0\}=(1/6)(X+Y+Z+L+M+N)$
$=(1/2)[(1/3)(X+Y+Z)+(1/3)(L+M+N)]=$;

Boundary condition:
$D=[(^{K(6)}\sqrt{\{X,Y,Z,L,M,N\}}]^{K(Z\pm[S]\pm(N=1)\pm(q=6)/t}$
$=[(^{K(3)}\sqrt{\{X,Y,Z\}}]^{K(Z\pm[S]\pm(N=1)\pm(q=3)/t}]\cdot[(^{K(3)}\sqrt{L,M,N}\}]^{K(Z\pm[S]\pm(N=1)\pm(q=3)/t}$
$=[(^{K(3)}\sqrt{D_A})\cdot(^{K(3)}\sqrt{D_B})]^{K(Z\pm[S]\pm(N=1)\pm(q=6)/t}$
$=(^{K(3)}\sqrt{D_A})^{K(Z\pm[S]\pm(N=1)+(q=3)/t}\cdot(^{K(3)}\sqrt{D_B})^{K(Z\pm[S]\pm(N=1)-(q=3)/t}$
$=D_A\cdot D_B$;

Discriminant: $(1-\eta^2)^K=[^{K(S)}\sqrt{\{X\cdot Y\cdot Z\cdot L\cdot M\cdot N\}}]/\{D_0\}\leq 1$;

The discriminant is a prerequisite for satisfying the balance and solvability of the equation, otherwise the equation does not hold.

The plasmodynamic equilibrium effect on electric and magnetic charges:

$\underline{[\{X,Y,Z\}=[D_A]\neq[\{L,M,N\}=[D_B]}$;

$(1-\eta^2)^K=(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=+1)}=0$;

Among them: the logarithm of the center zero point circle includes the mechanical parameter (1/V) in $\{Xv, Yv, Zv\}=\{X, Y, Z\}$.

Einstein proposed the special theory of relativity $(\beta)=(1-\eta^2)^K=(v^2/C^2)^K$. In the electromagnetic equation, the electromagnetic particle velocity and the speed of light are the same, which cannot be understood as just "the ratio of the particle velocity to the speed of light", strictly speaking, the ratio of "energy" $(\beta)=(1-\eta^2)^K=(mv^2/mC^2)^K=(v^2/C^2)^K$.

The ratio of "momentum" $(\beta)=(1-\eta^2)^K=(mv/mC)^K=(v/C)^K$. In the concept of circular logarithm, it is "the mean value function (eigenmode) of the equivalent perfect circle mode of the average speed of light {D0}". It shows that the concept of "energy-momentum" is transformed into circular logarithmic characteristic modulus in physics, and the arithmetical calculation of circular logarithm $(1-\eta^2)^K$ is carried out according to the common change rule, which has a universal application prospect. (the same below).

8.1.1. Relative symmetry of circular logarithms:

The first-order probability is decomposed into two asymmetric electric force vectors and magnetic force vectors at the center zero point, $\underline{[\{X,Y,Z\}=[D_A]\neq[\{L,M,N\}=[D_B]}$, or $A\neq B$. The first-order probability circular logarithm satisfies the center-zero symmetry:

(8.1.1) $(1-\eta_H^2)^K=\{X+Y+Z+L+M+N\}/\{Q\}$
$=(\eta_{HX}^2+\eta_{HY}^2+\eta_{HZ}^2)+(\eta_{HL}^2+\eta_{HM}^2+\eta_{HN}^2)$
$=(1-\eta_{HA}^2)^K\pm(1-\eta_{HB}^2)^K$
$=\{0 \text{ on } 1\}$;

(8.1.2) $(\eta_{HA})=(\eta_{HX}+\eta_{HY}+\eta_{HZ})$; $(\eta_{HB})=(\eta_{HL}+\eta_{HM}+\eta_{HN})$;

(8.1.3) $(\eta_H)^K=(1+\eta_{HA})^{(K=+1)}\cdot(1-\eta_B)^{(K=+1)}=1$;

The Second-order topological circle logarithm:

(8.1.4)
$(1-\eta_T^2)^K=[(1/6)\{X+Y+Z+L+M+N\}]/\{D_0\}$
$=(1-\eta_{TX}^2)+(1-\eta_{TY}^2)+(1-\eta_{TZ}^2)+(1-\eta_{TL}^2)+(1-\eta_{TM}^2)+(1-\eta_{TN}^2)$
$=(1-\eta_{HA}^2)^{(K=+1)}\cdot(1-\eta_{HB}^2)^{(K=-1)}$
$=\{0 \text{ to } 1\}$;

(8.1.5)
$(1-\eta^2)^K\{D_0\}=[(1-\eta_A^2)^{(K=+1)}+(1-\eta_B^2)^{(K=-1)}]=\{D_0\}$;

Or:
$(1-\eta^2)^K=(1-\eta_A^2)^{(K=+1)}\cdot(1-\eta_B^2)^{(K=+1)}=1$;

Symmetry of electric force and magnetism,

The first-order equation of the sixth degree in one variable is converted to the first-order (velocity) equation of the third degree in two variables:

(8.1.6)
$\{Q\pm((^{K(6)}\sqrt{D})\}^{K(Z\pm[S]\pm(N=1)\pm(q=6)/t}=\{Q\pm(^{K(3)}\sqrt{D_A}\cdot(^{K(3)}\sqrt{D_B})\}^{K(Z\pm[S]\pm(N=1)\pm(q=3)/t}$
$=(1-\eta^2)^K(0,2)\ \{D_0\}^{K(Z\pm[S]\pm(N=1)\pm(q=6)/t}$

$=(1-\eta_A{}^2)^K(0,2)$
$\{D_{0A}\}^{K(Z\pm[S]\pm(N=1)+(q=3)/t}+(1-\eta_B{}^2)^K(0,2)$
$\{D_{0B}\}^{K(Z\pm[S]\pm(N=1)-(q=3)/t}$
$=\{A_{0[xyz]}\}^{K(Z\pm[S]\pm(N=1)+(q=3)/t}+\{B_{0[LMN]}\}^{K(Z\pm[S]\pm(N=1)-(q=3)/t}$;

Among them: $\{D_{0A}\}^{(Kw=+1)K(Z\pm[S]\pm(N=1)+(q=3)/t}$ corresponds to the power vector $\{D_{0B}\}^{(Kw=-1)K(Z\pm[S]\pm(N=1)-(q=3)/t}$ corresponds to the magnetic force vector, and its axis is represented by a rectangular coordinate system respectively.

8.1.2 The relationship between circle logarithm and Cartesian coordinate system

Definition **8.1.2** Circle logarithm and Cartesian coordinate system:

([x],[y],[z]),([L],[M],[N]) and surfaces {[yz],[zx],[xy]},{[MN],[NL], [LM]} corresponding coordinates are:

(1), Icoordinate series:

[x],[L],[yz],[MN] and circular logarithms$(1-\eta_{[x]}{}^2)^K,(1-\eta_{[L]}{}^2)^K,(1-\eta_{[yz]}{}^2)^K,(1-\eta_{[MN]}{}^2)^K$
Where: $(1-\eta_{[yz]}{}^2)^K=(1-\eta_{[y]}{}^2)^K-(1-\eta_{[z]}{}^2)^K$; $(1-\eta_{[MN]}{}^2)^K=(1-\eta_{[M]}{}^2)^K-(1-\eta_{[N]}{}^2)^K$;

(2), Jcoordinate series:

[y],[M],[zx],[NL] and circular logarithms $(1-\eta_{[y]}{}^2)^K,(1-\eta_{[M]}{}^2)^K,(1-\eta_{[zx]}{}^2)^K,(1-\eta_{[NL]}{}^2)^K$
Where: $(1-\eta_{[zx]}{}^2)^K=(1-\eta_{[z]}{}^2)^K-(1-\eta_{[x]}{}^2)^K$; $(1-\eta_{[NL]}{}^2)^K=(1-\eta_{[N]}{}^2)^K-(1-\eta_{[L]}{}^2)^K$;

(3), Kspherical coordinate series:

[z],[N],[xy],[LM] and circular logarithms$(1-\eta_{[Z]}{}^2)^K,(1-\eta_{[N]}{}^2)^K,(1-\eta_{[xy]}{}^2)^K,(1-\eta_{[LM]}{}^2)^K$,
Where:$(1-\eta_{[xy]}{}^2)^K=(1-\eta_{[x]}{}^2)^K-(1-\eta_{[y]}{}^2)^K$; $(1-\eta_{[LM]}{}^2)^K=(1-\eta_{[L]}{}^2)^K-(1-\eta_{[M]}{}^2)^K$;

Definition **8.1.2** The logarithmic coordinate relationship of the circle is combined and written as:

(a), Axis coordinates:

Circle logarithm
$(1-\eta^2)^K\cdot[\{D_A\}\pm\{D_B\}]^{K(Z\pm[S]\pm(N=1)+(q=1)/t}$
$(1-\eta^2)^{(Kw=+1)}=(1-\eta_{[x]}{}^2)^K\mathbf{i}+(1-\eta_{[y]}{}^2)^K\mathbf{J}+(1-\eta_{[Z]}{}^2)^K\mathbf{K}$,
$(1-\eta^2)^{(Kw=-1)}=(1-\eta_{[L]}{}^2)^K\mathbf{i}+(1-\eta_{[M]}{}^2)^K\mathbf{J}+(1-\eta_{[N]}{}^2)^K\mathbf{K}$,
$(1-\eta^2)^K=(1-\eta^2)^{(Kw=+1)}\cdot(1-\eta^2)^{(Kw=-1)}=\{0 \text{ to } 1\}$;

(b), Surface coordinates:

Circular logarithm
$(1-\eta^2)^K\cdot[\{D_{0A}{}^2\}\pm\{D_{0B}{}^2\}]^{K(Z\pm[S]\pm(N=1)+(q)/t}$
$(1-\eta^2)^{(Kw=+1)}=(1-\eta_{[yz]}{}^2)^K\mathbf{i}+(1-\eta_{[zx]}{}^2)^K\mathbf{J}+(1-\eta_{[xy]}{}^2)^K\mathbf{K}$,
$(1-\eta^2)^{(Kw=-1)}=(1-\eta_{[MN]}{}^2)^K\mathbf{i}+(1-\eta_{[NL]}{}^2)^K\mathbf{J}+(1-\eta_{[LM]}{}^2)^K\mathbf{K}$,
$(1-\eta^2)^K=(1-\eta^2)^{(Kw=+1)}\cdot(1-\eta^2)^{(Kw=-1)}=\{0 \text{ to } 1\}$;

(c), K spherical coordinate series:

The circular logarithm $(1-\eta^2)^K$ can accommodate the duality of (grain) axis coordinates and (wave) surface coordinates at the same time.

8.1.3. The relationship between the electromagnetic equation and the logarithm of the circle

Assume: the two unary cubic equations of electric power-magnetic force $[\{D_{0A}\}\pm\{D_{0B}\}]^{K(Z\pm[S]\pm(N=1)+(q=1)/t}$, the calculus (N=0) is the original function,

Where:
$\{D\}^K=\{D_A\}^{K(Z\pm[S]\pm(N=0)+(q=3)/t}\cdot\{D_B\}^{K(Z\pm[S]\pm(N=0)-(q=3)/t}$

reciprocal asymmetric combination.

Known boundary: $\{D\}=({}^{K3}\sqrt{D_{AB}})^{K(Z\pm[S]\pm(N=0)+(q=3)/t}$;

$\{D_A\}=({}^{K3}\sqrt{D_A})^{K(Z\pm[S]\pm(N=0)+(q=3)/t}$; corresponding coordinates：([x],[y],[z]);{[yz],[zx],[xy]}

$\{D_B\}=({}^{K3}\sqrt{D_B})^{K(Z\pm[S]\pm(N=0)+(q=3)/t}$; corresponding coordinates: ：([L],[M],[N]);{[MN],[MN],[NL]}

Known mean: $\{D_{0AB}\}=\{D_{0A}\}^{K(Z\pm[S]\pm(N=0)+(q=3)/t}\cdot\{D_{0B}\}^{K(Z\pm[S]\pm(N=0)-(q=3)/t}$reciprocal asymmetric combination.

$\{D_A\}^{K(Z\pm[S=3]\pm(N)+(q=3)/t}=\{D_B\}^{K(Z\pm[S=3]\pm(N)-(q=3)/t}$ is combined with$\{D_{AB}\}=({}^{K3}\sqrt{D_{AB}})^{K(Z\pm[S=3]\pm(N)+(q=3)/t}$.

$\{D_{0A}\}^{K(Z\pm[S=3]\pm(N)+(q=3)/t}=\{D_{0B}\}^{K(Z\pm[S=3]\pm(N)-(q=3)/t}$ is combined with $\{D_{0AB}\}=({}^{K3}\sqrt{D_{0AB}})^{K(Z\pm[S=3]\pm(N)+(q=3)/t}$.

(1) Convert the first-order equation of the sixth degree in one variable to the zero-order (static function) calculus (N=0) equation of the second order three times:

(8.1.7)
$\{Q\pm({}^{K(3)}\sqrt{D_{AB}})\}^{K(Z\pm[S=3]\pm(N=-1)\pm(q=3)/t}=\underline{aQ^{K(Z\pm[S=3]\pm(N=-1)+(q=0)/t}+bQ^{K(Z\pm[S=3]\pm(N=-1)+(q=1)/t}+cQ^{K(Z\pm[S=3]\pm(N=-1)+(q=2)/t}+\{D_{0AB}\}^{K(Z\pm[S=3]\pm(N=-1)\pm(q=3)/t}}$
$=[(1-\eta^2)^K(0,2)\{D_{0AB}\}]^{K(Z\pm[S=3]\pm(N=-1)\pm(q=3)/t}$;
$(1-\eta^2)^K=[(1-\eta_A{}^2)^{(Kw=+1)}\cdot(1-\eta_B{}^2)^{(Kw=-1)}]^{K(Z\pm[S=3]\pm(N=1)\pm(q=3)/t}=\{0 \text{ 到 } 1\}$;
Where :
$\{Q-({}^{K(3)}\sqrt{D_{AB}})\}=[(1-\eta^2)^K(0)\{D_{0AB}\}]=[(1-\eta^2)^K(0)\{D_{0AB}\}]$;
$\{Q+({}^{K(3)}\sqrt{D_{AB}})\}=[(1-\eta^2)^K(0,2)\{D_{0AB}\}]=[(1-\eta^2)^K(2)\{D_{0AB}\}$;

(2), the first-order equation of the sixth degree in one variable is converted into the differential equation (N=-1) of the second order three-dimensional (speed, kinetic energy):

(8.1.8)
$\{Q\pm({}^{K(3)}\sqrt{D_{AB}})\}^{K(Z\pm[S=3]\pm(N=-1)\pm(q=3)/t}$
$=\underline{aQ^{K(Z\pm[S=3]\pm(N=-1)+(q=0)/t}}+bQ^{K(Z\pm[S=3]\pm(N=-1)+(q=1)/t}+cQ^{K(Z\pm[S=3]\pm(N=-1)+(q=2)/t}+\{D_{0AB}\}^{K(Z\pm[S=3]\pm(N=-1)\pm(q=3)/t}$
$=[(1-\eta^2)^K(0,2)\{D_{0AB}\}]^{K(Z\pm[S=3]\pm(N=-1)\pm(q=3)/t}$;
$(1-\eta^2)^K=[(1-\eta_A{}^2)^{(Kw=+1)}\cdot(1-\eta_B{}^2)^{(Kw=-1)}]^{K(Z\pm[S=3]\pm(N=1)\pm(q=3)/t}=\{0 \text{ to } 1\}$;

(8.1.9)
$\{Q-({}^{K(3)}\sqrt{D_{AB}})\}=[(1-\eta^2)^K(0)\{D_{0AB}\}]=[(1-\eta^2)^K(0)\{D_{0AB}\}]$;

(8.1.10)
$\{Q+({}^{K(3)}\sqrt{D_{AB}})\}=[(1-\eta^2)^K(0,2)\{D_{0AB}\}]=[(1-\eta^2)^K(2)\{D_{0AB}\}$;

In the equation: indicates that the electric power vector equation and the magnetic force vector equation are asymmetric equations, which are transformed into two symmetrical equations by circular logarithm conversion.

(3) Convert the univariate sixth-order second-order equation into a binary third-order second-order (acceleration, force, energy) differential (N=-2) equation:

(8.1.11)
$\{Q\pm(^{K(3)}\sqrt{D_{AB}})\}^{K(Z\pm[S=3]\pm(N=-2)\pm(q=3)/t}=\underline{aQ^{K(Z\pm[S=3]\pm(N=-2)+(q=0)/t}+bQ^{K(Z\pm[S=3]\pm(N=-2)+(q=1)/t}}+cQ^{K(Z\pm[S=3]\pm(N=-2)+(q=2)/t}+\{D_{0AB}\}^{K(Z\pm[S=3]\pm(N=-2)\pm(q=3)/t}$

$=[(1-\eta^2)^K(0,2)\{D_{0AB}\}]^{K(Z\pm[S=3]\pm(N=-2)\pm(q=3)/t}$;

(8.1.12)
$(1-\eta^2)^K=[(1-\eta_A{}^2)^{(Kw=+1)}\cdot(1-\eta_B{}^2)^{(Kw=-1)}]^{K(Z\pm[S=3]\pm(N=-2)\pm(q=3)/t}=\{0$ to $1\}$;

In the formula: with a bottom line, it means that the first-order and second-order differentials do not exist, and the first-order and second-order integrals exist as the original function

(4), the relationship between the electromagnetic force root and the coefficient

Linear root and coefficient relationship:
$bQ^{K(Z\pm[S=3]\pm(N=0,1,2)+(q=1)/t}=(1-\eta^2)^{K(Z\pm[S=3]\pm(N=0,1,2)+(q=1)/t}(Q_{0AB})$

(a), circular logarithmic power linear (power vector) equation: represents the axis corresponding to the coordinates（**I,J,K**）

(8.1.13)
$(1-\eta^2)^K=[(^{K(3)}\sqrt{D_{AB}})/(D_{0AB})]^{K(Z\pm[S]\pm(N=0,1,2)-(q=1)/t}$
$=[(1-\eta_{[x]}{}^2)^{(Kw=+1)}\mathbf{i}+(1-\eta_{[y]}{}^2)^{(Kw=+1)}\mathbf{J}+(1-\eta_{[Z]}{}^2)^{(Kw=+1)}\mathbf{K}]$
$+[(1-\eta_{[L]}{}^2)^{(Kw=-1)}\mathbf{i}+(1-\eta_{[M]}{}^2)^{(Kw=-1)}\mathbf{J}+(1-\eta_{[N]}{}^2)^{(Kw=-1)}\mathbf{K}]$,

(8.1.14)
$(1-\eta^2)^K=(1-\eta^2)^{(Kw=+1)}\cdot(1-\eta^2)^{(Kw=-1)}=\{0$ to $1\}$;

Formula: (8.1.13) is the corresponding polynomial linear$bQ^{K(Z\pm[S=3]\pm(N=0,1,2)+(q=1)/t}=(1-\eta^2)^{K(Z\pm[S=3]\pm(N=0,1,2)+(q=1)/t}(Q_{0AB})$expansion, (8.1.14) is the relative symmetry expansion of the power vector equation;

(b), circular logarithmic magnetic nonlinearity (magnetic force vector, magnetic flux) equation: represents the surface normal corresponding coordinates（**I,J,K**）.

(8.1.15)
$(1-\eta^2)^K=[(^{K(3)}\sqrt{D_{AB}})/(D_{0AB})]^{K(Z\pm[S=3]\pm(N=0,1,2)-(q=2)/t}$
$(1-\eta^2)^K=[(1-\eta_{[yz]}{}^2)^{(Kw=+1)}\mathbf{i}+(1-\eta_{[zx]}{}^2)^{(Kw=+1)}\mathbf{J}+(1-\eta_{[xy]}{}^2)^{(Kw=+1)}\mathbf{K}]+[(1-\eta_{[MN]}{}^2)^{(Kw=-1)}\mathbf{i}+(1-\eta_{[NL]}{}^2)^{(Kw=-1)}\mathbf{J}+(1-\eta_{[LM]}{}^2)^{(Kw=-1)}\mathbf{K}]$,

(8.1.16)
$(1-\eta^2)^K=(1-\eta^2)^{(Kw=+1)}\cdot(1-\eta^2)^{(Kw=-1)}=\{0$ to $1\}$;

Formula: (8.1.15) is the corresponding polynomial nonlinear coefficient $CQ^{K(Z\pm[S=3]\pm(N=-2)+(q=2)/t}=[(D_{0AB})^2Q]^{K(Z\pm[S=3]\pm(N=-2)+(q=2)/t}$expansion.(8.1.16) is the relative symmetry expansion of the magnetic force (magnetic flux) vector equation;

Corresponding to Einstein's electrodynamic equation and (first-order velocity), see "Einstein's Miracle Years"(P113-119) Precession (XYZ) and electromagnetic (LMN) are converted into circular logarithmic surface coordinates, where gravity The parameters are bundled in variables and do not affect the circle logarithm calculation. The object is the first-order (speed) power function $K(Z\pm(N=-1))/t=K(Z\pm[S=3]\pm(N=-1)+(q=3)/t$;

In particular, root-to-coefficient transformation: Satisfies the requirement for symmetric distribution of regularized coefficients:

Polynomial second term:

(8.1.17)
$bQ^{K(Z\pm(S=3)\pm(N=-1)\pm(q=1))/t}$
$=(1-\eta^2)^K(D_{0AB}{}^2\cdot Q)^{K(Z\pm(S=3)\pm(N=-1)\pm(q=1))/t}$
$=(1/3)^{(Kw=+1)}[(yz)^{(Kw=+1)}+(zx)^{(Kw=+1)}+(xy)^{(Kw=+1)}]^{(Kw=+1)}\cdot(xyz)^{(K=-1)}$
$=(1/3)^{(Kw=-1)}[(L)^{(Kw=-1)}+(M)^{(Kw=-1)}+(N)^{(Kw=-1)}]^{(Kw=+1)}$;

The third term of the polynomial:

(8.1.18)
$cQ^{K(Z\pm(S=3)\pm(N=-1)\pm(q=2))/t}$
$=(1-\eta^2)^K(D_{0AB}\cdot Q^2)^{K(Z\pm(S=3)\pm(N=-1)\pm(q=2))/t}$
$=(1/3)^{(Kw=-1)}[(x)^{(Kw=-1)}+(y)^{(Kw=-1)}+(z)^{(Kw=-1)}]^{(Kw=-1)}\cdot(xyz)^{(K=-1)}$
$=(1/3)^{(Kw=+1)}[(NM)^{(Kw=+1)}+(NL)^{(Kw=+1)}+(LM)^{(Kw=+1)}]^{(Kw=+1)}$;

Such as: $\partial X/\partial t=(\partial N/\partial y)-(\partial M/\partial z)$, that is, the (X) axis is consistent with the (NM) plane normal axis.

$(X)^{K(Z\pm(N=-1))/t}=\partial X/\partial t=(XYZ)/(NM)$, the circle logarithm is$(1-\eta_{[x]}{}^2)^{K(Z\pm[S=3]\pm(N=-1)+(q=1)/t}\mathbf{i}$;

$(NM)^{K(Z\pm(N=-1))/t}=(\partial N/\partial y)-(\partial M/\partial z)$ the logarithm of the circle is $(1-\eta_{[NM]}{}^2)^{K(Z\pm[S=3]\pm(N=-1)+(q=2)/t}\mathbf{i}$;

For example: $\partial L/\partial t=(\partial Y/\partial z)-(\partial Z/\partial y)$, that is, the (L) axis is consistent with the (YZ) plane normal axis.

$(L)^{K(Z\pm(N=-1))/t}=\partial L/\partial t=(LMN)/(YZ)$, the logarithm of the circle is $(1-\eta_{[L]}{}^2)^{K(Z\pm[S=3]\pm(N=-1)+(q=1)/t}\mathbf{i}$; $(YZ)^{K(Z\pm(N=-1))/t}=(\partial Y/\partial y)-(\partial Z/\partial z)$, the logarithm of the circle is $(1-\eta_{[YZ]}{}^2)^{K(Z\pm[S=3]\pm(N=-1)+(q=2)/t}\mathbf{i}$;

The same is true; other linear axes and plane normal axes can be described by circular logarithm. (slightly)

Obtained: Satisfy the unified description of the symmetrical balance of the circular logarithmic power vector and the magnetic force vector:

(8.1.19)
$(1-\eta^2)^K=(1-\eta^2)^{(Kw=+1)}\cdot(1-\eta^2)^{(Kw=-1)}=\{0$ to$1\}$;
$(1-\eta_{[x]}{}^2)^{(kw=+1)(Z\pm[S=3]\pm(N=-1)+(q=1)/t}\mathbf{i}+(1-\eta_{[YZ]}{}^2)^{(kw=+1)(Z\pm[S=3]\pm(N=-1)+(q=2)/t}\mathbf{i}$;
$(1-\eta_{[L]}{}^2)^{(kw=-1)(Z\pm[S=3]\pm(N=-1)+(q=1)/t}\mathbf{i}+(1-\eta_{[NM]}{}^2)^{(kw=-1)(Z\pm[S=3]\pm(N=-1)+(q=2)/t}\mathbf{i}$;
$(1-\eta_{[Y]}{}^2)^{(kw=+1)(Z\pm[S=3]\pm(N=-1)+(q=1)/t}\mathbf{j}+(1-\eta_{[Zx]}{}^2)^{(kw=+1)(Z\pm[S=3]\pm(N=-1)+(q=2)/t}\mathbf{j}$;
$(1-\eta_{[M]}{}^2)^{(kw=-1)(Z\pm[S=3]\pm(N=-1)+(q=1)/t}\mathbf{j}$

$+(1-\eta_{[Mx]}^2)^{(kw=-1)(Z\pm[S=3]\pm(N=-1)+(q=2)/t}$ **j**;
$(1-\eta_{[Z]}^2)^{(kw=+1)(Z\pm[S=3]\pm(N=-1)+(q=1)/t}$
k$+(1-\eta_{[xy]}^2)^{(kw=+1)(Z\pm[S=3]\pm(N=-1)+(q=2)/t}$ **k**;
$(1-\eta_{[N]}^2)^{(kw=-1)(Z\pm[S=3]\pm(N=-1)+(q=1)/t}$
k$+(1-\eta_{[LM]}^2)^{(kw=-1)(Z\pm[S=3]\pm(N=-1)+(q=2)/t}$ **k**;

8.1.4. Einstein's special theory of relativity and circular logarithm:

Based on the electromagnetic force vector kinetic energy equation $E_v=Mv^2$ and the light kinetic energy equation $E_C=MC^2$, the interaction in the microscopic world exists. At this time, the comparison of Einstein's special relativity is not the ratio of particle velocity, but is converted into the ratio of energy accordingly. The special theory of relativity has been exerted in the electromagnetic field and photon field, which has been confirmed by physical experiments.

(8.1.19)
$(1-\eta^2)^K=Ev/E_C=(Mv^2)/(MC^2)$
$=(1-v^2/C^2)^{K(Z\pm[S=3]\pm(N=0,1,2)-(q=2)/t}$
$=[(1-v/C)\cdot(1+v/C)]^{K(Z\pm[S=3]\pm(N=0,1,2)-(q=2)/t}$
$=[(1-\eta^2)^{(Kw=+1)}\cdot(1-\eta^2)^{(Kw=-1)}]^{K(Z\pm[S=3]\pm(N=0,1,2)-(q=2)/t}$
$=\{0 \text{ to } 1\}$;

8.1.5. Universal Coulomb electromagnetic force equation and circle logarithm:

Suppose: the universal Coulomb electromagnetic force equation moves in a three-dimensional spherical space.

$(k(\sqrt{q_1})/r)^{K(Z\pm[S=3]\pm(N=0,1,2)-(q=2)/t}=A$;
$(k(\sqrt{q_2})/r)^{K(Z\pm[S=3]\pm(N=0,1,2)-(q=2)/t}=B$;
$\mathbf{D}=[(k\sqrt{q_1q_2})/r^2]^{K(Z\pm[S=3]\pm(N=0,1,2)-(q=2)/t}=A\cdot B$;
$\mathbf{D}_0=(1/2)(A+B)$;

(8.1.20)
$E=[(kq_1q_2)/r^2]^{K(Z\pm[S=3]\pm(N=0,1,2)-(q=2)/t}$
$=[(k(\sqrt{q_1})/r)\cdot(\sqrt{q_2})/r)]^{K(Z\pm[S=3]\pm(N=0,1,2)-(q=2)/t}$
$=A\cdot B$
$=[(1-\eta^2)\cdot\mathbf{D}_0]^{K(Z\pm[S=3]\pm(N=0,1,2)-(q=2)/t}$
$=[(1-\eta^2)^{(Kw=+1)}\cdot(1-\eta^2)^{(Kw=-1)}]\mathbf{D}_0^{K(Z\pm[S=3]\pm(N=0,1,2)-(q=2)/t}$;

Formulas (8.1.1)-(8.1.20) are equivalent to the universal Coulomb electromagnetic force equation, Maxwell's electromagnetic force equation, and Einstein's electrodynamic equation. At the same time, the relationship between the power vector and the magnetic force vector in the circular logarithmic covariation, transformation and equilibrium (the law of conservation of energy) is described.

8.2. [Engineering Example 2] The connection between the gravitational equation and the circular logarithmic equation

The history of science has Newtonian gravity, Einstein's general theory of relativity, and the exploration of quantum equations for gravity. In fact, the gravitational equation is the combination of the revolution (xyz) + rotation (uv) group of the gravitational particle. "Revolution and rotation" are two asymmetric combinations. How to realize the symmetrical combination? The circular logarithm equation is proposed, and the two asymmetrical combinations of "revolution and rotation" are converted into a five-dimensional gravitational equation, which is consistent with the time calculation of the circular logarithm-electromagnetic force equation.

Based on group combination, multivariate elements in probability are decomposed into two symmetry elements ∏(xyz...)≠∏(uv...) through the center zero symmetry. The logarithm of the probability circle passes through the central zero point, so that the asymmetric revolution (xyz)≠rotation (uvz), which is converted into the relative symmetry probability-topological logarithm of the isomorphism, $(1-\eta_{(xyz)}^2)^{(Kw=+1)}=(1-\eta_{(uv)}^2)^{(Kw=-1)}$. The basic space of revolution A=(xyz)+rotation B=(uvz) of the five-dimensional vortex composing the circular logarithmic gravity equation. in:

$(1-\eta_{(xyz)}^2)^{(Kw=+1)}=\sum(\eta_x+\eta_y+\eta_z)=\sum(\eta_x^2+\eta_y^2+\eta_z^2)$corresponds to the gravitational axes[x],[y],[z] 及 [yz],[zx],[xy];

$(1-\eta_{(uvz)}^2)^{(Kw=-1)}=\sum(\eta_u+\eta_v)$corresponds to the anti-gravity or rotation axes[L],[M],[N] 及 [MN],[NL],[LM];

In the formula: because the [Z] axis coincides with the [N] axis, the gravitational particle rotation [uv] is the rotation around the z-axis plane.

8.2.1. Gravitational spherical coordinate: K spherical coordinate series:

The spherical coordinates of gravity are revolution $(xyz)^{(Kw=+1)K(Z\pm[S]\pm(N=0,1,2)+(q=1)/t}$+rotation$(uvz)^{(Kw=-1)K(Z\pm[S]\pm(N=0,1,2)+(q=1)/t}$; (revolution (z) coincides with rotation (z)), the composition

$\{G[x],[y],[z],[u],[v])\},\{G_{uv}[yz],[zx],[xy],[uv]\},[x_gy_gz_g],[u_gv_gz_g]$,

G is the gravitational constant binding graviton elements. The combination of one or three elements represents the precession of the particle, and the combination of two elements represents the wave, tensor, and rotation of the wave quantum.

The unit description of the corresponding circular logarithm:$(1-\eta_{[x]}^2)^K,(1-\eta_{[y]}^2)^K,(1-\eta_{[Z]}^2)^K,(1-\eta_{[u]}^2)^K,(1-\eta_{[v]}^2)^K,(1-\eta_{[yz]}^2)^K,(1-\eta_{[zx]}^2)^K,(1-\eta_{[xyz]}^2)^K,(1-\eta_{[uvz]}^2)^K$;
$(1-\eta(xyz)^2)^{(Kw=+1)}=(1-\eta_{(uv)}^2)^{(Kw=-1)}=(1-\eta_{(xyz+uv)}^2)^{(Kw=\pm1)}$。
precession{xyz}+rotation{uv} constitutes a five-dimensional gravitational vortex space.

(a),Axis coordinates:

Gravitational linear equation $(1-\eta^2)^K\cdot[\{D_{0A}\}\pm\{D_{0B}\}]^{K(Z\pm[S]\pm(N=0,1,2)+(q=1)/t}$
$(1-\eta^2)^{(Kw=+1)}=(1-\eta_{[x]}^2)^K\mathbf{i}+(1-\eta_{[y]}^2)^K\mathbf{J}+(1-\eta_{[Z]}^2)^K\mathbf{K}$,
$(1-\eta^2)^{(Kw=-1)}=(1-\eta_{[u]}^2)^K\mathbf{i}+(1-\eta_{[v]}^2)^K\mathbf{J}+(1-\eta_{[z]}^2)^K\mathbf{K}$,

$(1-\eta^2)^K=[(1-\eta^2)^{(Kw=+1)}\cdot(1-\eta^2)^{(Kw=-1)}]^{K(Z\pm[S]\pm(N=1)+(q=1)/t}=\{0$ to $1\}$;

$(1-\eta^2)^K=[(1-\eta_{[x]}^2)^{(Kw=+1)}+(1-\eta_{[y]}^2)^{(Kw=\pm0)}+(1-\eta_{[z]}^2)^{(Kw=-1)}]^{K(Z\pm[S]\pm(N=1)+(q=1)/t}=\{0$ to $1\}$;

(b), Surface coordinates:

Gravitational Surface Equation $(1-\eta^2)^K\cdot[\{D_{0A}\}\pm\{D_{0B}\}]^{K(Z\pm[S]\pm(N=0,1,2)+(q=2)/t}$

$(1-\eta^2)^{(Kw=+1)}=(1-\eta_{[yz]}^2)^K\mathbf{i}+(1-\eta_{[zx]}^2)^K\mathbf{J}+(1-\eta_{[xy]}^2)^K\mathbf{K}$,

$(1-\eta^2)^{(Kw=-1)}=(1-\eta_{[uv]}^2)^K\mathbf{i}+(1-\eta_{[NL]}^2)^K\mathbf{J}+(1-\eta_{[LM]}^2)^K\mathbf{K}$,

$(1-\eta^2)^K=[(1-\eta^2)^{(Kw=+1)}\cdot(1-\eta^2)^{(Kw=-1)}]^{K(Z\pm[S]\pm(N=1)+(q=2)/t}=\{0$ to $1\}$;

Known gravitational particle mass-potential energy $\{X\}=(g_{uv}M/r)$, boundary conditions: $({}^S\sqrt{\mathbf{D}_{AB}})$, mean function $(\mathbf{D_0}_{AB})$, average speed of light（C）. Written as variable element $\{X\}=\{G(xyz+uv)\}$;

xyz (revolution)+uv (rotation)$\prod(xyz)\neq\prod(uv)$,

Power function: $K(Z\pm[S=5]\pm(N=0,1,2)\pm(q)/t$

The central zero point passes through the probability circle logarithm

$(1-\eta^2)^K=(x+y+z+u+v)/(X_{0AB})$, $(X_{0AB})=(1/5)(x+y+z+u+v)$;

Obtain to satisfy the symmetry such that: $(\eta_x+\eta_y+\eta_z)^{(Kw=+1)}+(\eta_u+\eta_v)^{(Kw=-1)}=0$;

Discriminant:

$(1-\eta^2)^K=[({}^S\sqrt{\mathbf{D}_{AB}})/(\mathbf{D_0}_{AB})]^{K(Z\pm[S=5]\pm(N=0,1,2)\pm(q)/t}=[v/c]^{K(Z\pm[S=5]\pm(N=0,1,2)\pm(q)/t}\leq1$;

(8.2.1)

$\{X\pm{}^S\sqrt{\mathbf{D}_{AB}}\}^{K(Z\pm[S]\pm(N=0,1,2)\pm(q)/t}=(1-\eta^2)^K\cdot\{X_0\pm\mathbf{D_0}_{AB}\}^{K(Z\pm[S]\pm(N=0,1,2)\pm(q)/t}$

$=(1-\eta^2)^K(0,2)[\{\mathbf{D_0}_{AB}\}^{K(Z\pm[S]\pm(N=0)\pm(q)/t}+\{\mathbf{D_0}_{AB}\}^{K(Z\pm[S]\pm(N=1)\pm(q)/t}+\{\mathbf{D_0}_{AB}\}^{K(Z\pm[S]\pm(N=2)\pm(q)/t}]$

(8.2.2)

$(1-\eta^2)^K=(1-\eta_{xyz+uv}^2)^K$

$=[(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=\pm0)}+(1-\eta^2)^{(Kw=-1)}]^{K(Z\pm[S]\pm(N=1)+(q=1)/t}$

$=\{0$ or $[0$ to $(1/2)$ to $1]$ or $1\}^K$;

8.2.1. State of the gravitational equation: In formula (8.2.1):

(1), zero-order equation:

(8.2.3)

$\{X\pm{}^S\sqrt{\mathbf{D}_{AB}}\}^{K(Z\pm[S]\pm(N=0)\pm(q)/t}=(1-\eta^2)^K\{\mathbf{D_0}_{AB}\}^{K(Z\pm[S]\pm(N=0)\pm(q)/t}$

Represents the elliptical orbital space of the gravitational equation, $(1-\eta^2)^K$ is the eccentricity or the distance between the perfect circular orbit and the elliptical orbit.

(2), first-order differential equation:

(8.2.4)

$\{X\pm{}^S\sqrt{\mathbf{D}_{AB}}\}^{K(Z\pm[S]\pm(N=-1)\pm(q)/t}=(1-\eta^2)^K\{\mathbf{D_0}_{AB}\}^{K(Z\pm[S]\pm(N=-1)\pm(q)/t}$

It represents the speed and momentum space of the gravitational equation, $(1-\eta^2)^K$ is the difference between the speed of the gravitational particle and the average speed of light.

(3), second-order differential equation:

(8.2.5)

$\{X\pm{}^S\sqrt{\mathbf{D}_{AB}}\}^{K(Z\pm[S]\pm(N=-2)\pm(q)/t}=(1-\eta^2)^K\{\mathbf{D_0}_{AB}\}^{K(Z\pm[S]\pm(N=-2)\pm(q)/t}$

Represents the space of gravitational acceleration, force, and kinetic energy, and $(1-\eta^2)^K$ is the difference between the acceleration, force, and energy of gravitational particles and the average acceleration, force, and energy of light particles.

(4), the second-order full differential equation of gravity:

(8.2.6)

$\{X\pm{}^S\sqrt{\mathbf{D}_{AB}}\}^{K(Z\pm[S]\pm(N=-0,1,2)\pm(q)/t}=\{X\pm{}^S\sqrt{\mathbf{D}_{AB}}\}^{K(Z\pm[S]\pm(N=-2)\pm(q)/t}$(second-order equation)

$+\{X\pm{}^S\sqrt{\mathbf{D}_{AB}}\}^{K(Z\pm[S]\pm(N=-1)\pm(q)/t}$(first order equation)

$+\{X\pm{}^S\sqrt{\mathbf{D}_{AB}}\}^{K(Z\pm[S]\pm(N=-0)\pm(q)/t}$(zero-order equation);

8.2.2. Calculation result of gravity equation: In formula (8.2.6):

(1), The spin of the gravitational particle:

(8.2.7)

$[(1-\eta^2)^K\cdot(0)\cdot\{X_0-\mathbf{D_0}_{AB}\}]^{K(Z\pm[S]\pm(N=0,1,2)\pm(q)/t}$;

(2), The public rotation of gravitational particles:

(8.2.8)

$[(1-\eta^2)^K\cdot(2)\cdot\{X_0\pm\mathbf{D_0}_{AB}\}]^{K(Z\pm[S]\pm(N=0,1,2)\pm(q)/t}$;

(3), The three-dimensional three-dimensional five-dimensional vortex (revolution + spin) space of gravitational particles:

(8.2.9)

$[(1-\eta^2)^K\cdot(0\leftrightarrow2)\cdot\{X_0\pm\mathbf{D_0}_{AB}\}]^{K(Z\pm[S]\pm(N=0,1,2)\pm(q)/t}$;

When: the vortex space rotates periodically, the power function $K(Z\pm[S]\pm(N=0,1,2)\pm(q)/t=(2\pi k)K(Z\pm[S]\pm(N=0,1,2)\pm(q)/t$,

8.2.3. Balance and transformation of the gravitational equation:

(8.2.10) $(1-\eta_{[xyz+uv]}^2)^K=(1-\eta_{\mathbf{[yz]}[xyz+uv]}^2)$

$=(1-\eta_{\mathbf{[yz]}[xyz+uv]}^2)\,\mathbf{i}+(1-\eta_{\mathbf{[zx]}[xyz+uv]}^2)\,\mathbf{J}+(1-\eta_{\mathbf{[xy]}[xyz+uv]}^2)\,\mathbf{K}=\{0$ to $1\}$;

The property power function(K=+1) represents the specific property function of the gravitational region, ,(K=+1)(Kw=+1,±0±1,-1) (gravitational internal property),

(1), (K=+1)(Kw=+1) (positive gravitational term), $(1-\eta^2)^{(Kw=+1)}$gravitational convergence, precession, positive gravitational equation, gravitational wave redshift;

(2), (K=+1)(Kw=-1)(anti-gravitational term), $(1-\eta^2)^{(Kw=-1)}$gravitational diffusion, rotation, anti-gravitational equation, gravitational wave blueshift;

(3), (K=+1)(Kw=±0) (gravitational conversion), $(1-\eta^2)^{(Kw=\pm0)}$gravitational center space, positive and negative gravitational conversion points;

(4), (K=+1)(Kw=±1) (gravitational balance), $(1-\eta^2)^{(Kw=\pm1)}$balance between the positive and negative gravitational equations of gravitation;

8.2.4. High-dimensional vortex space of circular logarithmic three-dimensional spherical rectangular coordinates:

(8.2.11)

$(1-\eta_{[xyz+uv]}^2)^K=(1-\eta_{[yz][xyz+uv]}^2)$

$=(1-\eta_{[yz][xyz+uv]}^2)$ **i**$+(1-\eta_{[zx][xyz+uv]}^2)$ **J**$+(1-\eta_{[xy][xyz+uv]}^2)$ **K**;

8.2.5. Adaptation formula of Einstein's special theory of relativity (8.2.1)

Let: particle momentum;； E_v=MV; light particle momentum;E_c=MC; or particle kinetic energy; $E_v=MV^2$; light particle kinetic energy; $E_c=MC^2$;;

(8.2.12)

$(1-\eta^2)^K=E_v/E_C=MV^2/MC^2$

$=({}^{KS}\sqrt{\mathbf{D}_{AB}})/(\mathbf{D}_{0AB})^{K(Z\pm[S]\pm(N=0,1,2)\pm(q)/t}$

$=[(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=\pm0)}+(1-\eta^2)^{(Kw=-1)}]^{K(Z\pm[S]\pm(N=0,1,2)\pm(q)/t}$

$=\{0or[0\ to\ (1/2)\ to\ 1]or1\}^K$;

8.2.6. Einstein's general relativity adaptation formula (8.2.1)

(8.2.13)

$(1-\eta^2)^K(\mathbf{D}_{0AB})^{K(Z\pm[S]\pm(N=0,1,2)\pm(q)/t}$

$=[(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=\pm0)}+(1-\eta^2)^{(Kw=-1)}]^{K(Z\pm[S]\pm(N=0,1,2)\pm(q)/t}$

$=\{0or[0\ to\ (1/2)\ to\ 1]or1\}^K$;

The surface space object described by circular logarithm is equivalent to non-Euclidean geometric space and Riemann surface space in Einstein's general theory of relativity. which satisfies the wave-particle duality.

Granular coordinates:

(8.2.14)

$(1-\eta^2)^K$

$=[(1-\eta_{[x]}^2)^{(Kw=+1)}$ **i**$+$ $(1-\eta_{[y]}^2)^{(Kw=\pm0)}$ **j**$+$ $(1-\eta_{[z]}^2)^{(Kw=-1)}$ **k**$]^{K(Z\pm[S]\pm(N=0)+(q)/t}$

$=\{0\ to\ 1\}^{K(Z\pm[S]\pm(N=0)+(q)/t}$;

Wave coordinates:

(8.2.15)

$(1-\eta^2)^K=[(1-\eta_{[yz]}^2)^{(Kw=+1)}$ **i**$+$ $(1-\eta_{[zx]}^2)^{(Kw=\pm0)}$ **j**$+$ $(1-\eta_{[xy]}^2)^{(Kw=-1)}$ **k**$]^{K(Z\pm[S]\pm(N=0)+(q)/t}$

$=\{0\ to\ 1\}^{K(Z\pm[S]\pm(N=0)+(q)/t}$;

8.2.7. The connection between Newton's law of universal gravitation and circular logarithm:

Galileo discovered the laws of motion of falling objects, Kepler's research determined the laws of planetary motion, and Newton unified their research and proposed the universal method of gravity. In this process, he had to study the complexity and propose a new mathematics branch, the accuracy of its experiments reached 100%. Here we transform calculus into higher-order equations.

Newton's Theory of Gravity:

$\{X^3\}^{(Kw=+1)}=\{x,y,z\}^{(Kw=+1)}$ (revolution),$\{X^3\}^{(Kw=-1)}=\{u,v,z\}^{(Kw=-1)}$ (rotation),

Einstein's Theory of Gravity:

$\{X^3\}=\{[zx],[zx],[xy]\}^{(Kw=+1)}$(positive gravity),

$\{X^3\}=\{[MN],[NL],[LM]\}^{(Kw=-1)}$ (antigravity),

$\{X^3\}=\{[zx],[zx],[xy]+[MN],[NL],[LM]\}^{(Kw=\pm1)}$ (gravitational balance space),

$\{X^3\}=\{[zx],[zx],[xy]+[MN],[NL],[LM]\}^{(Kw=\pm0)}$ (gravitational transformation space),

can be uniformly transformed into circular logarithmic equations, corresponding to linear and spherical rectangular coordinates, respectively, to correspond to the three root variable elements of the three group combinations:

Average radius of elliptical orbit $\{X_0{}^3\}^K=[(1/3)^K(x^K+y^K+z^K)]^K$,(K=+1,±1,-1). (Z) is the orbital normal axis of the xy plane, and the eccentricities of their elliptical orbits are equivalent to the performance of the logarithm of the circle, and the logarithm of the circle (1-η2)K is equivalent to the orbital eccentricity e.

(1), the gravitational energy equation:

Set: gravitational energy $(G_{uv}(\sqrt{M_1})/r)=A$; $(G_{uv}\sqrt{M_2})/r^2)=B$; $D=(G_{uv}\sqrt{M_1M_2})/r^2=A\cdot B$; $D_{0AB}=(1/2)(A+B)$; $M=M_1+M_2=2[(1/2)(M_1+M_2)]=2M_0$;

(8.2.16)

$E=[(G_{uv}\sqrt{M_1M_2})/r^2]^{K(Z\pm[S]\pm(N=-2)+(q=1)/t}$

$=[(G_{uv}(\sqrt{M_1})/r)\cdot(G_{uv}\sqrt{M_2})/r))]^{K(Z\pm[S]\pm(N=-2)+(q)/t}$

$=[A\cdot B]^{K(Z\pm[S]\pm(N=-2)\pm(q)}$

$=[(1-\eta^2)^{(Kw=+1)}\cdot(1-\eta^2)^{(Kw=-1)}]\cdot(0,2)\cdot\{D_{0AB}{}^2\}^{K(Z\pm[S]\pm(N=-2)\pm(q)}$;

(8.2.17)

$E=[(G_{uv}\sqrt{M_1M_2})/r^2]^{K(Z\pm[S]\pm(N=0)+(q=1)/t}$

$=[(G_{uv}(\sqrt{M_1})/r)\cdot(G_{uv}\sqrt{M_2})/r))]^{K(Z\pm[S]\pm(N=0)+(q=1)/t}$

$=[A\cdot B]^{K(Z\pm[S]\pm(N=-1)\pm(q)}$

$=[(1-\eta^2)^{(Kw=+1)}\cdot(1-\eta^2)^{(Kw=-1)}]\cdot(0,2)\cdot\{D_{0AB}{}^2\}^{K(Z\pm[S]\pm(N=0)\pm(q)}$;

Among them, the relevant orbital parameters and gravitational constant $(\eta^2)=GM(h^2/C^2)$, the gravitational coefficient is bound in the variable and does not affect the calculation of circular logarithm.

(2), Newton's gravitational formula general formula circular logarithmization:

Known boundary conditions $D=E=2GM/V^2=\prod(xyzuv)=\prod(xyz)(revolution)+\prod(uvz)(rotation))$; average energy$E_0=2GM/C^2$;

(a), Orbital equation:

(8.2.18)

$AX^{K(Z\pm[S]\pm(N=0)+(q=3)/t}+BX^{K(Z\pm[S]\pm(N=0)+(q=2)/t}+CX^{K(Z\pm[S]\pm(N=0)+(q=-2)/t}+D$

$=(1-\eta^2)^KE_0{}^{K(Z\pm[S]\pm(N=2)+(q=3)/t}$

(8.2.19)

$(1-\eta^2)^K=(x-y)/(x-y)=r_0{}^{(K=-1)}/r_0{}^{(K=-1)}=r_0{}^{2(K=-1)}/r_0{}^{2(K=-1)}$

$=[(1/3)^{(-1)}(x^{(-1)}+y^{(-1)}+z^{(-1)})]^{(-1)}/[(1/3)^{(+1)}(x^{(+1)}+y^{(+1)}+z^{(+1)})]^{(}$

$^{+1)}$;

(b), Dynamic equation (zero-order, first-order, second-order differential-N=0,1,2)

(8.2.20)

$AX^{K(Z\pm[S]\pm(N=0,1,2)+(q=3)/t}+BX^{K(Z\pm[S]\pm(N=0,1,2)+(q=1)/t}+CX^{K(Z\pm[S]\pm(N=0,1,2)+(q=-2)/t}+D$

$=(1-\eta^2)^K[E_0^{K(Z\pm[S]\pm(N=2)+(q=1\to3)/t}+E_0^{K(Z\pm[S]\pm(N=1)+(q=1\to3)/t}+E_0^{K(Z\pm[S]\pm(N=0)+(q=1\to3)/t}]$;

The above dynamic equations are called the equations of motion of particles, and can be easily extended to Einstein's general theory of relativity, Maxwell's electromagnetic equations, and gauge fields.

(8.2.21)

$(1-\eta^2)^K=(1-\eta_{[x]}^2)^K\ \mathbf{i}+(1-\eta_{[y]}^2)^K\ \mathbf{j}+(1-\eta_{[z]}^2)^K\mathbf{k}$; (three-dimensional straight, curve precession coordinates);

(8.2.22)

$(1-\eta^2)^K=(1-\eta_{[yz]}^2)^K\ \mathbf{i}+(1-\eta_{[zx]}^2)^K\ \mathbf{j}+(1-\eta_{[xy]}^2)^K\mathbf{k}$; (three-dimensional plane, curved surface rotation coordinates);

(8.2.23)

$(1-\eta^2)^K=(1-\eta_{[yz+MN]}^2)^K\ \mathbf{i}+(1-\eta_{[zx+NL]}^2)^K\ \mathbf{j}+(1-\eta_{[xy+MN]}^2)^K\mathbf{k}$; (three-dimensional five-order vortex space, sixth-order electromagnetic space coordinates);

At present, the coordinates mentioned in physics at home and abroad include:

(1), Newton's linear equation (straight or granular Cartesian coordinate system).

(2), Einstein surface equation (non-Euclidean surface or wave rectangular coordinate system).

(3) Three-dimensional cubic fifth-order vortex space, sixth-order electromagnetic space (non-Euclidean surface or wave-particle rectangular coordinate system).

In particular, the granular three-dimensional axis coordinates of the logarithm $(1-\eta^2)^K$ and the wave three-dimensional surface coordinates have the same duality and are compatible with each other. Each coordinate has its own field of adaptation. The logarithm at the center zero point has equivalent permutation or covariance.

8.2.8. Verification: Einstein's Theory of Relativity and the Circular Logarithmic Relationship

In the "Modern Physics" **P392-396** to verify Einstein's theory of relativity recorded 6 famous examples.

(Example 1), Schwarzschild's solution in 1916: Considering the gravitational metric tensor field of vacuum space around a symmetric object with mass M, the metric is written as a quadratic equation of $(r^2)=A\cdot B$, which is converted into Circle log solver

$A(r)=(1-\eta^2)^{(kw=+1)K(Z\pm[S]\pm(N=0)+(q)/t}\cdot C$; $B(r)=(1-\eta^2)^{(kw=-1)}\cdot C$;

In the formula : $\eta^2=(k/r)$, $(1-\eta^2)^{(kw=+1)}=(1-(k/r))$; $(1-\eta^2)^{(kw=+1)}=(1+(k/r))$;

(Example 2), length and time: Schwartz space-time,

Set $\{x\}^{K(Z\pm[S]\pm(N=0,1,2)+(q=3)/t}=(2m/r)^{K(Z\pm[S]\pm(N=0,1,2)+(q=3)/t}$, m=M G/C, (C: speed of light), $\eta^2=2m/r$,

which constitutes four-dimensional space-time, one-dimensional The time t follows the change of space calculus synchronously, and the second-order equation of the three-dimensional line element is converted into the linear rectangular coordinates corresponding to the circular logarithmic equation. The elliptical orbit and the corresponding time are not equal to the perfect spherical orbit and the corresponding time, and the circular logarithm reflects the their gaps:

$\{x\}^{K(Z\pm[S]\pm(N=0,1,2)+(q=3)/t}=(1-\eta^2)^K(0,2)(MG/C)^{K(Z\pm[S]\pm(N=0,1,2)+(q=3)/t}$;

$(1-\eta^2)^K=(1-\eta_{[x]}^2)^K\ \mathbf{i}+(1-\eta_{[y]}^2)^K\ \mathbf{j}+(1-\eta_{[z]}^2)^K\ \mathbf{k}$

(Example 3), Spectral red shift: Einstein obtained $\Delta\upsilon/\upsilon_E$ converted to circular logarithm

$\Delta\upsilon/\upsilon_E=(\upsilon_R-\upsilon_E)/\upsilon_E$

$=GM/C^2\cdot(\upsilon_R^{(-1)}-\upsilon_E^{(-1)})/(\upsilon_R^{(+1)}+\upsilon_E^{(+1)})\cdot(\upsilon_R^{(+1)}+\upsilon_E^{(+1)})$

$=(1-\eta^2)^K\cdot C^2(1-\eta^2)^{(K=+1)}=(\upsilon_R^{(-1)}-\upsilon_E^{(-1)})/(\upsilon_R^{(+1)}+\upsilon_E^{(+1)})\leq1$;

In the formula: $m=GM/C^2=(\upsilon_R^{(+1)}+\upsilon_E^{(+)})^{(+1)}$;

m=GM/C2=(υR(+1)+υE(+))(+1);

(Example 4),The precession of the perihelion: Einstein obtains the precession amount of each cycle: consider the spherical cubic equation.

Let: (r_1,r_2) be the aphelion and perihelion respectively, the normal point is (r_3), the average point radius $r_0=(r_1+r_2+r_3)/3$;

$3\mathcal{E}\alpha=3GM\pi/C^2(r_1^{(-1)}+r_2^{(-1)})/(r_1^{(+1)}+r_2^{(+1)})/2\cdot(r_1^{(+1)}+r_2^{(+1)})/2$

$=(1-\eta^2)^{(K=+1)}\cdot3GM\pi/C^2\cdot r_0$;

(Example 5), light is deflected in the sun's gravitational field: Einstein proposed "to add a cubic term to the photon orbit equation under the influence of general relativity", $(du/d\varphi)^2+u^2=F+\mathcal{E}u^3$; $\mathcal{E}=2GM\pi/C^2$; becomes a quadratic equation in one variable, converted to logarithm of the circle. After the light is deflected, the propagation direction can only be shifted by a small angle ɑ,

$ɑ=2(1-\eta^2)^{(K=\pm1)}\mathcal{E}u_0=4GM/C^2(1-\eta^2)^{(K=\pm1)}\cdot r_0$;

(Example 6), Black hole: Einstein applied Schwarzschild (Schwarzschild) solution to use (t,r,θ,φ)as coordinate variables to represent, $2m=2m=2GM/C^2$, get the Schwarz line element (1-2m/r)。 $(1-2m/r)=(1-\eta^2)^{(K=\pm1)}$, $(\eta^2)=(2m/r)$; metric tensor (u)Schwartz radius,(r_s)subject to$2m/r=(1-\eta^2)^{(K)}\leq1$;(K=+1,±0,-1)threshold restriction.(u)The new coordinate variable is called Eddington-Finkelstein coordinate.

Einstein wrote the calculus equation: $(1-2m/r)(du/dr)^2-(du/dr)=0$;

Convert to a one-dimensional cubic first-order equation:$U^2=(1-\eta^2)^{(K=\pm1)}(0,2)U_0^2$;

$(1-\eta^2)^{(K=\pm1)}=(1-\eta^2)^{(K=+1)}$(convergence, geodesic)→$(1-\eta^2)^{(K=\pm0)}$(transition point)←$(1-\eta^2)^{(K=-1)}$(diffusion);

Among them:$(1-\eta^2)^{(K=\pm0)}$=2m/r=1 (conversion point), which is called black hole or Schwartz black hole.

In black hole theory, when2m/r→infinitely small, $(1-\eta^2)^{(K=\pm0)}$→0, it is called dark matter and dark energy. Black holes, dark matter and dark energy have become the frontiers of theoretical astrophysics and observation.

In particular, for the circular logarithm equation of any function, all motion parameters (including trigonometric functions) and gravitational constants change in the mass, and the calculation without specific mass element content does not affect the calculation process of the circular logarithm.

8.3. [Engineering Example 3] The connection between quantum mechanics and circular logarithmic equation.

In quantum physics, is mathematics (Schrodinger equation, Hilbert space, etc.) inherently complex-valued? This simple problem has accompanied the development of quantum mechanics from the very beginning. Schrödinger, Lorenz and Planck discussed the issue in their letters at the time. But in the early days, the pioneers of quantum mechanics abandoned attempts to develop a quantum theory based on real numbers because they believed it to be impractical. While the possibility of using real numbers has never been formally ruled out, recent theoretical results suggest that real-valued quantum theory can describe an unexpectedly wide range of quantum systems. But this real number method has now been refuted by two independent experiments at USTC (Pan Jianwei, Lu Chaoyang, Zhu Xiaobo, Peng Chengzhi, Zhang Qiang, etc.) and SUSTech (Fan Jingyun, etc.).

Research by the two teams has publicly shown that, in the standard formulation of quantum mechanics, complex numbers are essential to describe experiments performed on simple quantum networks. A fundamental starting point for quantum theory is to represent particle states as vectors in a complex-valued space (called a Hilbert space). However, for a single isolated quantum system, finding a purely real-based description is straightforward: it can be obtained simply by doubling the dimension of the Hilbert space, since the complex space is equivalent to or "isomorphic" In "a two-dimensional real plane, the two dimensions represent the real and imaginary parts of complex numbers, respectively.

In 2009, there was international theoretical work showing that the statistics of any standard Bell experiment could be reproduced using real numbers, even those involving multiple quantum systems. This result reinforces the conjecture that complex numbers are not necessary. However, the lack of a general proof opens up some avenues to refute the equivalence between complex and real quantum theories.

However, the problem becomes less simple when we consider the unique quantum correlations that arise in quantum mechanics, such as entanglement, as well as multivariate element combination asymmetries. These correlations may violate the principles of local realism and imaginary numberism, as demonstrated by the so-called Bell's inequality test. Violations of the Bell test seem to require complex values to describe them. Circular logarithmic calculation shows credibly that "there are three scenarios of **'0',' 2',' 0→2'** in the calculation result", which has relative symmetry conditions, and proves that the use of real numbers is credible, such as the real number of **'2',** Avoid the trouble of describing asymmetry in imaginary number calculations.

In 2021, one such path was identified through excellent theoretical work by Marc-Olivier Renou of Spain's Institute of Photonic Sciences (ICFO), one of the authors of the SUSTech article, and colleagues. The researchers considered two theories, both based on the assumptions of quantum mechanics, one, using the Hilbert space of complex numbers, just like traditional formulations, and the other using the space of real numbers. They then devised Bell-like experiments to demonstrate the inadequacies of real number theory. In this theoretical experiment, two independent sources distribute entangled qubits in a quantum network configuration, while causally independent measurements at nodes can reveal quantum correlations that do not allow any real quantum representation. But it has also caused controversy among some scientists, arguing that experiments that rule out the theory of real numbers may be incomplete. You cannot explain the wave-particle duality of quantum mechanics, but also the duality of spatial coordinates.

But some scientists want to dig deeper. They want to know why quantum mechanics has such a form, and they are working through an ambitious project to find out. Called Quantum Reconstruction, the project attempts to build quantum theory from "zero" starting from a few simple principles.

If these efforts are successful, then all the weirdness and confusion in quantum mechanics may dissipate, and we will finally be able to understand what the theory has been trying to tell us. Giulio Chiribella, a theoretical physicist at the University of Hong Kong, said: "The ultimate goal for me is to prove that quantum theory is the only theory that allows us to construct a perfect picture of the world from imperfect experience."

The circular logarithm adapts to construct quantum theory from one-dimensional quadratic to higher-order equations, and uses real quantum theory combined with the principle of relativity to describe certain measurements on quantum networks. This is a promising building block for a future quantum internet. Quantum-mechanical analysis is performed in a controllable range of {0 or (0 to 1/2 to) or 1} by mapping higher-order equations to a circular logarithmic-neural network with no specific element content. It includes the wave-particle duality of quantum mechanics and the unification of linear and nonlinear coordinates. called new quantum technology. The availability of new quantum technologies is closely related to the possibility of testing fundamental aspects of quantum mechanics. These new fundamental insights into quantum mechanics could have unexpected implications for the development of new quantum information technologies.

Unification of the system quantum (radiation plus spin) equation with the circular logarithmic equation. Based on the positive role of electromagnetism and optomechanics in quantum theory, one can refer to the circular logarithm and electromagnetism in chapter 8.1. The difference is that the object described by quantum mechanics is the motion state of the radiation and spin of the microscopic sub-particles. Relying on the experimental measurement of quantum to represent quantum with universal significance, and the speed of quantum particle motion is equal to the speed of light, as a reference point for comparison, a circular logarithm-neural network is established.

(1), Quantitative particle granular system: $(1-\eta^2)^K=(V/C)$, suitable for granular radiation and spin. Reproduces for real numbers the statistics of any standard Bell experiment, even those involving multiple quantum linear systems, corresponding to a linear Cartesian coordinate system.

(2), Quantitative particle wave system: $(1-\eta^2)^K=(V^2/C^2)$, adapted to the radiation and spin of quantum wave. Corresponding to the quantum nonlinear spherical rectangular coordinate system, the data measurement for any standard Bell experiment embodying complex numbers, even those involving multiple quantum nonlinear surface systems.

(3), The radiation and spin of granular radiation, spin and wave property have duality, corresponding to the duality of linear rectangular coordinate system space and quantum nonlinear spherical rectangular coordinate system space

Here will be a mathematical proof, the unification of circular logarithmic practice and quantum mechanics.

The multivariate (body) equations of the system are typically quantum mechanical equations including quantum electrodynamics and quantum chromodynamics, which are about the nature of electrodynamics generated by motion in the quantum particle field, and are valid for the static system K.

Let: the quantum mechanical equation element

$[S]=\{Q\}^{(kw=+1)(Z\pm[S]\pm(N=0,1,2)\pm(q=6)/t}$

$=\{X,Y,Z,L,M,N\}^{(kw=-1)(Z\pm[S]\pm(N=0,1,2)\pm(q)/t}$,

forming a six-tuple generator:

Mean function：

$\{D_0\}=(1/6)(X+Y+Z+L+M+N)$

$=(1/2)[(1/3)(X+Y+Z)+(1/3)(L+M+N)]=$；

Boundary conditions：

$D=[(^{K(6)}\sqrt{\{X,Y,Z,L,M,N\}}]^{K(Z\pm[S=6]\pm(N=0,1,2)\pm(q=6)/t}$

$=(^{K(3)}\sqrt{\{X,Y,Z\}}^{(kw=+1)(Z\pm[S=6]\pm(N=0,1,2)\pm(q=3)/tt}]\cdot(^{K(3)}\sqrt{L,M,N\}}^{(kw=-1)(Z\pm[S=6]\pm(N=0,1,2)\pm(q=3)/t}$

$=[(^{K(3)}\sqrt{D_A})\cdot(^{K(3)}\sqrt{D_B})]^{(kw=\pm1)(Z\pm[S]\pm(N=1)\pm(q=6)/t}$

$=(^{K(3)}\sqrt{D_A})^{(kw=+1)(Z\pm[S]\pm(N=1)+(q=3)/t}\cdot(^{K(3)}\sqrt{D_B})^{(kw=-1)(Z\pm[S]\pm(N=1)-(q=3)/t}$

$=D_A\cdot D_B$；

Actual known conditions:

(1) Obtain the representative quantum interaction data by physical measurement, and obtain the mean function D_0.

(2) The circular logarithm of the ratio of the particle velocity V to the speed of light according to Einstein's theory of relativity.

(3) Apply the mean function D_0 and the logarithm of the circle to satisfy the discriminant $(1-\eta^2)^K\leq1$, and establish a new quantum mechanical equation and the quantitative particle root (including relevant parameters) of the analytical boundary conditions.

In particular, the ratio of the axis of the perfect circle function $(1-\eta^2)^K=(V/C)$ is equivalent to the ratio of the area of the perfect circle function $(1-\eta^2)^K=(V^2/C^2)$. Traditional quantum computing uses elliptic functions, and there is no equivalence between axes and areas. The geometric intuitive representation is that the perfect circle (sphere) angle and the arc length change are synchronized; the ellipse (sphere) angle and the radian change are synchronized; this is why we require the perfect circle mode. Then the gap between a perfect circle (ball) and an ellipse (ball) is described by the logarithm of the circle. That is to say, the circular logarithm converts the asymmetric function into two symmetrical functions, which is called relative symmetry. Once the circular logarithm is canceled, the asymmetry of the function is still maintained. In the same way, if the resolution of quantum mechanics is 2, the resulting granular function D_A and wave function D_B are a pair of asymmetric functions, which are two functions of symmetry and symmetry by applying circular logarithm processing, that is, "unary six-degree function". Analytical as a two-dimensional cubic equation".

According to the one-variable hexadecimal equation or the two-variable cubic equation converted to asymmetry Reason: through the logarithm of the circle, the two logarithms of the circle have symmetrical symmetry. That is,$D_{AB}=D_A\cdot D_B$，$D_A\neq D_B$；[{X,Y,Z}=[D_A]≠[{L,M,N}=[D_B]; that is to say, the particle precession force (energy) D_A is not equal to the wave force (energy) D_B:

The circle logarithm meets the symmetry requirements through the probability circle logarithm and the center zero circle logarithm:

(1)，

$D_{AB}=(1-\eta^2)^{(K=-1)(Z\pm[S]\pm(N=0,1,2)\pm(q=6)/t}D_{OAB}+(1-\eta^2)^{(K=-1)}DOAB^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=6)/t}$.

(2) ， Wave $\sum(+\eta^2)=\sum(-\eta^2)$ or granular $\sum(+\eta)=\sum(-\eta)$;

Among them, $(1-\eta^2)=(V/C)^2=(V/C)$，the circular logarithm contains the multi-parameters of quantum mechanics in $\{X_v,Y_v,Z_v\}=\{X,Y,Z\}$, which does not affect the circular logarithm. After each quantum value is obtained, the multi-parameters of its quantum particles are reflected. The circular logarithm realizes "no specific mass content requirements, and meets the requirements of Chenning Yang-Mills "gauge field". The multi-variable (including gravity, electromagnetic force, light, quantum particles, temperature) is a novel quantum mechanics called higher-order equation for integrated calculation.

8.3.1. Higher-order equations of two-dimensional cubic quantum mechanics Granular wave duality function:

(1) Granularity function: $D_A=(^3\sqrt{\prod\{X,Y,Z\}})^{K(Z\pm[S=3]\pm(N=0,1,2)+(q=1)/t}$; $D_{0A}=(1/3)\{X+Y+Z\}$ represents the linear vector of quantity particles, including precession and radiation, corresponding to the linear plane coordinate system;

$(1-\eta^2)^{(K=-1)}=D_A/D_{0A}=(^3\sqrt{\prod\{X,Y,Z\}})/D_{0A}=(V/C)$;

Circle logarithmic coordinate: $(1-\eta^2)^{(K=+1)}$(linear coordinate for quantitative particle);

(8.3.1)

$(1-\eta^2)^{(K=+1)}$

$=(1-\eta_{[x]}^2)^{(Kw=+1)}\mathbf{i}+(1-\eta_{[y]}^2)^{(Kw=\pm0)}\mathbf{j}+(1-\eta_{[z]}^2)^{(Kw=-1)}\mathbf{k}$;

$=\{0 \text{ or } 1\}^{K(Z\pm[S=3]\pm(N=0,1,2)+(q)/t}$;

Equation (8.3.1) expresses the feature of jumping transition of granularity vector.

(2), wave function:$D_B=(^3\sqrt{\prod\{L,M,N\}})^{K(Z\pm[S=3]\pm(N=0,1,2)+(q=2)/t}$; $D_{0A}=(1/3)\{L+M+N\}$ represents the wave property vector of the quantum particle, including wave and spin, corresponding to the nonlinear surface coordinate system; it is easy to prove that they are equivalent to the Schrodinger wave equation of traditional quantum mechanics.

Circular logarithmic wave coordinate: $(1-\eta^2)^{(K=+1)}=(V^2/C^2)$ (for quantum particle wave coordinate);

(8.3.2)

$(1-\eta^2)^{(K=-1)}$

$=(1-\eta_{[yz]}^2)^{(Kw=+1)}\mathbf{i}+(1-\eta_{[zx]}^2)^{(Kw=\pm0)}\mathbf{j}+(1-\eta_{[xy]}^2)^{(Kw=-1)}\mathbf{k}$;

$=\{0 \text{ or } (0 \text{ to } 1/2 \text{ to } 1) \text{ or } 1\}^{K(Z\pm[S=3]\pm(N=0,1,2)+(q)/t}$;

Equation (8.3.2) expresses the continuous transition characteristic of wave property vector.

In the quantum particle calculus equation:(N=0) zero-order, static equation; (N=-1) first-order velocity, momentum equation; (N=-2) second-order acceleration, kinetic energy equation;

8.3.2. The relative symmetry of field quantum combination and circular logarithm:

The field quantum is defined as the product element of the Riemann function of a large number of particles, and the non-repetitive combination set is performed to optimize it into a higher-order equation.

The central zero point is decomposed into two asymmetrical precession force and rotational force vector, [A={X,Y,Z}]≠[B={L,M,N}] , or A≠B. However, the central zero point can be made relatively symmetrical by the logarithmic factor of the circle, and the analysis can be carried out smoothly.

The first-order probability circular logarithm satisfies the center-zero symmetry:

(8.3.3)

$(1-\eta_H^2)^K=\{X+Y+Z+L+M+N\}/\{Q\}$

$=(\eta_{HX}^2+\eta_{HY}^2+\eta_{HZ}^2)+(\eta_{HL}^2+\eta_{HM}^2+\eta_{HN}^2)$

$=(1-\eta_{HA}^2)^K\pm(1-\eta_{HB}^2)^K$

$=\{0 \text{ or } 1\}$;

(8.3.4)

$(\eta_{HA})=(\eta_{HX}+\eta_{HY}+\eta_{HZ})$; $(\eta_{HB})=(\eta_{HL}+\eta_{HM}+\eta_{HN})$;

(8.3.5) $(\eta_H)^K=(1+\eta_{HA})^{(K=+1)}\cdot(1-\eta_B)^{(K=+1)}=1$;

Second-order topological circle logarithm:

(8.3.6)

$(1-\eta_T^2)^K=[(1/6)\{X+Y+Z+L+M+N\}]/\{D_0\}$

$=(1-\eta_{TX}^2)+(1-\eta_{TY}^2)+(1-\eta_{TZ}^2)+(1-\eta_{TL}^2)+(1-\eta_{TM}^2)+(1-\eta_{TN}^2)$

$=(1-\eta_{HA}^2)^{(K=+1)}\cdot(1-\eta_{HB}^2)^{(K=-1)}$

$=\{0 \text{ to } 1\}$;

(8.3.7)

$(1-\eta^2)^K\{D_0\}=[(1-\eta_A^2)^{(K=+1)}+(1-\eta_B^2)^{(K=-1)}]=\{D_0\}$;

Or: $(1-\eta^2)^K=(1-\eta_A^2)^{(K=+1)}\cdot(1-\eta_B^2)^{(K=+1)}=1$;

Symmetry of electric force and magnetism,

The first-order equation of the sixth degree in one variable is converted to the first-order (velocity) equation of the third degree in two variables:

(8.3.8)

$\{Q\pm(^{K(6)}\sqrt{D})\}^{K(Z\pm[S]\pm(N=1)\pm(q=6)/t}$

$=\{Q\pm(^{K(3)}\sqrt{D_A}\cdot(^{K(3)}\sqrt{D_B})\}^{K(Z\pm[S]\pm(N=1)\pm(q=3)/t}$

$=(1-\eta^2)^K(0,2)\ \{D_0\}^{K(Z\pm[S]\pm(N=1)\pm(q=6)/t}$

$=(1-\eta_A^2)^K(0,2)\ \{D_{0A}\}^{K(Z\pm[S]\pm(N=1)+(q=3)/t}+(1-\eta_B^2)^K(0,2)\ \{D_{0B}\}^{K(Z\pm[S]\pm(N=1)-(q=3)/t}$

$=\{A_{0[xyz]}\}^{K(Z\pm[S]\pm(N=1)+(q=3)/t}+\{B_{0[LMN]}\}^{K(Z\pm[S]\pm(N=1)-(q=3)/t}$;

Among them: $\{D_{0A}\}^{(Kw=+1)K(Z\pm[S]\pm(N=1)+(q=3)/t}$corresponds to the power vector $\{D_{0B}\}^{(Kw=-1)K(Z\pm[S]\pm(N=1)-(q=3)/t}$ corresponds to the magnetic force vector, which is represented by the three-dimensional rectangular coordinate and spherical coordinate system of random duality, respectively.

8.4. [Engineering Example 4] The connection between the double helix structure equation of biological cells and the circular logarithmic equation

There are various biomolecules in biological cells, the combination of different biomolecules forms complexes, many different biomolecules self-assemble into molecular machines, and many functional molecules based on lipids participate in the formation of biofilm structures.

The two largest types of nucleic acids are deoxyribonucleic acid (DNA) and ribonueleic-acid (RNA). Like proteins, nucleic acids are macromolecules of genetic information in life activities, with complex structures and important biological functions.

The deoxyribonucleic acid of DNA mainly includes dAMP、dGMP、dCMP and dTMP .These four biological elements are respectively defined as $\{x_A,x_G,x_C,x_T\}$ to be combined according to Chargaff's rule,

(1), The amounts of adenine and thymidine are equal, namely A-T,$\{x_{A-T}\}$and $\{x_A,x_T\}$corresponds to$\{x_1,x_2\}$

(2), The amounts of guanine and cytosine are equal, namely G-C,$\{x_{G-C}\}$and $\{x_G,x_C\}$corresponds to $\{x_3,x_4\}$;

(3), The total number of purines is equal to the total number of pyrimidines, namelyA+G=T+C,$\{x_{[AG]}=x_{[TC]}\}$corresponds to $\{x_5,x_6\}$.

In this way, as four alkali-base pair forces and two rotational forces, $\{X_1X_2X_3X_4, X_5,X_6\}$ constitute six elements of biomechanics.

In 1953, Watson-Cricktc proposed the base complementarity law of the DNA double helix model, pointing out that the double helix structure is very stable, and the accumulation of alkali bases between molecules can cause the association of alkali bases, which is the main combination force to maintain the double helix structure of DNA. , from which the biomechanical equations are established.

The DNA double helix structure is a long-chain polymer, consisting of two long long chains like long thick rods seen as a ladder, intertwined with each other millions of times, sugar molecules and phosphoric acid as the backbone alternately appear, the rungs of the ladder are It consists of a pair of ladder base groups, which are connected to each other by the base three bonds in a prescribed manner, and adenine is connected to thymine, and guanine is connected to cytosine $\{x_A,x_G,x_C,x_T, x_{[AG]},x_{[TC]}\}$The six elements make up the mechanical equation. Again periodic helixes or rotations form a complete, continuous DNA double helix tertiary structure. $\{x_A,x_G,x_C,x_T\}$ are arranged in sequence without repetition, and $\{x_{[AG]},x_{[TC]}\}$are rotated periodically. Most of the DNA in the mitochondria of cells exists in this form.

The chemical structure of RNA is similar to that of DNA in the form of a double helix. It is also a continuous long chain formed by the connection of four basic nucleotides by 3', 5'-phosphodiester bonds. That is, A, G, C, U, are formed respectively. The difference is that the pentose sugar of RNA is D-ribose, which is ribose, instead of DNA deoxyribose, and uracil instead of DNA thymine. It is composed of AMP、GMP、CMP、UMP,and mRNA，tRNA，rRNA，, and antisense RN. The structure of each group of elements interacts to form a complex multi-body, multi-parameter, and heterogeneous structure. Among them, there are continuous periodic α helices and β sheets.

From the perspective of biomechanical interaction, biomechanics consists of six-dimensional group generators, which are written as $\{X\}=\{X_1X_2X_3X_4, X_5,X_6\}$, where $\{X_1X_2X_3X_4\}$ are arranged in sequence without repetition, $\{X_5,X_6\}$ With rotation function. The center zero bifurcation is composed of $\prod\{X_1X_2X_3X_4\}\neq\prod\{X_5,X_6\}$, and the logarithm of the circle converts their two asymmetric functions into relative symmetry functions, $\sum\{\eta_1+\eta_2+\eta_3+\eta_4\}=\sum\{\eta_5+\eta_6\}$, with the covariant equivalent transformation principle.

(Figure 11 DNA double helix structure)

In the same way, there is a mismatch between the high-parallel, high-serial-level group combinations of various creatures.

Symmetry, converted to a symmetry function that also composes the new between:

$$\{\prod\{X_{1S}X_{2S}X_{3S}X_{4S}\}\neq\prod\{X_{5S},X_{6S}\};$$

$$\prod\{X_{1Q}X_{2Q}X_{3Q}X_{4Q}\}\neq\prod\{X_{5Q},X_{6Q}\};$$

$\prod\{X_{1M}X_{2M}X_{3M}X_{4M}\}\neq\prod\{X_{5M},X_{6M}\}\}$

It is corresponding to the logarithm of the circle, and it becomes the center zero point of"="at "≠" and superimposes, so that each element can be the center zero point as:

(1), For the rotation center of the transverse section, the center zero value has a probability circular logarithmic symmetry distribution, which satisfies:

$\sum\{\eta_{1S}+\eta_{2S}+\eta_{3S}+\eta_{4S}\}^{(KW=+1)}+\sum\{\eta_{5S}+\eta_{6S}\}^{(KW=-1)}=0$;

$\sum\{\eta_{1Q}+\eta_{2Q}+\eta_{3Q}+\eta_{4Q}\}^{(KW=+1)}+\sum\{\eta_{5Q}+\eta_{6Q}\}^{(KW=-1)}=0$;

$\sum\{\eta_{1M}+\eta_{2M}+\eta_{3M}+\eta_{4M}\}^{(KW=+1)}+\sum\{\eta_{5M}+\eta_{6M}\}\}^{(KW=-1)}=0$;

(2), On the longitudinal axis, radially symmetric spiral expansion around the circle radius {0 or 1}.

The four elements are arranged periodically in the vertical direction: $\{D_A=(D_1D_2D_3D_4)^{(KW=+1)}=A\}$;

Two horizontal elements are periodically rotated and arranged:

$\{D_B=(D_5,D_6)^{(KW=-1)}=B\}$;

The two elements of the double helix structure are periodically rotated and arranged:

$D_{AB}=\{(D_1D_2D_3D_4)(D_5,D_6)\}^{(KW=\pm1)}=AB$;

Get the mean function:

$\{D_{0AB}\}^{(KW=\pm1)}=\sum_{[Z\pm S\pm(q=6)]}(1/6)(D_1+D_2+D_3+D_4)+(D_5+D_6)=\{D_{0A}\}^{(KW=-1)}+\{D_{0B}\}^{(KW=\pm1)}$,

(3), the double helix structure equation:

Known: System combination: [S]=[S±Q±…±M], corresponding structure-energy of biological cells:

Variable function: $\{X\}=\{X_{AB}\}^{K(Z\pm[S\pm Q\pm\ldots\pm M]\pm(N=0,1,2)\pm(q=(4+2))/t}=\{X_{AB}\}^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=6)/t}$

Corresponding state:(N=±0) (static),(N=-1) (momentum), (N=-2) (energy),

With the above D_{AB} and $\{D_{0AB}\}$, the circle logarithm$(1-\eta_A^2)^{(KW=+1)}$,$(1-\eta_B^2)^{(KW=-1)}$,$(1-\eta_{AB}^2)^{(KW=\pm1)}$; can be determined;

Discriminant:

$(1-\eta_A^2)^{(KW=+1)}=[({}^{K(4)}\sqrt{D_A})/D_{0A}]^{(KW=+1)(Z\pm[S]\pm(N=0,1,2)\pm(q=(4+2))/t}\leq1$;

$(1-\eta_B^2)^{(KW=-1)}=[({}^{K(4)}\sqrt{D_B})/D_{0B}]^{(KW=-1)(Z\pm[S]\pm(N=0,1,2)\pm(q=(4+2))/t}\leq1$;

$(1-\eta_{AB}^2)^{(KW=\pm1)}=[({}^{K(8)}\sqrt{D_{AB}})/D_{0AB}]^{(KW=\pm1)(Z\pm[S]\pm(N=0,1,2)\pm(q=(8+4))/t}\leq1$;

Center zero symmetrical balance:

$(1-\eta_{AB}^2)^{(KW=\pm1)}= (1-\eta_A^2)^{(KW=+1)}+(1-\eta_B^2)^{(KW=-1)}=0$;

The typical structure of biomechanics is a double helix structure, and its six elements form a six-dimensional equation, which can be decomposed into "quartic equations and quadratic equations", and their circular logarithmic equations are obtained respectively;

(8.4.1)

$\{X\pm({}^{K(6)}\sqrt{D})\}^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=(6))/t}$

$=[\{X\pm({}^{K(4)}\sqrt{D_A})\}^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=(4))/t}\pm\{X\pm({}^{K(2)}\sqrt{D_B})\}^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=(2))/t]}$

$=[\{X\pm({}^{K(6)}\sqrt{D_A})\}^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=(6))/t}$

$=(1-\eta^2)^K[(0,2)\{D_0\}]^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=6)/t}$

$=(1-\eta_A^2)^K[(0,2)\{D_0\}]^{(kw=+1)(Z\pm[S]\pm(N=0,1,2)+(q=4)/t}+(1-\eta_B^2)^{(kw=-1)}[(0,2)\{D_0\}]^{K(Z\pm[S]\pm(N=0,1,2)-(q=2)/t}$

$=(1-\eta_{AB}^2)^K[(0,2)\{D_{0A}\cdot D_{0B}\}]^{(kw=+1)(Z\pm[S]\pm(N=1)+(q=4)/t}$;

(8.4.2)

$(1-\eta_{AB}^2)^K=(1-\eta_{ABX}^2)^K$ **i**$+(1-\eta_{ABY}^2)^K$ **J**$=(1-\eta_{ABZ}^2)^K$ **K** ; (three-dimensional axial coordinate)

(8.4.3)

$(1-\eta_{AB}^2)^K=(1-\eta_{AB[YZ+MN]}^2)^K$ **i**$+(1-\eta_{AB[ZX+NL]}^2)^K$ **J**$+(1-\eta_{AB[XY+LM]}^2)^K$ **K**; (3D axis coordinates)

(8.4.4) $(1-\eta_{AB}^2)^K=\{0 \text{ or } (0\leftrightarrow1/2\leftrightarrow1) \text{ or } 1\}$

In this way, biomechanics can be described uniformly by six-dimensional equations, and each group of biological particles has a "jump transition" between the longitudinal particles and a continuous expansion of horizontal symmetry centered at the center zero point. The double-helix structure is a five-dimensional continuous space structure of precession and rotation of any curve, which is superimposed and connected by the center zero point of longitudinal and transverse symmetry.

8.5. The connection between condensed matter physics and the circular logarithmic equation

In recent years, the research results, research methods and technologies of condensed matter physics have increasingly penetrated and expanded to adjacent disciplines, which has effectively promoted the development of interdisciplinary disciplines such as chemistry, physics, biophysics and geophysics. Condensed matter physics is a discipline that studies the structure, dynamic process of condensed matter composed of a large number of particles (atoms, molecules, ions, electrons) and its relationship with macroscopic physical properties from a microscopic perspective. It is an outward extension based on solid state physics. In addition to solid-phase substances such as crystals, amorphous and quasi-crystals, the research objects of condensed matter physics also include dense gases, liquids, and various intervening condensed phases between liquid and solid, such as liquid helium, liquid crystal, molten salt, Liquid metal, electrolyte, glass, gel, etc.

8.5.1. The theoretical basis of condensed matter physics and the connection of circular logarithms

An important theoretical cornerstone of solid state physics is energy band theory, which is based on the one-electron approximation. The conceptual system of condensed matter physics is derived from the theory of phase transitions and critical phenomena, and is rooted in the theory of interacting multi-particles, so it has a broader perspective: it not only focuses on the ordered phase on the side of the phase transition point, but also does not Ignore the disordered phase on the other side, and even the physical behavior of scaling laws and universals in the critical region in between.

Here, the connection between condensed matter physics and group combination-circular logarithm is expounded. Various characteristics of condensed matter physics can be converted into eigenmodes (positive and negative mean function) through group combination, and the eigenmodes $\{D_0\}^{K(Z\pm S\pm N\pm q)}$ consist of:

For example, in 1980, German physicist Klaus von Klitzing was conducting an experiment. He exposed atomically thick crystalline materials to strong magnetic fields at low temperatures and found that as the strength of the magnetic field increases, the conductance of metals does not increase smoothly and gradually, as predicted by classical physics, but in a quantized manner. Step by step. Von Klitzing realized that, in this case, the Hall resistance value is related to two fundamental constants, Planck's constant h, and the electron charge e: the quantized Hall resistance value is proportional to an integer multiple of $(h/e^2)=\{D_0\}^{K(Z\pm S\pm N\pm q)}$.

For example, in 1982, experimental physicists Horst-Strmer and Daniel Tsui found that at lower temperatures and stronger magnetic fields, the Hall conductance would be the same as previously observed. Fractional quantization of . It's as if the electron somehow split into smaller particles, each carrying a fraction of the electron's charge. They become integer and fractional quantum Hall effects, respectively, and can be respectively (K=+1)(Kw=±1) integers and (K=-1)(Kw=±1) fractions of the corresponding eigenmodes.

Such as: the discovery of the quantum Hall effect: the physics at that time could not fully explain why the resistance would have such a discrete jump change with the change of the magnetic field. Solis used the concept of topology to challenge the theory about the conductivity principle of materials at that time, and proposed a new theory of topology: However, if topology is to be used to explain the quantized Hall resistance, it is necessary to do Make one of two assumptions: either the global picture of the mathematical space describing the system is equivalent to the local picture, or the electrons in the system do not interact. Mihalakis and Hastings, however, succeeded in establishing an indestructible link between topology and the quantum Hall effect. They connected the "global picture with the local picture" in a novel way and successfully settled these assumptions.

Here, the topological circle logarithm describes:

(1), For the "overall picture and local picture" principle of this quantized Hall resistance, the circular logarithm theory is used to reflect the time calculation consistency of the isomorphic circular logarithm.

(2), For the ordered phase on one side of the phase transition point, the disordered phase on the other side is not ignored. The circular logarithm is expressed as a reciprocal transformation by unifying the two.

(3), As for the physical behavior of scaling law and universality in the critical region between the two: the circular logarithm is expressed as the reciprocal conversion rule of multiplication and addition.

When: the logarithm of the topological circle$(1-\eta^2)^{(K=\pm1)(Kw=\pm1)(Z\pm S\pm N\pm q)/t}=\{0 \text{ or } 1\}$, the discrete jumping transition of the Hall effect at each level is described.

When: the logarithm of the topological circle$(1-\eta^2)^{(K=\pm1)(Kw=\pm1)(Z\pm S\pm N\pm q)/t}=\{0 \text{ to } 1\}$, the entanglement-type continuous transition of the Hall effect at each level is described.

8.5.2. The relationship between the research content of condensed matter physics and the circular logarithm

(1) ,The relationship between quantum characteristics (wave-particle duality) and circular logarithm

The basic task of condensed matter physics is to clarify the relationship between microstructure and physical properties, so it is crucial to judge whether the collective of certain types of microscopic particles constituting condensed matter exhibits quantum characteristics (wave-particle duality). The mass of electrons is small, and quantum characteristics are obviously exhibited at room temperature; ions or atoms, due to their heavier mass, have only liquid helium at low temperature (about 4^K) or alkali metal rare gas at extremely low temperature ($\mu^K$to n^K) , the quantum characteristics of atoms. manifested prominently. This also explains why low temperature conditions are very important for the study of condensed matter physics. Microscopic particles are divided into two categories: one is fermions, which have half-integer spins and obey the Pauli exclusion principle; the other is bosons, which have integer spins and allow any number of particles in the same energy state. occupy. The physical behavior of these two types of particles is distinctly different.

The circular logarithm presents quantum features (wave-particle duality) as well as fermions (half-integer spins) and bosons in a perfect circular mode $(1-\eta^2)^{(K=\pm1)(Kw=\pm1)(Z\pm S\pm N\pm q)/t}$ sub(unity of the spins of integers.

(2) ,The relationship between macroscopic quantum state and circular logarithm

The major achievement of low-temperature physics research lies in the discovery of superconductivity in metals and alloys (resistance drops to zero below Tc, all magnetic fluxes are repelled, becoming a complete diamagnet) and superfluidity in liquid helium (viscosity). The coefficient suddenly drops to zero below Tc). The appearance of these macroscopic quantum state phenomena is the consequence of the breaking of gauge symmetry (the wave function phase can be of arbitrary value). As early as 1924, Einstein proposed the idea of Bose-Einstein condensate based on Bose-Einstein statistics, that is, an ideal Bose gas will appear at a low temperature and the ground state is the number of macroscopic particles. The London equations proposed by London to describe the dynamics of superconductivity actually contain the concept of macroscopic quantum states. The phenomenological superconductivity theory proposed by V. Günzburg and L. Landau in 1952 explicitly introduced a complex order parameter similar to the macroscopic wave function to describe the superconducting state. In 1957, J. Badin et al. proposed the correct microscopic theory of superconductivity, that is, the BCS theory. The key is that a pair of electrons form Cooper pairs in the momentum space due to electron-phonon interaction, so that the electronic system also has certain properties. Similar to the characteristics of boson systems. He superfluid state was discovered below 2.7mK in 1972, and He atoms are also fermions, so this is also the result of fermion pairing.

The logarithm of a circle presents a macroscopic quantum state phenomenon at different temperatures in a perfect circle mode $(1-\eta^2)^{(K=\pm1)(Kw=\pm1)(Z\pm S\pm N\pm q)/t}$, which is called gauge symmetry (the wave function phase can be any value) Broken. With the center-zero symmetry, the circular logarithmic factor symmetry between different states and asymmetric states is described, and the controllable transformation and precession with reciprocity are obtained.

(3) The relationship between nanostructure and mesoscopic physics and circular logarithm

Quantum mechanics states that particles can tunnel through nanoscale barriers. This effect can be used to prepare sandwich structures such as tunnel junctions, such as semiconductor tunnel diodes, single electron superconducting tunnel junctions, and Cooper pair superconducting tunnel junctions. Nanostructures also play an important role in fundamental research: the discovery of integer and fractional quantum Hall effects and Wigner lattices in two-dimensional electron gases, the verification of the theory of Luttinger liquids in one-dimensional conductors, Mesoscopic quantum transport phenomena have been found in some artificial nanostructures.

If the composite structure enters the range of electron Fermi wavelength, it exhibits quantum confinement effect, resulting in quantum wells, quantum wires and quantum dots. Semiconductor quantum wells have been used to fabricate fast transistors and high-efficiency lasers. The research on quantum wires has also been fruitful, as evidenced by the rich and varied physical properties revealed by carbon nanotubes. Quantum dots can be used to fabricate microcavity lasers and single-electron transistors. Magnetic quantum wells can be made from ferromagnetic metals and non-magnetic metals, exhibiting giant magnetoresistance effects, and can be used as read heads for memory. These examples illustrate that nanoelectronics (including spintronics) will become the mainstream of solid-state electronics and photonics development.

In the circular logarithm description, in addition to showing quantum characteristics (wave-particle duality), the tunneling effect is expressed as the reciprocal transformation of circular logarithm:

$(1-\eta^2)^{K(Z\pm S\pm N\pm q)}=(1-\eta^2)^{(Kw=+1)(Z\pm S\pm N\pm q)}\rightarrow(1-\eta^2)^{(Kw=\pm0)(Z\pm S\pm N\pm q)}\leftarrow(1-\eta^2)^{(Kw=+1)(Z\pm S\pm N\pm q)}$;

(4), The connection between soft matter physics and circular logarithms

Soft substances, also known as complex liquids, are phases between solids and liquids, such as liquid crystals, latexes, and polymers. Soft matter is mostly organic matter, which is disordered on the atomic scale, but may have some kind of regular and ordered structure on the mesoscopic scale. If the liquid crystal molecule is rod-shaped, although its centroid does not have a positional order, the orientation of the rods may be ordered. Another example is that polymers are composed of soft long-chain molecules, which follow a scaling law similar to critical phenomena due to the correlation of long-range disorder.

The establishment of liquid crystal physics and polymer physics in the 1970s and 1980s enabled the successful extension of condensed matter physics from traditional hard matter to soft matter. Soft matter has a significant response to small external stimuli (temperature, external field or external force), which is the characteristic of its physical properties, resulting in obvious practical effects. The change of entropy during the change of soft matter is very significant, and the change of its organizational structure is mainly driven by entropy. Entropy-induced order and entropy-induced deformation are the physical basis for the self-assembly of soft matter.

In the circular logarithm description, in addition to exhibiting quantum characteristics, the change in entropy appears as a reciprocal transformation within the circular logarithm:

$(1-\eta^2)^{(K=\pm1)(Kw=\pm1)(Z\pm S\pm N\pm q)/t}$

$=(1-\eta^2)^{(K=\pm1)(Kw=+1)(Z\pm S\pm N\pm q)/t}+(1-\eta^2)^{(K=\pm1)(Kw=+1)(Z\pm S\pm N\pm q)}$

$+(1-\eta^2)^{(K=\pm1)(Kw=+1)(Z\pm S\pm N\pm q)/t}=\{0 \text{ to } 1\}$;

Finally, the two asymmetry functions (symmetry breaking) of condensed matter physics $A=({}^{K(S)}\sqrt{D_A})$

and B=$({}^{K(S)}\sqrt{D_B})$，AB is merged into$({}^{K(S)}\sqrt{D})$, written as higher-order equations, converted to circular logarithms:

(8.5.1)

$$\{X\pm({}^{K(S)}\sqrt{D})\}^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=A,B)/t}$$
$$=\{X\pm({}^{K(A)}\sqrt{D_A}\cdot({}^{K(B)}\sqrt{D_B})\}^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=A,B)/t}$$
$$=(1-\eta^2)^K[(0,2)\{D_{0AB}\}]^{K(Z\pm[S]\pm(N=0,1,2)\pm(q=A,B)/t}$$
$$=(1-\eta_A^2)^{(kw=+1)}[(0,2)\{D_{0A}\}]^{(kw=+1)(Z\pm[S]\pm(N=0,1,2)+(q=,B)/t}+(1-\eta_B^2)^{(kw=-1)}[(0,2)\{D_0\}]^{(kw=-1)(Z\pm[S]\pm(N=0,1,2)-(q=AB)/t}$$
$$=(1-\eta_{AB}^2)^K[(0,2)\{D_{0A}\cdot D_{0B}\}]^{(kw=\pm1)(Z\pm[S]\pm(N=1)+(q=A,B)/t};$$

(8.5.2)

$$(1-\eta_{AB}^2)^{(kw=\pm1)}=\{0 \text{ or } (0\leftrightarrow1/2\leftrightarrow1) \text{ or } 1\};$$

In this way, condensed matter physics obtains a unified description with higher-order (momentum-energy) equations, and the two asymmetric functions (symmetry breaking) A and B in condensed matter physics obtain a unified symmetry of symmetry, High-dimensional spatial construction with random "jump transitions" and continuous transitions of precession and spin centered on a central zero.

8.6. [Engineering Example 6] The connection between gauge field and circular logarithmic equation

Scientists have been using quantum theory and relativity for over a century. Li Zhengdao said in the introduction of "100 Scientific Problems in the 21st Century": "At present, the conflict between the micro and the macro has become very acute. One cannot solve the other. There will be some breakthroughs in linking them. This breakthrough will affect the future of science." In 1956, Yang Zhenning-Li Zhengdao first proposed that the parity (left and right) symmetry is broken under weak interaction, that is, the parity non-conservation theorem, which broke the basic law of symmetry conservation in motion. In the development of high-energy physics in the 21st century, there are two major scientific problems "symmetry breaking and quark confinement". It is embarrassing that it is still unknown how they apply to resolve the conflict between them.

Explain the relationship between Maxwell's electromagnetic equations - Einstein's theory of relativity and the circle logarithm equation in Sections 8.1-8.2, or be able to see how the circle logarithm combines with gauge field theory, especially the universality has symmetry breaking, the circle pair Numbers solving them become symmetric symmetry expansions. So that the quantum theory and the theory of relativity can be solved, and the unity can be achieved in the field of circular logarithms.

In 1954, Yang Zhenning and R.L. Mills did pioneering work and proposed a theory with local isospin invariance, which was directly extended to the case of other non-Abelian gauge transformation groups. Attempts to achieve the unification of natural forces, called "gauge field" theory. Crack requirements: Only use "irrelevant mathematical models, no specific mass element calculation" to meet the requirements. So far, it has not been resolved.

In 1967-1968, S. Weinberg and A. Salam put forward the mechanism of spontaneous breaking of vacuum symmetry (Higgs mechanism) proposed by Higgs et al. The gauge field quanta of are massless photons, and the remaining three gauge field quanta are the mass vector particles W± and Z0, which transmit weak interactions. It is called quantum electrodynamics (QED).

In 1964, after M. Gell-Mann and G. Zwick proposed the image of hadrons composed of quarks, they established the theory of the strong effect of invariance under SUGU localized gauge transformation, and the corresponding quantum of gauge field is glue There are 8 kinds in total. Quantum chromodynamics is currently the most studied theory of strong interactions. It is called quantum chromodynamics (QCD).

Can the four known interactions—the electromagnetic interaction, the weak interaction, the strong interaction and the gravitational interaction, plus the thermal force and the photon force field be combined into the six known interactions and the complete deconstruction of the gauge field? Both require the derivation of the symmetry principle of the gauge transformation, and the derivation that the gauge field has no mass element. According to the requirements of Chenning Yang-Mills gauge field analysis, the calculation must be "without specific mass elements, irrespective of mathematical models". Become one of the recognized 21 seven math problems. It's an attractive idea.

A gauge field is a matter field associated with the invariance of local gauge transformations of physical laws. The modulus of the wave function |ψ|2 represents the probability of the particle appearing, and the gauge transformation is equivalent to the phase transformation in quantum mechanics. Propose higher-order equations (including gravitational field, electromagnetic field, strong field, weak force field, thermal field, photon field) and dynamic space-time, which can be mapped to the "irrelevant mathematical model, without specific mass element content", which is mapped to the quantum particle unit body. Controlled circular logarithmic zero error arithmetic logic analysis.

Establish higher-order equations, including Dirac mechanics field, Maxwell's electromagnetic equation, Yang Zhenning gauge field, as well as thermal field and photon field. And random, duality "symmetry and asymmetry (physics called symmetry breaking), uniformity and inhomogeneity", "between positive vector particle function and negative vector particle function: relative symmetry, balance, conversion , rotation" and other important physical characteristics. Among them, there is also the mechanism of entangled state and spontaneous breaking of particles, which becomes relative symmetry through circular logarithm. That is to say, the circular logarithm converts the reciprocal two asymmetry functions into relative symmetry functions, and vice versa. Form the "gauge field-circle logarithm" equation.

There is an incomplete understanding of the homogeneity and symmetry assumed by traditional quantum theory and the reality of gauge fields. Through the circular log-gauge field, the following are respectively proposed: the eigenmode (positive center and inverse mean function) and the "1" gauge invariance of the three circular logarithms, to achieve "abstract probability-topology-central zero without mass-space-time, Zero-error exact solution of variational rules in the range [0~1/2~1]". In an attempt to realize the integration of relativity and quantum theory, establish a novel natural force framework - the unified structure of gauge field-circular logarithm, and realize the combination, self-consistency and integration of macro and micro.

8.6.1. Interaction of gauge fields

In 1954, Yang Zhenning-Hills (Hills) "Modern Physics" p264, proposed that the gauge invariance of mechanical action is determined by the gauge invariance of { $Ie\psi^{-}\gamma_{\mu}\psi A_{\mu}$}·α (α is the mechanical coefficient) (Formula 11.3.17).

(8.6.1)

$L[\psi(x),A_{\mu}(x)]= - \psi^{-}(\gamma_{\mu}(d/dx_{\mu})+m)\ \psi - (1/4)F_{\mu\nu}F_{\mu\upsilon} +$ $\mathbf{Ie\psi^{-}\gamma_{\mu}\psi A_{\mu}}$;

These include:

The first and second parts: Maxwell's electromagnetic equation for Dirac equation:- $\psi^{-}(\gamma_{\mu}(d/dx_{\mu})+m)\ \psi - (1/4)F_{\mu\nu}F_{\mu\upsilon}$

The third part: the interaction between electromagnetic field and charged particle flow: $Ie\psi^{-}\gamma_{\mu}\psi A_{\mu}$

Among them: The third part and the first and second parts are unifiedly written as $\{IeM\psi^{-}\gamma_{\mu}\psi C_{\mu}\}\mathbf{A_{\mu}}$ is called the gauge field, and $\mathbf{A_{\mu}}=(\mathbf{E_{\mu}\ldots\alpha_{W}})$ represents the mechanical parameter.

Assuming the mechanical elements of $\{IeM\psi^{-}\gamma_{\mu}\psi C_{\mu}\}(\mathbf{E_{\mu}\ldots\alpha_{W}})$;

(1), Quantitative particles are derived from the higher-order equations of (S=11 dimension, high parallel function) quantum particles, corresponding to the circular logarithm-high-dimensional neural network vortex space, and extended to circular logarithm-gauge field and there are three " 1" canonical invariance.

(2), Both electromagnetic and photonic fields can interact with charged and uncharged particle streams in entangled states. Based on the circle logarithm, it is an irrelevant mathematical model: after extracting the eigenmodes, what remains is the controllable motion sharing space "without specific element quantity particle content". It has been proved in the previous chapters: "Multiple elements are multiplied together, and the "mass and space-time" of each element quantity particle have random equivalent substitution under the logarithm of the symmetry circle". That is: mass and space-time have the consistency of synchronous motion change.

(3), The known boundary conditions of the gauge field $\{IeM_{G}\psi^{-}\gamma_{\mu}\psi D_{\mu}\}\mathbf{A_{\mu}}$ written as an arbitrary function:

(8.6.2)

$D=[^{KS}\sqrt{\{IeM_{G}\psi^{-}\gamma_{\mu}\psi D_{\mu}\}}]^{K(Z\pm S)\pm(N=0,1,2)\pm q)/t}=(^{KS}\sqrt{D})$;

For the basic unit body of the 11-dimensional higher-order equation of the gauge field, the particle is weighed. Corresponding to the basic space of energy of known and unknown particles (S=11 dimension).

(4), Based on the covariance of mass-space, the above 11-dimensional space is converted into two-dimensional (r^2), three-dimensional (r^3), four-dimensional (r^4), five-dimensional (r^5), six-dimensional (r^6) Quantum space, and high-dimensional space composed of various basic spaces, or higher-order equations that make up the system's many-body asymmetry - neural network: balance, transform, precess, rotate, decompose, Combinatorial cognition and analysis.

Among them: based on the group combination-circular logarithm form, the invariant characteristic modulus and the controllable circular logarithm are extracted respectively. Various mechanical parameters of the gauge field are combined with each mechanical element inside the characteristic mode, which does not affect the gauge field corresponding to the higher-order equation and the calculation of the controllable circle logarithm "without specific quality content".

Among them: the mechanical parameter $\mathbf{A_{\mu}}$, according to the combination of various mechanical elements into different, heterogeneous characteristics. Gravitational parameter $\boldsymbol{\alpha_{G}}$(mass M_{G}); electromagnetic force parameter $\boldsymbol{\alpha_{e}}$,(charge conversion mass M_{E}); gravitational and electromagnetic interaction parameter $\boldsymbol{\alpha_{\mu}}$(mass M_{GE}): electromagnetic and quark interaction parameter $\boldsymbol{\alpha_{Z}}$ (mass M_{EQ}); electromagnetic and quark interaction parameter $\boldsymbol{\alpha_{Q}}$; gluon-quark interaction parameter $\boldsymbol{\alpha_{J}}$ (mass M_{J}); quark-quark interaction parameter $\boldsymbol{\alpha_{Q}}$ (mass M_{Q}); gluon-quark interaction parameter $\boldsymbol{\alpha_{W}}$ (mass M_{w}): gluon-gluon interaction parameter $\boldsymbol{\alpha_{J}}$ (mass M_{J}); gravitational and gluon interaction parameter $\boldsymbol{\alpha}_{m}$ (mass

M_m): gravitational and quark interaction parameter $\boldsymbol{\alpha}_Y$ (mass M_{GQ}): electromagnetic and gluon interaction parameter $\boldsymbol{\alpha_P}$ (mass M_P): thermodynamic interaction parameter $\boldsymbol{\sigma}$ (mass M_R): opto-mechanical interaction parameter $\boldsymbol{\alpha}_C$ (mass M_C). With circular logarithm, there is no specific element content. The mechanical parameter$\mathbf{A_\mu}$ is combined with the mechanical element and extracted in the characteristic mode, which does not affect the calculation of circular logarithm.

(1), the gauge field of gravity:

$\{IeM_G\psi^-\gamma_\mu\psi A_\mu\}\boldsymbol{\alpha_G} \approx -\psi^-(\gamma_\mu(d/dx_\mu)+m)\psi=\{r^3+r^2\}^{(K=+1)(Z\pm S)}$; (five-dimensional vortex space);

(2), the electromagnetic norm field:

$\{IeM_E\psi^-\gamma_\mu\psi A_\mu\}\boldsymbol{\alpha_e} \approx -\psi^-(\gamma_\mu(d/dx_\mu)+m)\psi=\{r^3+r^3\}^{(K=-1)(Z\pm S)}$; (six-dimensional rotation space);

(3), the gauge field of gravity and electromagnetism:

$\{IeM_{GE}\psi^-\gamma_\mu\psi A_\mu\}\boldsymbol{\alpha_\mu} \approx -\psi^-(\gamma_\mu(d/dx_\mu)+m)\psi=\{r^{5+6}\}^{(K=\pm1)(Z\pm S)}$;

(Eleven-dimensional vortex space);

(4), the gauge field of electromagnetism and quarks:

$\{IeM_{EQ}\psi^-\gamma_\mu\psi A_\mu\}\boldsymbol{\alpha_Z} \approx -\psi^-(\gamma_\mu(d/dx_\mu)+m)\psi=\{r^4+r^2+r\}^{(K=\pm1)(Z\pm S)}$;

(seven-dimensional vortex space);

(5), the gauge field of gluons and quarks:

$\{IeM_{JQ}\psi^-\gamma_\mu\psi A_\mu\}\boldsymbol{\alpha_w} \approx -\psi^-(\gamma_\mu(d/dx_\mu)+m)\psi=\{r^4+(r^2+r)\}^{(K=\pm1)(Z\pm S)}$;

(seven-dimensional vortex space);

(6), the gauge field of quarks and quarks:

$\{IeM_Q\psi^-\gamma_\mu\psi A_\mu\}\boldsymbol{\alpha_Q} \approx -\psi^-(\gamma_\mu(d/dx_\mu)+m)\psi=\{2\cdot(r^2+r)\}^{(KW=-1)(Z\pm S)}$;

(six-dimensional rotation space);

(7) The gauge field of gluons and gluons:

$\{IeM_J\psi^-\gamma_\mu\psi A_\mu\}\boldsymbol{\alpha_J} \approx -\psi^-(\gamma_\mu(d/dx_\mu)+m)\psi=\{2\cdot(r^2+r^2)\}^{(K=+1)(Z\pm S)}$;

(eight-dimensional rotation space);

(8), the gauge field of gravity and gluons:

$\{ieM_{GJ}\psi_q^-\gamma_\mu\psi_q A_\mu\}\boldsymbol{\alpha}_m \approx -\psi^-(\gamma_\mu(d/dx_\mu)+m)\psi=\{r^3+(r^2+r^2)\}^{(K=\pm1)(Z\pm S)}$;

(seven-dimensional vortex space);

(9), the gauge field of gravity and quarks:

$\{ieM_{GQ}\psi_q^- Q\gamma_\mu\psi_q A_\mu\}\boldsymbol{\alpha}_Y \approx -\psi^-(\gamma_\mu(d/dx_\mu)+m)\psi=\{r^3+(r+r^2)\}^{(K=\pm1)(Z\pm S)}$;

(six-dimensional rotation space);

(10) Electromagnetic and gluon gauge fields:

$\{IeM_P\psi^-\gamma_\mu\psi A_\mu\}\boldsymbol{\alpha_P}\approx -\psi^-(\gamma_\mu(d/dx_\mu)+m)\psi=\{r^4+2\times r^2\}^{(K=-1)(Z\pm S)}$;

(eight-dimensional rotation space);

(11), the gauge field of thermodynamic action:

$\{IeM_R\psi_q^- Q\gamma_\mu\psi_q A_\mu\}\boldsymbol{\sigma} \approx\pm\psi^-(\gamma_\mu(d/dx_\mu)+m)\psi=\{r^5\}^{(K=\pm1)(Z\pm S)}$;

(11-dimensional oscillation space);

(12), the normative field of optical action:

$\{IeM_C\psi_q^- Q\gamma_\mu\psi_q A_\mu\}\boldsymbol{\alpha_C} \approx\pm\psi^-(\gamma_\mu(d/dx_\mu)+m)\psi=\{r^5\}^{(K=\pm0)(Z\pm S)}$;

(Eleven-dimensional vortex space);

The circular logarithm-relativistic construction is based on "there is no specific mass content, and the mechanical parameters are just contained in various mechanical elements", such as the mechanical element binding coupling constant:

$\mathbf{A_\mu}=[\boldsymbol{\alpha_G},\boldsymbol{\alpha_e},\boldsymbol{\alpha_\mu},\boldsymbol{\alpha_Z},\boldsymbol{\alpha_w},\boldsymbol{\alpha_Q},\boldsymbol{\alpha_J},\boldsymbol{\alpha}_m,\boldsymbol{\alpha}_Y,\boldsymbol{\alpha_P},\boldsymbol{\sigma},\alpha_C]$;

The multi-parameter, multi-level space corresponding to the composed variables:

$\{X\}^{(K)(Z\pm S\pm(N=0,1,2\pm q)/t}$
$=[\boldsymbol{\alpha_G}X,\boldsymbol{\alpha_e}X,\boldsymbol{\alpha_\mu}X,\boldsymbol{\alpha_Z}X,\boldsymbol{\alpha_w}X,\boldsymbol{\alpha_Q}X,\boldsymbol{\alpha_J}X,\boldsymbol{\alpha}_mX,\boldsymbol{\alpha}_YX,\boldsymbol{\alpha_P}X,\boldsymbol{\sigma}X,\alpha_CX]$
$=[\boldsymbol{\alpha_G}r,\boldsymbol{\alpha_e}r,\boldsymbol{\alpha_\mu}r,\boldsymbol{\alpha_Z}r,\boldsymbol{\alpha_w}r,\boldsymbol{\alpha_Q}r,\boldsymbol{\alpha_J}r,\boldsymbol{\alpha}_mr,\boldsymbol{\alpha}_Yr,\boldsymbol{\alpha_P}r,\boldsymbol{\sigma}r,\boldsymbol{\alpha_C}r]$
$=[r_G,r_e,r_\mu,r_Z,r_w,r_Q,r_J,r_m,r_Y,r_P,r_\sigma,r_C]^{(K)(Z\pm S\pm(N=0,1,2\pm q)/t}$;

That is to say, quantitative particles have multi-parameter, heterogeneity, and multi-level characteristics, which are converted into neural network space, and the information transmission energy and distance are synchronous, multi-directional, and anisotropic.

The value of "mechanical element-coupling constant" in the combination of mechanical parameters can be zero, and the position where the value is "1" cannot be vacant, so as to ensure the regularization expansion of the combination coefficient and the stability, feasibility and reliability of the central zero point value.

In particular, after the circular logarithm extracts the eigenmode. The mechanical parameters related to quantitative particles are still an important subject in physical experiments, and many related quantitative particle interactions need to be continuously explored by physicists to correct and supplement the circular logarithmic mathematical model.

8.6.2. The connection between gauge field and circular logarithmic equation

The interaction sample space of the gauge field is incorporated into the gauge field $LL\{\psi(x),A_\mu(x)\}^{(K=\pm1)(K=\pm1)(Z\pm S)}$as a quantity particle unit, including the newly added content quantum gravity function, Quantum thermodynamic functions, as well as quantum photodynamic functions, and mechanical functions such as random and regular. The circular logarithm has the advantages of transforming the interacting asymmetric mechanical function into a relatively symmetrical mechanical function, as well as the advantages of closed, machine learning and zero error such as balance, transformation, continuity and jump.

(8.6.3)

$L\{\psi(x),A_\mu(x)\}^{(K=\pm1)(Kw=\pm1)(Z\pm S\pm(N=0,1,2\pm q)/t}$
$=\{-\psi^-(\gamma_\mu(d/dx_\mu)+m)\psi-(1/4)F_{\mu\upsilon}F_{\mu\upsilon}\pm Ie\psi^-\gamma_\mu\psi[\boldsymbol{\alpha_G},\boldsymbol{\alpha_e},\boldsymbol{\alpha_\mu},\boldsymbol{\alpha_Z},\boldsymbol{\alpha_w},\boldsymbol{\alpha_Q},\boldsymbol{\alpha_J},\boldsymbol{\alpha}_m,\boldsymbol{\alpha}_Y,\boldsymbol{\alpha_P},\boldsymbol{\sigma},\alpha_C]\}$

$=\sum[(C_{1+h}^{-1})^k\sum\{r_h^{11}\}^k]^{(K=\pm1)(Kw=\pm1)(Z\pm S\pm(N=0,1,2)\pm q)/t}$
$=\sum[(C_{1+h}^{-1})^k\prod\{r_h^{11}\}^k]^{(K=\pm1)(Kw=\pm1)(Z\pm S\pm(N=0,1,2)\pm q)/t}$
$=\{X_\Omega\}^{(K=\pm1)(Kw=\pm1)(Z\pm S\pm(N=0,1,2)\pm q)/t}$
$=\{X_\Omega\}^{K(Z\pm S\pm(N)\pm q)/t}$;

According to the mechanical properties and the asymmetry of the combination (symmetry breaking), the logarithm of the circle satisfies the problem of the symmetry expansion of the logarithmic factor of the circle through the central zero point.

Gauge field - higher order equation: unknown mechanical function {X}≠known mechanical function {D};
$\{X\}=[^{KS}\sqrt{\{IeM_G\psi^-\gamma_\mu\psi D_\mu\}}]^{K(Z\pm S\pm(N)\pm q)/t}\neq\{D\}$
$=[^{KS}\sqrt{\{IeM_G\psi^-\gamma_\mu\psi D_\mu\}}]^{K(Z\pm S\pm(N)\pm q)/t}$;

Under the condition of logarithmic participation: the two asymmetry functions are converted into a relative symmetry function, satisfying the unknown element equals the known element.
$\{D_0\}=[^{KS}\sqrt{L\{\psi(x),A_\mu(x)\}}^{K(Z\pm S\pm(N)\pm q)/t}$equivalent $[\sum\{IeM_G\psi^-\gamma_\mu\psi D_\mu\}]^{K(Z\pm S)\pm(N)\pm q)/t}$

Discriminant:
$(1-\eta^2)^K=[^{KS}\sqrt{\{IeM_G\psi^-\gamma_\mu\psi D_\mu\}}]/\{D_0\}^{K(Z\pm S)\pm(N)\pm q)/t}\leq1$; it has (multiplication and addition) reciprocal permutability
balance equation.

Unified expression for gauge field and circular logarithm:
(8.6.4)
$L\{\psi(x_h),A_\mu(x_h)\}^{K(Z\pm S)\pm(N=0,1,2)\pm q)/t}=(1-\eta^2)^K$
$L\{\psi(x_0),A_\mu(x_0)\}^{K(Z\pm S)\pm(N=0,1,2)\pm q)/t}$;
$=(1-\eta^2)^KM\{r_0\}^{K(Z\pm S)\pm(N=0,1,2)\pm q)/t}=\{Mc^2\}^{K(Z\pm S)\pm(N=0,1,2)\pm q)/t}$;
$(1-\eta^2)^K=M\{r_0^{(N=0,1,2)}\}/\{Mc\}^{K(Z\pm S)\pm(N=0,1,2)\pm(q=2)/t}$;

In the formula: the spatial dynamics (first-order, second-order) adapt to the (first-order, second-order) motion of light. K=(K=±1)(Kw=±1), the former represents the action area of the quantum particles, and the latter represents the balance and conversion of the positive, middle and negative inside the area.

Written as an equivalent higher-order equation:
(8.6.5)
$\{X\pm(^{KS}\sqrt{D})\}^{K(Z\pm S)\pm(N=0,1,2)\pm q)/t}$
$=AX_\Omega^{K(Z\pm S=11)\pm(N=0,1,2)\pm(q=0)/t}\pm BX_\Omega^{K(Z\pm S=11)\pm(N=0,1,2)\pm(q=1)/t}+CX_\Omega^{K(Z\pm S=11)\pm(N=0,1,2)\pm(q=2)/t}+\ldots\pm PX_\Omega^{K(Z\pm S=11)\pm(N=0,1,2)\pm(q=(p-1))/t}+\ldots+(^{KS}\sqrt{D})\}^{K(Z\pm S=11)\pm(N=0,1,2)\pm(q=1\to11)/t}$
$=[(1-\eta^2)^K\cdot(0,2)\cdot\{D_0\}]^{K(Z\pm S=11)\pm(N=0,1,2)\pm(q=1\to11)/t}$;

(8.6.6)
$(1-\eta^2)^{(K=\pm0)}$
$=(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=\pm0)}+(1-\eta^2)^{(Kw=\pm1)}$
={0 or (0 to (1/2) to 1) or 1};

(8.6.7) $(1-\eta^2)^{(K=\pm0)}=\{0 \text{ or } 1\}$,

Equation (8.6.7)describing the phenomenon of jumping (called transition in physics) outside (release or absorption) of particle energy.

(8.6.8)
$(1-\eta^2)^{(K=\pm0)}$={0 or (0 to (1/2) or 1) to 1};

Equation (8.6.8) describes the continuum of the internal variation of the particle energy, the degree to which there is asymmetry to symmetry conversion (physics says the universe is not conserved), and how the particles are compressed around the center zero (1/2) as the center The symmetry expansion of , cannot exceed the range of {0 to 1}. Particle physics is called microscopic "quark confinement". Similarly, there are planets in the universe that can only move on certain energy orbits, which is called macroscopic "planetary confinement".

Because of the different interaction regions, each mechanical function has an asymmetric combination, which is converted into a positive function (such as macroscopic gravitational force, electromagnetic force) in the macroscopic region (K=+1), and the photon force in the macroscopic region (K=±1) and Microscopic region (K=-1) inverse function (such as microscopic strong force, weak force, microscopic electromagnetic force), and the neutral photon force in microscopic region (K=±1), through the circular logarithmic equation to become a relatively symmetrical symmetry balance equation:

(8.6.9)
$(1-\eta^2)^K=(1-\eta^2)^{(K=+1)(Kw=\pm1)}+(1-\eta^2)^{(K=\pm0)(Kw=\pm1)}+(1-\eta^2)^{(K=-1)(Kw=\pm1)}$;

(1), macro area (K=+1):
(8.6.10)
$(1-\eta^2)^{(K=+1)}=(1-\eta^2)^{(K=+1)(Kw=+1)}+(1-\eta^2)^{(K=+1)(Kw=\pm0)}+(1-\eta^2)^{(K=+1)(Kw=\pm1)}$;

$(1-\eta^2)^{(K=+1)(Kw=+1)}$gravitational region: positive gravitational (convergence to the center, called star confinement), anti-gravity, neutral gravitational conversion space;

$(1-\eta^2)^{(K=+1)(Kw=-1)}$Electromagnetic force area: positive electromagnetic force (diverging to the boundary), anti-electromagnetic force, neutral electromagnetic force conversion space;

$(1-\eta^2)^{(K=\pm0)(Kw=\pm1)}$photon area: positive photon force, anti-photon force, neutral photon force conversion space;

(2), Microscopic region (K=-1)
(8.6.11)
$(1-\eta^2)^{(K=-1)}$
$=(1-\eta^2)^{(K=-1)(Kw=+1)}+(1-\eta^2)^{(K=-1)(Kw=\pm0)}+(1-\eta^2)^{(K=-1)(Kw=\pm1)}$;

$(1-\eta^2)^{(K=-1)(Kw=-1)}$ strong force region: positive strong force (convergence to the boundary, called quark confinement), anti-strong force, neutral strong force conversion space;

$(1-\eta^2)^{(K=-1)(Kw=+1)}$ weak force area: positive weak force (diverging to the center), anti weak force, neutral weak force conversion space;

$(1-\eta^2)^{(K=\pm0)(Kw=\pm1)}$photon area: positive photon force or neutral strong force conversion space, reverse photon force or neutral weak force conversion space, neutral photon force itself conversion space.

8.6.3. Calculation results of gauge field-circle logarithmic equation

The gauge field and the circle logarithm equation (8.6.4) have the result:

(1), with rotation, (quantity particle) spin, equivalent permutation, neural network radial connection space.

(8.6.12)

$\{X-({}^{KS}\sqrt{D})\}^{K(Z\pm S=11)\pm(N=0,1,2)\pm q)/t}=[(1-\eta^2)^K\cdot(0)\cdot\{D_0\}]^{K(Z\pm S=11)\pm(N=0,1,2)\pm(q=1\to 11)/t}$; **(2),** It has revolution, (quantity particle) radiation, the neural network connects the space in the ring direction, and decomposes two asymmetric entities or combines them into a symmetric eigenmode to become a neural network node, reasonably avoiding mathematical "complex numbers (imaginary number)" endows it with real physical connotation.

(8.6.13)

$\{X+({}^{KS}\sqrt{D})\}^{K(Z\pm S=11)\pm(N=0,1,2)\pm q)/t}=[(1-\eta^2)^K\cdot(2)\cdot\{D_0\}]^{K(Z\pm S=11)\pm(N=0,1,2)\pm(q=1\to 11)/t}$;

(3), combined with($2\pi k$)to become a periodic rotation space,

(8.6.14)

$\{X\pm({}^{KS}\sqrt{D})\}^{K(Z\pm S=11)\pm(N=0,1,2)\pm q)/t}=[(1-\eta^2)^K\cdot(0\leftrightarrow 2)\cdot\{D_0\}]^{K(Z\pm S=11)\pm(N=0,1,2)\pm(q=1\to 11)/t}$;

8.6.4. Gauge field-circular logarithmic dynamic equation

The gauge field-circular logarithm is a controllable dynamic equation. It is often impossible to find unknown particles directly, but through physical experiments, we can understand the dynamic and static changing states of a small number of particles. Relying on the isomorphism of the whole and the individual, we can extract the characteristic modes of the quantitative particles (positive and negative mean function) and the common dynamic interaction. Inverse change rule. It can be found that regardless of the state of the quantum particle, the total combined dimension (S) is closed and invariant, the characteristic mold is invariant, and the logarithm of the circle contains the isomorphic consistency of the whole and the individual to describe the state of the quantum particle, and obtain any high order. Order equation-circular logarithm-neural network and calculus (±N=0,1,2) continuous dynamic control at {0 to (1/2) to 1}, and skip dynamic control at {0 or 1}.

(1), zero-order (static) equation:

(8.6.15)

$L\{\psi(x_h),A_\mu(x_h)\}=\{X\pm({}^{KS}\sqrt{D})\}^{K(Z\pm S)\pm(N=0)\pm q)/t}=[(1-\eta^2)^K\cdot(0\leftrightarrow 2)\cdot\{D_0\}]^{K(Z\pm S)\pm(N=0)\pm(q=1\to s)/t}$;

(2), first-order (dynamic) equations: describe speed and kinetic energy.

(8.6.16)

$\partial L\{\psi(x_h),A_\mu(x_h)\}/\partial t=\{X\pm({}^{KS}\sqrt{D})\}^{K(Z\pm S)\pm(N=1)\pm q)/t}=[(1-\eta^2)^K\cdot(0\leftrightarrow 2)\cdot\{D_0\}]^{K(Z\pm S)\pm(N=1)\pm(q=1\to s)/t}$;

(3),Second-order (dynamic) equations: describe acceleration and energy.

(8.6.17)

$\partial^2 L\{\psi(x_h),A_\mu(x_h)\}/\partial t^2=\{X\pm({}^{KS}\sqrt{D})\}^{K(Z\pm S)\pm(N=2)\pm q)/t}=[(1-\eta^2)^K\cdot(0\leftrightarrow 2)\cdot\{D_0\}]^{K(Z\pm S)\pm(N=2)\pm(q=1\to s)/t}$;

(4),High-order (dynamic) equations: describe the rapid transmission of neural network information.

(8.6.18)

$\partial^n L\{\psi(x_h),A_\mu(x_h)\}/\partial t^n=\{X\pm({}^{KS}\sqrt{D})\}^{K(Z\pm S)\pm(N=n)\pm q)/t}=[(1-\eta^2)^K\cdot(0\leftrightarrow 2)\cdot\{D_0\}]^{K(Z\pm S)\pm(N=n)\pm(q=1\to s)/t}$;

8.6.5, gauge field-circular logarithmic dynamic information and image transmission

(1), information transmission and neural network:

The circular logarithm-gauge field is a good representation of the many-body, multi-parameter and heterogeneous information transmission engineering of arbitrary finite high-dimensional elements in the infinite system. The information (including audio, video, text, password, etc.) transmission method extracts the combination and set of any finite high-dimensional integral elements in infinity as an eigenmode (median inverse mean function) (that is, the "quantum state" in physics) is called Neural network node $\{D_0\}$, a network neuron "synapse" with arbitrarily finite high dimension in infinity.$(1-\eta^2)^K$ is a controllable three-dimensional three-dimensional high-dimensional spatial neural network, which has a three-dimensional three-dimensional neural network connected to each other in the circumferential direction and the radial direction. One node synapse of the network level is used as the output layer, and the adjacent network level nodes are synaptic. The touch is the input layer, and there is an information link center transition point between each two synapses of the nodes, and the forward and reverse resonance transmission is carried out to achieve multi-directional synchronous information transmission.

(2), The perfect circle mode of image transmission and clustering:

The circular logarithm-gauge field is a good representation of the many-body, multi-parameter and heterogeneous information transmission engineering of arbitrary finite high-dimensional elements in the infinite system. Image (including audio, video, text, password, etc.) transmission method: Image search learning can be:

(a), Collect (combine) clusters in three-dimensional (3D) orientation of objects from the center of the environment towards the surrounding asymmetry.

(b), Collect clusters in three-dimensional (3D) orientation from the boundary of the surrounding asymmetry towards the object center. According to the $(1-\eta^2)^K$ rule of the perfect circle mode, the surrounding objects are formed into an asymmetric cluster image, converted into a cluster image of the perfect circle mode, and become the eigenmode (that is, the "quantum state" in physics) for information The output layer is transmitted, the receiving point (terminal) is the input layer, and the received cluster image of the perfect circle pattern is still converted (restored) to an asymmetric cluster image according to the $(1-\eta^2)^K$ rule of the perfect circle pattern.

8.7. Derivation of gauge invariance of circular log-gauge field

Here is the specific derivation of the circular logarithmic space for the subregional field commonality of formulas (8.6.3)-(8.6.4): the three "unitary“**1**” gauge invariants" of the gauge field, that is, the gauge field Various quantities of particles are affected by the perfect circle pattern,

(1), Quantum particle probability superposition state: superposition at$(1-\eta^2)^K=\{1/2\}$ with the invariant center zero point, and synchronously expand between {0 and 1}, or the invariant center zero point $(1-\eta^2)^K$ Superposition at $(1-\eta^2)^K=\{0\}$, synchronous expansion between {-1 and +1}, this compression is mandatory, any quantity particle in the gauge field cannot go beyond this interface, otherwise the quantity particle cannot be in the established in the specification field. It is called "quantum state confinement".

(2), quantum symmetric topological state: $(1-\eta^2)^K=\{0\rightarrow(1/2)\leftarrow 1\}$ or $(1-\eta^2)^K=\{-1\rightarrow(0)\leftarrow+1\}$, reflecting two The properties and numerical asymmetry functions (symmetry breaking), the positive term function (quantum particle) and the negative term function (quantity particle) describe their asymmetry through circular logarithms, and two asymmetries and relative Continuity gap of symmetry.

8.7.1, [Derivation 1]: Isomorphic probability unitity of circular log-gauge fields (gauge invariance of the first kind)

Defining the probability: The set of (term order P=2 or q=1) of the gauge field subitem field is transformed into the set of space {rS}:

(8.7.1)

$$L\,[\psi(x),A_\mu(x)]^{K(Z\pm S)/t}=L\,[\psi(x)+A_\mu(x)]^{K(Z\pm S\pm(q=1))/t}$$
$$=\sum_{(Z\pm S)}(1/S)\sum_{(Z\pm S\pm 1)}L\,[\psi(x)^k+A_\mu(x)^k]^{K(Z\pm S\pm(q=1))/t}$$
$$=\sum\{r^{(S=11=(5+6)=(2+3)+(2+4)}\}^{K(Z\pm S\pm(q=1))/t};$$

The set of probabilities of the gauge field total term field is transformed into the set of space $\{R_\Omega^S\}$:

(8.7.2)

$$L\,[\psi(x),A_\mu(x)]_\Omega$$
$$=\sum_{(Z\pm S)}(1/S)\sum_{(Z\pm S\pm 1)}L_\Omega\,[\psi(x_\Omega)^k+A_\mu(x_\Omega)^k]^{K(Z\pm S\pm(q=1))/t}$$
$$=\{R_\Omega^{(S=11)}\}^{K(Z\pm S\pm(q=1))/t}$$

logarithm of probability circle of gauge field=sum of sub-fields/total field=1

logarithm of probability circle

(8.7.3)

$$(1-\eta_H^2)^K=L[\psi(x)+A_\mu(x)]\,/\,L[\psi(x)+A_\mu(x_\Omega)]_\Omega$$
$$=\sum_{(Z\pm S)}\{r^{(S=11=(5+6)=(2+3)+(2+4)}\}/\{R_\Omega^{(S=11)}\}$$
$$=[(1-\eta_{h1}^2)+(1-\eta_{h2}^2)+\ldots+(1-\eta_{hp}^2)+\ldots+(1-\eta_{hq}^2)]^{K(Z\pm S\pm(q=1))/t}$$
$$=\sum_{(Z\pm S)}(1-\eta_H^2)^{K(Z\pm S\pm(q=1))/t}$$
$$=\{1\}^{K(Z\pm S\pm(q=1))/t};$$

In the formula: the probability circle logarithm $(1-\eta_H^2)^{K(Z\pm S\pm(q=1))/t}$ in the three-dimensional [xyz], [uv], [xyz+uv], [**i,j,k**] probability of positive spherical axis coordinates.

In particular, each sub-item of the gauge field is equivalent to the quantum mechanical Heisenberg matrix. Each sub-field is superimposed with the center zero as the center, and the non-uniform error of its function can be automatically eliminated to ensure the quantum integerization of the unit volume.

8.7.2, [Derivation 2]: Isomorphic topology of circular log-gauge fields (gauge invariance of the second kind)

Define the canonical field mean function: the combined coefficient divided by the combined function, the set of mean function space $\{r_0^{S\geq 2}\}$, adapted to (term orderP≥3 or q≥2）

$$L_0[\psi(x),A_\mu(x)]^{K(Z\pm S\pm(q\geq 2))/t}=L_0[\psi(x)\cdot A_\mu(x)]^{K(Z\pm S\pm(q\geq 2))/t}$$
$$=\sum_{(Z\pm S)}(1/C_{(Z\pm S\pm q)})\prod_{(Z\pm S\pm 1)}L\,[\psi(x)^k\cdot A_\mu(x)^k]^{K(Z\pm S\pm(q\geq 2))/t}$$
$$=\sum_{(Z\pm S)}\{r^{(S=11=5+6=(2+3)+(2+4)}\}^{K(Z\pm S\pm(q\geq 2))/t};$$

Define the topology: the logarithm of the topological circle of the gauge field / the sub-field mean function / the total-term field mean function;

$$L_0[\psi(x),A_\mu(x)]_\Omega/L_{0\Omega}\,[\psi(x_0),A_\mu(x_0)]$$

Topological circle logarithm:

(8.7.4)

$$(1-\eta_T^2)^K=L_0[\psi(x),A_\mu(x)]\,/\,L_{0\Omega}[\psi(x_0),A_\mu(x_0)]$$
$$=[(1-\eta_1^2)+(1-\eta_2^2)+\ldots+(1-\eta_p^2)+\ldots+(1-\eta_q^2)]^{K(Z\pm S\pm(q\geq 2))/t}$$
$$=\sum_{(Z\pm S)}(1-\eta_T^2)^{K(Z\pm S\pm(q\geq 2))/t}$$
$$=\{0\text{ to }1\}^{K(Z\pm S\pm(q\geq 2))/t};$$

In the formula: the topological circle logarithm $(1-\eta^2)^Z$ in three dimensions[x,y,z],[y,z],[zx],[xy], [MN],[NL][LM][x,y,z],[uv],[xyz+uv],[ijk] topology in positive spherical coordinates.

In particular, in each sub-item of the gauge field, there must be a one-to-one comparison of the nonlinear function matrix of the set theory, and the uneven error can be automatically eliminated to ensure the topological quantum integerization of the unit body.

8.7.3, [Derivation 3]: Circular logarithm-gauge field relative symmetry at the center zero

The central zero point is defined as the decomposition or combination of two products with asymmetric asymmetry (symmetry breaking) $\{L[\psi(x)\neq A_\mu(x)]$, which satisfies the circular logarithmic symmetry expansion through the circular logarithm.

(8.7.5)

$(1-\eta_C{}^2)^Z = L[\psi(x), A_\mu(x)] / L_0[\psi(x_0), A_\mu(x_0)]_\Omega$
$=[(1-\eta_1{}^2) +(1-\eta_2{}^2) +\ldots+ (1-\eta_p{}^2)+\ldots+ (1-\eta_q{}^2)]^{K(Z\pm S\pm(q))/t}$
$=\sum_{(Z+S)}(1-\eta_\Omega{}^2)^{(k=+1)(Z\pm S\pm(q))/t}+\sum_{(Z-S)}(1-\eta_\Omega{}^2)^{(k=-1)(Z\pm S\pm(q))/t}$
$=\sum_{(Z\pm S)}(1-\eta_\Omega{}^2)^{K(Z\pm S\pm(q))/t}$
$=\{0\}^{K(Z\pm S\pm(q))/t}$;

The value of the center zero is easily obtained from the circle logarithmic simultaneous equation:

(8.7.6) $(1-\eta_C{}^2)^{K(Z\pm S\pm(q))/t}=\{0,1/2,1\}^{K(Z\pm S\pm(q))/t}$;

The above (8.7.1)-(8.7.6) are called the three "unitary‘1’gauge invariances" of gauge fields and the central zero-point circle logarithm theorem.

8.8. Gauge field-circular logarithm and quantized space

The quantum particle of the gauge field-circle logarithm, according to the principle of equivalent displacement, converts the asymmetric quantized space into a relative symmetry function, and forms the gauge field-circle logarithm equation. The whole calculation process is a calculation of "irrelevant mathematical model, no specific quality element content".

Some people may ask: Will it cause mode collapse or mode confusion? The affirmative answer is "no". Because the circular logarithm calculation extracts the invariant eigenmodes (median inverse mean function), the rest is the shared circular logarithm, and the calculation process has nothing to do with the eigenmodes (including multi-parameter, heterogeneity, and multi-directional transmission), the final Equation calculation results are responsible for the eigenmodes.

Gauge Fields for Quantum Gravitational Interactions. Function properties of the gravitational region: (K=+1，±0,±1，-1);

Zero-order calculus: (corresponding functions: original function, static, orbit);

$L[\psi(x), A_\mu(x)]/\partial t=\{IeM_g\bar\psi\gamma_\mu\psi D_\mu\}G_N/t \approx\{r^5\}^{K(Z\pm S\pm(N=0\pm q)/t}=\{r^{(3+2)}=r^5\}^{K(Z\pm S\pm(N=0)\pm q)/t}$;

First-order calculus: (corresponding functions: speed, momentum, probability);

$\partial L[\psi(x), A_\mu(x)]/\partial t=\partial\{IeM_g\bar\psi\gamma_\mu\psi D_\mu\}G_N/\partial t \approx\{r^5\}^{K(Z\pm S\pm(N=1\pm(q=1))/t}=\{r^{(3+2)}=r^5\}^{K(Z\pm S\pm(N=1\pm(q=1))/t}$;

Second-order calculus: (corresponding functions: acceleration, kinetic energy, force, topology);

$\partial^2 L[\psi(x), A_\mu(x)]/\partial t^2=\partial\{IeM_g\bar\psi\gamma_\mu\psi D_\mu\}G_N/\partial t^2 \approx\{r^5\}^{K(Z\pm S\pm(N=2\pm q)/t}=\{r^{(3+2)}=r^5\}^{K(Z\pm S\pm(N=2)\pm q)/t}$;

Higher-order calculus: (corresponding functions: super acceleration, kinetic energy, force, topology) information transmission;

$\partial^n L[\psi(x), A_\mu(x)]/\partial t^n=\partial^n\{IeM_g\bar\psi\gamma_\mu\psi D_\mu\}G_N/\partial t^n \approx\{r^5\}^{K(Z\pm S\pm(N=2\pm q)/t}=\{r^{(3+2)}=r^5\}^{K(Z\pm S\pm(N=n)\pm q)/t}$;

Select several familiar natural force interaction regions to try to explain the mathematical interpretation of the log-gauge field, providing reference and verification for physicists.

(1), It has been proved that the circular logarithm has isomorphic topology and unit probability (called quantum entanglement in physics), which means that the circular logarithm is not affected by the order of any eigenmode dimension.

(2), The eigenmode of the gauge field$[Ie\bar\psi\gamma_\mu\psi]A_\mu$ is combined with the mechanical parameters $A_\mu=[\boldsymbol{\alpha_G},\boldsymbol{\alpha_e},\boldsymbol{\alpha_\mu},\boldsymbol{\alpha_Z},\boldsymbol{\alpha_w},\boldsymbol{\alpha_Q},\boldsymbol{\alpha_J},\boldsymbol{\alpha}_m,\boldsymbol{\alpha}_Y,\boldsymbol{\alpha_P},\boldsymbol{\sigma},\alpha_C]\}$, which is not affected by the circle pair Influence of the calculation process. Make sure the patterns don't collapse and get confused. Ensure that the entire calculation process achieves the accuracy of zero-error arithmetic logic calculation, greatly reduces the program, and improves the computing power.

(3), The physical experiment is that the mean value function of the known quantity particles is the characteristic mode (weighing, quantification granulation, unitization), and the unknown quantity particle function and composition are analyzed by the controllable circular logarithm $(1-\eta^2)^K$. Therefore, the circular logarithm is combined with the eigenmode, and the analytical comparison test is carried out to explain the physical experimental results.

8.8.1. Circular log-gauge field and gravitational field

Gauge field The gravitational field is a combined set of positive functions. Positive gravitational field and energy characteristics Mechanical characteristics: the entangled state converges to the boundary; the central force is large, the boundary force is small, and the center of the sphere gathers gravitational layers of various levels to become a gravitational quantum unit.

Gravitational wave energy according to spherical surface: eccentric spin + elliptical motion + gravitational radiation space. Mechanical distribution: The center point gathers the gravitational layer to form a "gravitational confinement (black hole)" gravitational field unit within the range of {0 to 1}.

The gravitational constant $\boldsymbol{\alpha_G}=G_N=\mathbf{6.6726}\times10^{-11}N\cdot m^2/kg^2$;

There are: gravitational macroscopic region (K=+1), inside gravitational field (K=+1)(Kw=+1, ±0, ±1, -1); basic space generator: (S=5);

The center point is composed of [xyz]+[uvz], the five-dimensional space gravitational field. $\{r_0{}^5\}^{(K=+1)}=\{r_0{}^3\}^{(K=+1)(Kw=+1)}+\{r_0{}^2\}^{(K=+1)(Kw=-1)}+\{r_0{}^0\}^{(K=+1)(Kw=\pm1)}$;

Neural network information conversion point $\{r_0{}^0\}^{(K=+1)(Kw=+1)}$; $\{r_0{}^0\}$represents the zero-order space of gravity.

The center point is composed of [xyz] (revolution) + [uvz] (rotation).

Eigenmodulus (Mean Function) - Neural Network Space Node:

$\{r_0{}^5\}^K$

$=\{r_0{}^0+r_0{}^2+r_0{}^3\}^{K(Z\pm(S=5)\pm(N=0,1,2\pm q)/t}$
$=\{CorC^2\}^{K(Z\pm(S=5)\pm(N=0,1,2\pm q)/t}$;

(8.8.1)
$\{r^5\}^K=(1-\eta^2)^K\cdot\{r_0{}^5\}^{(K=+1)(Z\pm(S=5)\pm(N=0,1,2\pm q)/t}$

(8.8.2)
$(1-\eta^2)^K=(^{K(Z\pm(S=5))}\sqrt{L}[\psi(x), A_\mu(x)])/(L_0[\psi(x_0), A_{0\mu}(x_0)])$
$=\{v$ 或 $v^2\}/\{C \text{ or } C^2\}^{(K=+1)(Z\pm(S=5)\pm(N=0,1,2\pm q)/t}$

Circular log-gauge field:

(8.8.3)
$(1-\eta_{[xyz+uv]}{}^2)^K\{G_NM/r\}^{(K=+1)}$
$=(1-\eta_{[xyz+uv]}{}^2)^K\{MC^2\}^{(K=+1)(Z\pm(S=5)\pm(N=0,1,2\pm q)/t}$;

The characteristic modulus {D0} of the gravitational field corresponds to the logarithmic value of the circle:

(8.8.4)
$(1-\eta^2)^K$
$=\{0$ 或$(0\leftrightarrow1/2\leftrightarrow1)$或 $1\}^{(K=+1)(Kw=\pm1)(Z\pm S\pm(N=0,1,2\pm q)/t}$;

In the formula: $(1-\eta^2)^K=\{0 \text{ or } 1\}$ means transition, $(1-\eta^2)^K=\{(0\leftrightarrow1/2\leftrightarrow1)\}$ means asymmetric (symmetry breaking) topology change.

8.8.2. Circular log-gauge fields and electromagnetic fields

Gauge Fields A combined set of negative functions of the electromagnetic field. Forward Electromagnetic Mechanics Features: (entangled states diverge to the boundary) small central force, large boundary force, and energy (like a doughnut). Therefore, the boundary of the planet and the surface of the sphere gather the ionosphere and become the electromagnetic unit state. Electromagnetic waves are two mutually perpendicular plane waves, the energy is according to the spin + radiation,

Electromagnetic coupling constant:$\boldsymbol{\alpha_e=k=1.380658}\times10^{-23}J\cdot m^2\cdot k^{-1}$;

There are: macroscopic area of electromagnetic force (K=-1), internal electromagnetic field (Kw=+1, ±0, ±1, -1);

Basic space generator: (S=6); the center point consists of [xyz]+[LMN],

Six-dimensional electromagnetic force field: $\{r_0{}^6\}=\{r_0{}^3\}^{(Kw=+1)}+\{r_0{}^3\}^{(Kw=-1)}+\{r_0{}^0\}^{(Kw=\pm1)}$;

Neural network information conversion point $\{r_0{}^0\}^{(Kw=\pm0)}$;

Mechanical distribution: The surface gathers the electromagnetic layer to form the electromagnetic force field unit with the boundary "electromagnetic confinement (ionosphere)" in the range of {0 to 1}.

Eigenmodulus (Mean Function) - Neural Network Space Node:

$\{r_0{}^6\}^K=\{r_0{}^0+r_0{}^3+r_0{}^3\}^{K(Z\pm S\pm(N=0,1,2\pm q)/t}=\{C$ 或 $C^2\}^{K(Z\pm S\pm(N=0,1,2\pm q)/t}$;

(8.8.5)
$\{r^6\}^K=(1-\eta^2)^K\cdot\{r_0{}^6\}^{(K=+1)(Z\pm(S=6)\pm(N=0,1,2\pm q)/t}$

(8.8.6)
$(1-\eta^2)^K=(^{K(Z\pm(S=6))}\sqrt{L}[\psi(x), A_\mu(x)])/(L_0[\psi(x_0), A_{0\mu}(x_0)])$
$=\{v \text{ or } v^2\}/\{C \text{ or } C^2\}^{(K=-1)(Z\pm(S=6)\pm(N=0,1,2\pm q)/t}$

Circular log-gauge field:

(8.8.7)
$(1-\eta_{[xyz+LMN]}{}^2)^K\{G_NM/r\}^{(K=+1)}$
$=(1-\eta_{[xyz+LMN]}{}^2)^K\{MC^2\}^{(K=-1)(Z\pm S\pm(N=0,1,2\pm q)/t}$;

The eigenmode $\{D_0\}$ of the electromagnetic field corresponds to the logarithmic value of the circle: :

(8.8.8)
$(1-\eta_{[xyz+LMN]}{}^2)^K=\{0\text{or}(0\leftrightarrow1/2\leftrightarrow1)\text{or}$
$1\}^{(K=-1)(Kw=\pm1)(Z\pm S\pm(N=0,1,2\pm q)/t}$;

In the formula: $(1-\eta^2)^K=\{0 \text{ or } 1\}$ means transition, $(1-\eta^2)^K=\{(0\leftrightarrow1/2\leftrightarrow1)\}$meansasy mmetric (symmetry breaking) topology change.

8.8.3. Circular log-gauge field and strong quark field

Quark interaction in the microscopic region of the gauge field, mechanical characteristics of the positive force field: the entangled state diverges from the center to the boundary, the central force is small and the boundary force is large, spin + radiation + oscillation. Mechanical distribution: The surface gathers quark layers to form a "quark confinement" strong quark field unit in the range of {0 to 1}.

Quark force coupling constant $\boldsymbol{\alpha_Q=g_s{}^2/4\pi hc}$,Bohr Radius$\alpha_0=4\pi\varepsilon_0h/m_ee^2=0.529177249\times10^{-10}\cdot m$;

There are: microscopic region of strong quark field (K=-1), interior of strong quark field (Kw=+1,±0,±1,-1) Microscopic weak force field eigenvalues: elementary particles $(2/3,+1/3,-1/3)\times\{0,1/2,1,2\}^{(K=+1)}$;

Radiation, vibration: $[\{2r^{(1/3)}\}^3=\{r^3\}]$+[Up and down spin (spin)$\{r^{(+1/3)+(-1/3)+}\}^2=\{r^2\}]+\{r^0\}$ for balance conversion;

Quantum composition: $\{r^3\}_{[xyz]}$ (radiation, oscillation)+$\{r^2\}_{[uv]}$ up and down spin (spin) + balanced transition neutral quantum $\{r^0\}_{[xyz]+[uv]}$. Basic space generator: (S=5); quantum composition [xyz] (radiation, oscillation) + [uv] up and down spin (spin), the normal plane of up and down spin (spin) coincides with the z-axis. It is called the five-dimensional strong quark field space.

Five-dimensional space strong quark field: such as: $\{r^3\}_{[xyz]}$ for generating radiation, $\{r^0\}_{[xyz]+[uv]}$ for equilibrium conversion, $\{r^2\}_{[uv]}$ for up and down spin,

$\{r_0{}^5\}=\{r_0{}^3\}^{(Kw=+1)}+\{r_0{}^0\}^{(Kw=\pm1)}+\{r_0{}^2\}^{(Kw=-1)}$;

Neural network information conversion point $\{r_0{}^0\}^{(Kw=\pm1)}$;

Mechanical distribution characteristics: the center point gathers the quark layer to form a strong quark field unit body with a boundary of "strong quark field confinement (particle layer)" in the range of {0 to 1}. The mechanical action is similar to gravity, but in the opposite direction.

Eigenmodulus (Mean Function) - Neural Network Space Node:

$\{r_0^5\}^K=\{ r_0^3+r_0^0+r_0^2 \}^{K(Z\pm S\pm(N=0,1,2\pm q)/t}=\{C$ 或 $C^2\}^{K(Z\pm S\pm(N=0,1,2\pm q)/t}$;

(8.8.9)

$\{r^5\}^K=(1-\eta^2)^K\cdot\{r_0^5\}^{(K=-1)(Z\pm(S=5)\pm(N=0,1,2\pm q)/t}$

(8.8.10)

$(1-\eta_{[xyz+uv]}^2)^K$

$=(^{K((S=5))}\sqrt{}L[\psi(x),A_\mu(x)])/(L_0[\psi(x_0), A_{0\mu}(x_0)])$

$=\{v$ 或 $v^2\}/\{C$ 或 $C^2\}^{(K=-1)(Z\pm(S=6)\pm(N=0,1,2\pm q)/t}$

Circular log-gauge field:

(8.8.11)

$\{\boldsymbol{\alpha}_Q M/r\}^{(K=+1)}$

$=(1-\eta_{[xyz+uv]}^2)^K\{MC^2\}^{(K=-1)(Z\pm(S=5)\pm(N=0,1,2\pm q)/t}$;

The corresponding values of the strong quark field characteristic modes (eigenvalues, topological phase transitions, gauge invariant fields):

(8.8.12)

$(1-\eta_{[xyz+uv]}^2)^K$

$=\{0$ 或$(0\leftrightarrow 1/2\leftrightarrow 1)$或 $1\}^{(K=-1)(Kw=\pm1)(Z\pm S\pm(N=0,1,2\pm q)/t}$;

Micro Chromodynamics:

$\{\boldsymbol{\alpha}_Q Q_Q r_Q^2\}=(1-\eta_{[xyz+LMN]}^2)^{(K=-1)}\{MC^2\}^{(K=-1)(Kw=\pm1)(Z\pm(S=8)\pm(N=0,1,2\pm(q=2)/t}$;

Quark eigenvalues: quark elementary particles$[(2/3,+1/3,-1/3)\times\{0,1/2,1,2\}]^{(K=-1)}$:

8.8.4. Circular log-gauge field weak force gluon field

The circular log-gauge field weak force gluon field is a positive arrangement of gluons; mechanical distribution characteristics: the entangled state converges from the maximum value of the central point to the boundary, that is, the central force is large and the boundary force is small. The gluon oscillations are perpendicular to each other, in a two-way plane: spin+oscillation+radiation. The central point gathers the gluon layer to form a central "weak force gluon field confinement (particle layer)" unit in the range of {0 to 1}. The mechanical action is similar to the electromagnetic force, in the opposite direction.

Weak force gluon field interaction coupling constant: $\boldsymbol{\alpha_J=g_s^2/4\pi hc\ sin^2Q_w}$;

Microscopic weak force field eigenvalues: elementary particles $\boldsymbol{(2/3, +1/3, -1/3)\times\{0,1/2,1,2\}^{(K=+1)(Kw=\pm1)}}$;

Radiation, vibration: $2\cdot\{2r^{2/3}\}^3=\{r^4\}$ + up and down spin (spin):$2\cdot\{2r^{(+1/3)+(-1/3)+}\}^2=\{r^4\}$; $2\cdot\{r^{2/3}\}^3$ for generating radiation, $\{r^0\}$ for balance conversion, and $2\cdot\{r^2\}$ for up and down spin, which constitutes [xyz] (radiation, oscillation) + [LMN] up and down spin (spin). Basic space generator:(S=8); called eight-dimensional space weak force gluon field:

Quantum composition: $\{r^4\}_{[xyz]}$ (radiation, oscillation) $+\{r^4\}_{[LMN]}$up and down spin (spin) + balanced transition neutral quantum $\{r^0\}_{[xyz]+[LMN]}$.

There are: microscopic region of weak force gluon field: (K=-1), inside weak force gluon field (Kw=(+1，±0,±1，-1);

Eigenmodulus (Mean Function) - Neural Network Space Node:

$\{r_0^8\}^{(K=+1)}=\{r_0^4+r_0^4+r_0^0\}^{(K=+1)(Kw=\pm1)(Z\pm(S)\pm(N=0,1,2\pm q)/t}=\{C$ 或 $C^2\}^{K(Z\pm S\pm(N=0,1,2\pm q)/t}$;

(8.8.13)

$\{r\}^{(K=+1)}$

$=(1-\eta_{[xyz+LMN]}^2)^K\cdot\{r_0\}^{(K=+1)(Kw=\pm1)(Z\pm(S=8)\pm(N=0,1,2\pm q)/t}$

(8.8.14)

$(1-\eta_{[xyz+LMN]}^2)^K$

$=(^{K(S=8)}\sqrt{}L[\psi(x), A_\mu(x)])/(L_0[\psi(x_0), A_{0\mu}(x_0)])$

$=\{v$ or $v^2\}/\{C$ or $C^2\}^{(K=-1)(Z\pm(S=6)\pm(N=0,1,2\pm q)/t}$

Circular log-gauge field:

(8.8.15)

$\{\boldsymbol{\alpha}_J M/r\}^{(K=+1)}$

$= (1-\eta_{[xyz+LMN]}^2)^K\{MC^2\}^{(K=-1)(Z\pm(S=5)\pm(N=0,1,2\pm q)/t}$;

The corresponding values of the weak force gluon field characteristic modes (eigenvalues, topological phase transitions, gauge invariant fields):

(8.8.16)

$(1-\eta_{[xyz+LMN]}^2)^K$

$=\{0$ or $(0\leftrightarrow 1/2\leftrightarrow 1)$ or $1\}^{(K=-1)(Kw=\pm1)(Z\pm(S=8)\pm(N=0,1,2\pm q)/t}$;

In the formula: $(1-\eta_{[xyz+LMN]}^2)^K=\{0$ or $1\}$ represents the transition, $(1-\eta_{[xyz+LMN]}^2)^K=\{(0\leftrightarrow 1/2\leftrightarrow 1)\}$ represents the asymmetry (symmetry breaking) topology continuous change.

Microscopic electrodynamic properties:

$\{\alpha_J Q_J r_J^2\}=(1-\eta_{[xyz+LMN]}^2)^{(K=-1)}\{MC^2\}^{(K=-1)(Kw=\pm1)(Z\pm(S=8)\pm(N=0,1,2\pm(q=2)/t}$;

Quark eigenvalue: gluon elementary particle $[(2/3,+1/3,-1/3)\times\{0,1/2,1,2\}]^{(K=+1)}$:

Neural network information conversion point $\{r_0^0\}^{(Kw=\pm0)}$

$\{r^8\}^{(K=-1)(Kw=\pm1)}$

$=\{(4r+2\cdot\{r^{2/3}\}^3\}^{(K=-1)(Kw=\pm1)}=\{r^4+2\cdot r^2+r^0\}^{(K=-1)(Kw=\pm1)}$;

Micro Electrodynamics:

$\{\boldsymbol{\alpha}_J Q_J r_J^2\}^{(K=-1)}=(1-\eta_{[xyz+LMN]}^2)^{(K=-1)(Kw=\pm1)}\{MC^2\}^{(K=-1)(Kw=\pm1)(Z\pm(S=8)\pm(N=0,1,2\pm q)/t}$;

8.9, gauge field quantity particle thermal field, neutrino, optical field

8.9.1. Neutral particles:

Neutral neutrinos can be obtained in various forms in eleven dimensions and have been experimentally proved in Modern Physics [p282] **($^3H\rightarrow{}^3H_e+e^-+\upsilon$)**.

This process means that neutrinos, thermal field, optical field particles can combine or break down into ionic interactions.

(Figure 12 Structure of Light)

In "Modern Physics" P504 "Physical Constants and Conversion Factors" lists the table **f1-1** physical constant table,

There are: thermodynamic constant **σ=5.6703**$\times 10^{-8}\cdot w\cdot m^{-2}\cdot K^{-4}$; elaborate structure constant **α=e²/4πƐ₀ch,**……

(8.9.1)

$\{r_0^{11}\}^{(Kw=\pm1)}=\{r^5+r^6\}^{(Kw=\pm1)}=\{2r^2+2r^3+r^1\}^{(Kw=\pm1)}=\{C,C^2\}^{(Kw=\pm1)}$;

Neutral particle light, temperature, neutrino macro- and micro-dynamic transformation circular log-gauge field:

(8.9.2)

$E=\{(L_0[\psi(x_0), A_\mu(x_0)]\}=(1-\eta_{[xyz+LMN]}{}^2)^{(K=\pm1)}\{MC^2\}^{(K=\pm1)(Kw=\pm1)(Z\pm(S=8)\pm(N=0,1,2\pm(q=2)/t}$;

(8.9.3)

$(1-\eta^2)^K=({}^{K(Z\pm(S=11))}\sqrt{}(L[\psi(x), A_\mu(x)])/(L_0[\psi(x_0), A_\mu(x_0)])=\{1\}^{(K=-1)(Z\pm(S=6)\pm(N=0,1,2\pm q)/t}$

The eigenmode corresponding to the logarithm of the circle:

(8.9.4)

$(1-\eta_{[xyz+LMN]}{}^2)^{(K=\pm1)}=\{0 \text{ or } (0\leftrightarrow1/2\leftrightarrow1) \text{ or } 1\}^{(K=-1)(Kw=\pm1)(Z\pm(S=8)\pm(N=0,1,2\pm q)/t}$;

In the formula: $(1-\eta_{[xyz+LMN]}{}^2)^{(K=\pm1)}=\{0 \text{ or } 1\}$ means transition.$(1-\eta_{[xyz+LMN]}{}^2)^{(K=\pm1)}=\{(0\leftrightarrow1/2\leftrightarrow1)\}$, means asymmetric (symmetry breaking) topology change. For five-dimensional space, there is a [Z] axis that is parallel or coincident with the [N] axis.

8.9.2. Composition of the mean velocity C of neutral light quantum

According to the principle of aberration of light quantum, its average speed C is composed of vertical speed $V \perp V_a$ and parallel speed $V // V_b$ C=VaVb: a quadratic equation representing the composition of each light quantum. $D_0^2=C^2=V_aV_b$(average velocity of each light quantum); $D_0=(1/2)(Va+Vb)$; Each light quantum mass m has a geometric space of 11 dimensions, which can be forward and reverse particle mass-space The neutralization (synthesis) of 0 is 0, indicating neutrality.

(8.9.5)

$(1/2)mv^2\pm mv+D_0^2= x^2\pm2x(D_0)+D_0^2=\{x_0\pm C\}^2=(1-\eta^2)\{x_0\pm D_0\}^2=(0,2)^2C^2$;

(8.9.6) $D_0= (1-\eta^2)C$; $0\leq(1-\eta^2)=v_av_b/C^2\leq1$;

(8.9.7) $(V \perp V_a)=(1-\eta)C^2$(light quantum is wavelike);

And: $(V // V_b)=(1+\eta)C$; (light quantum is granular);

The light, temperature, and neutrino of neutral particles can interact with each other in macroscopic and microscopic continuous regions, and even be converted into positive and negative ions in this region, which means that the optical force constant can be used as the original dynamic coefficient to interact with other quantitative particles. In comparison, other particle variable elements include $\{(L_0[\psi(x_0), A_\mu(x_0)]\}^{(Kw=\pm0)(Kw=\pm1)}$, the reason why the central particle can interact with other ionic properties is that neutral particles can be randomly combined or Decomposition, that is to say, under the induction of ionic properties, neutral particles, etc. decompose (and vice versa) ions to interact with the same ions as the surrounding environment. For example, light bends in the gravitational field, light interacts with Plant cells produce photosynthesis, photoelectric effect, light conversion heat energy, etc.

For example, light can act in the electromagnetic field, and light and gravitational field interact. Einstein proposed that light is used as the medium, and many scientists are looking for the unified equation of gravity and electromagnetism. The above example in this article can be realized by the method of circular logarithm.

8.9.4. Gauge Fields and Neural Networks

The particle mass (mass ratio of different particles, parameter ratio) has been extracted based on the circular log-gauge field, and the common features are composed of eigenmodes. Restore the gauge field system to get the discriminant

(8.9.8)

$(1-\eta)^K=L[\psi(x), A_\mu(x)] / L_0[\psi(D_0), A_\mu(D_0)]\leq1$;

The gauge field equation:

Let: the gauge field is the system[S]=[S,Q,M] space, the neural network node:$[\psi(x),A_\mu(x)]^{(Kw=\pm1)}$

Unknown variable: $\{X\}^{K(Z\pm[S]\pm N\pm q)/t}=\{({}^{K[S]}\sqrt{}L[\psi(x)\cdot A_\mu(x)]\}^{K(Z\pm[S]\pm N\pm q)/t}=\{({}^{K[S]}\sqrt{}D)\}^{K(Z\pm[S]\pm N\pm q)/t}$;

Eigenmode: $\{D_0\}^{K(Z\pm[S]\pm N\pm q)/t}=L_0[\psi(D_0)+A_\mu(D_0)]^{K(Z\pm[S]\pm N\pm q)/t}$;

Balance equation:

(8.9.9)

$\{X\pm({}^{K[S]}\sqrt{}D)\}^{K(Z\pm[S]\pm N\pm q)/t}=(1-\eta)^{(Kw=\pm1)}[(0,2)\{D_0\}]^{K(Z\pm[S]\pm N\pm q)/t}$;

(8.9.10)

$(1-\eta)^{(Kw=\pm1)}=(1-\eta)^{(Kw=+1)}+(1-\eta)^{(Kw=\pm0)}+(1-\eta)^{(Kw=-\pm1)}$;

Equation (8.9.9) (8.9.10) yields the neural network:

Cyclic neural network unwrapped surface:

(8.9.11)
$W^{(Kw=+1)}=(1-\eta)^{(Kw=+1)}\cdot L_0[\psi(D_0), A_\mu(D_0)]^{(Kw=+1)}$;

Radial Neural Network Connection Surface:
(8.9.12)
$W^{(Kw=-1)}=(1-\eta)^{(Kw=-1)}L_0[\psi(D_0), A_\mu(D_0)]^{(Kw=-1)}$;

The central zero point of information transfer between neural network nodes:
(8.9.13)
$W^{(Kw=\pm0)}=(1-\eta)^{(Kw=+1)}L_0[\psi(D_0), A_\mu(D_0)]^{(Kw=\pm0)}$;

The circular logarithm describes the common rules for the change of all quantitative particles. Under the three gauge invariant circular logarithms, it brings irrelevant mathematical models. There is no calculation of the content of specific mass elements. Different physical events will be the comparison of mechanical parameters. manifested in physical events due to differences in mechanical parameters. Does not affect the calculation of the logarithmic change state of the circle.

That is to say, after more than 120 years of debate on "relativity and quantum theory" in our physical experiments, and through the circular logarithm-gauge field mathematical model, physics has returned to the "important work for future physical events" proposed by many scientists in the 1920s. Particle measurements play a key role in discovering new particle mechanics parameters."

9. Digital application example

Any higher-order numerical algebra-function-geometry-group theory equation can be recognized and analyzed in a unified manner with the circular logarithmic equation. The higher-order equations are converted into abstract circular logarithms to solve the root element, which is called analysis. On the contrary, the characteristic modulus and circular logarithm (perfect circle mode) are established from the known root elements, and information transmission is called cognition.

9.1. [Numerical example 1] The key of the quadratic equation in one variable - the discriminant of Veda's theorem

9.1.1. Discriminant

The key of the quadratic equation of one variable - the discriminant of Veda's theorem: B2-4D ≥ 0 itself is the judgment method that the discriminant equation can solve the root. In the "Mathematics Handbook", you can find the expressions of the roots of the second, third and fourth equations and the relationship between the roots and the coefficients. Due to the limitation of historical conditions, it has not been found that they have hidden "asymmetry" and "relevance" key mathematical foundation "reciprocity" problem calculation problems.

The original Veda's theorem discriminant $B^2-4\mathbf{D}\geq 0$ is a rule for judging whether the equation has a root solution, reflecting the relationship between "multiplication and addition", rewritten as $4\mathbf{D}/B^2=4\mathbf{D}/(2\mathbf{D}_0)^2$, the meaning of the discriminant does not change , without loss of generality,

The roots and coefficients described by Veda's theorem have actually begun to deal with the relationship between "multiplication and addition", which hides the key to cracking any algebraic equation, but it has not been valued, developed and expanded by people.

9.1.2. Discriminant and circular logarithm

Conditions for the establishment of algebraic equations: known: dimension (S)； $X^S\in(x_1x_2\ldots x_S)$, $X\in{}^{KS}\sqrt{(x_1x_2\ldots x_S)}$; polynomial coefficients **A, B, C…P** (or average $\mathbf{D}_0$). Starting from $X^S\in(x_1x_2)$, $X\in{}^{KS}\sqrt{(x_1x_2)}$ is the pointcut proof. Extend the general proof of "infinitely many variables". called "group combination".

Prove:

Purpose of proof: The relationship between the discriminant and the logarithm of the circle is to prove the relationship between the unknown variable (root) and the coefficient. What are the contents of the coefficient? In the "Mathematics Handbook" P88, you can find the expressions of the roots of quadratic and cubic equations, and the relationship between roots and coefficients.

Extending Veda's theorem into circular logarithmic discriminant:

$4\mathbf{D}/B^2=[2(\sqrt{(\mathbf{D}_1\mathbf{D}_2)})]^2/[2\mathbf{D}_0]^2=\sqrt{(\mathbf{D}_1\mathbf{D}_2)}/\mathbf{D}_0$
$=\sqrt{(\mathbf{D})}/\mathbf{D}_0=(1-\eta^2)\leq 1$;

The extended circle logarithm is a group combination (variable) discriminant:

$(1-\eta^2)^K$
$=[({}^{KS}\sqrt{\mathbf{D}})/\mathbf{D}_0]^1$
$=[({}^{KS}\sqrt{\mathbf{D}})/\mathbf{D}_0]^2=\ldots=[({}^{KS}\sqrt{\mathbf{D}})/\mathbf{D}_0]^{K(Z\pm[S]\pm N\pm q)/t}\leq 1$;

9.1.3, quadratic equation in one variable or linear equation in two variables and the logarithm of the circle

Let: Unary quadratic (or two asymmetric functions of resolution 2)

$X=x_1x_2$; $X=\sqrt{(x_1x_2)}$;
$\mathbf{D}=(\mathbf{D}_1\mathbf{D}_2)=\{\sqrt{\mathbf{D}}\}^2=\{\sqrt{(\mathbf{D}_1\mathbf{D}_2)}\}^2$; A=1;
$\mathbf{D}_0^{(+1)}=[(1/2)^{(+1)}(\mathbf{D}_1^{(+1)}+\mathbf{D}_2^{(+1)})]^{(+1)}$,
$\mathbf{D}_0^{(-1)}=[(1/2)^{(-1)}(x_1^{(-1)}+x_2^{(-1)})]^{(-1)}$;
$B=(\mathbf{D}_1^{(+1)}+\mathbf{D}_2^{(+1)})^{(+1)}=2[(1/2)^{(+1)}(\mathbf{D}_1^{(+1)}+\mathbf{D}_2^{(+1)})]^{(+1)}=2\mathbf{D}_0^{(+1)}$**;** (Corresponding to known variables)
$B=(\mathbf{D}_1^{(-1)}+\mathbf{D}_2^{(-1)})^{(-1)}=2[(1/2)^{(-1)}(x_1^{(-1)}+x_2^{(-1)})]^{(-1)}=2X_0^{(-1)}$ **;** (Corresponding to unknown variables)

Balance equation: $AX^2-BX+\mathbf{D}=0$ (0: means satisfying the discriminant to obtain the balance equation);

(1), the reciprocity proof of two elements:

(9.1.1) $\mathbf{D}=x_1x_2/(x_1+x_2)\cdot(x_1+x_2)$
$=[(x_1+x_2)/(x_1x_2)]^{(-1)}\cdot 2X_0^{(+1)}$

$=[(1/2)^{(-1)}(x_1^{(-1)}+x_2^{(-1)})]^{(-1)}\cdot 2\mathbf{X_0}^{(+1)}$
$=\mathbf{X_0}^{(-1)}\cdot \mathbf{X_0}^{(+1)}$
$=\mathbf{X_0}^{(-1)}/\ \mathbf{X_0}^{(+1)}\cdot(\mathbf{X_0})^{(+2)}$
$=[(1-\eta^2)\cdot(\mathbf{X_0})^2;$

(2), the covariance proof of two elements:

(9.1.2)
$(1-\eta^2)^K=\mathbf{X_0}^{(-1)}/\mathbf{X_0}^{(+1)}=\mathbf{D_0}^{(-1)}/\mathbf{D_0}^{(+1)}=\mathbf{X_0}^{(-1)}/\mathbf{D_0}^{(+1)}$
$=\{\sqrt{(\mathbf{D_1D_2})}/\mathbf{D_0}\}^K=\{\sqrt{(\mathbf{D})}/\mathbf{D_0}\}^K$
$=[(1/2)^{(-1)}(x_1^{(-1)}+x_2^{(-1)})]^{(-1)}/[(1/2)^{(+1)}(x_1^{(+1)}+x_2^{(+1)})]^{(+1)}$
$=[(1/2)^{(-1)}(\mathbf{D}_1^{(-1)}+\mathbf{D}_2^{(-1)})]^{-1}/[(1/2)^{(+1)}(\mathbf{D}_1^{(+1)}+\mathbf{D}_2^{(+1)})]^{(+1)};$

(3), Proof of the reciprocity of multiplication and addition of two elements:

(9.1.3)
$(1-\eta^2)^K=\mathbf{X_0}^{(-1)}\cdot \mathbf{X_0}^{(+1)}=\mathbf{D_0}^{(-1)}\cdot \mathbf{D_0}^{(+1)}=\mathbf{X_0}^{(-1)}\cdot \mathbf{D_0}^{(+1)}$
$=[(1/2)^{(-1)}(x_1^{(-1)}+x_2^{(-1)})]^{(-1)}\cdot[(1/2)^{(+1)}(x_1^{(+1)}+x_2^{(+1)})]^{(+1)}$
$=[(1/2)^{(-1)}(\mathbf{D}_1^{(-1)}+\mathbf{D}_2^{(-1)})]^{(-1)}\cdot[(1/2)^{(+1)}(\mathbf{D}_1^{(+1)}+\mathbf{D}_2^{(+1)})]^{(+1)}$
$=\{\sqrt{(\mathbf{D_1D_2})}\cdot\mathbf{D_0}\}^K=\{\sqrt{(\mathbf{D})}\cdot\mathbf{D_0}\}^K;$

Formulas (9.1.1)-(9.1.3) are extended to circular logarithms by applying Veda's theorem to deal with the relationship between "multiplication and addition", and then extended to the reciprocity of multi-element, high-dimensional order, and expanded Function and space application range.

9.2, quadratic equation in one variable

Known: two asymmetric functions, satisfying the discriminant of Veda's theorem to establish equation equilibrium and solvable conditions. Generalization to higher-dimensional spaces or higher-order equations of "group combination-circular logarithm".

9.2.1. Quadratic equation in one variable

Unary quadratic equation (understood as a function set of resolution = 2 or a two-tuple generator function):

Known: dimension {S=2}, polynomial coefficients{A=1,B=2}including mean value {$\mathbf{D}_0$}, boundary condition D={$\sqrt{(x_1x_2)}$};

(9.2.1) $AX^2\pm BX+\mathbf{D}=X^2\pm 2X\mathbf{D_0}+\mathbf{D}$
$=X^2\pm 2X\mathbf{D_0}+\mathbf{D}$
$=(1-\eta^2)(X^2\pm 2X\mathbf{D_0}+\mathbf{D_0}^2)$
$=(1-\eta^2)(X_0\pm\mathbf{D}_0^2)$
$=[(1-\eta^2)\cdot(0,\ 2)\cdot\mathbf{D}_0]^2;$

(9.2.2)
$(1-\eta^2)=4\mathbf{D}/B^2=[\sqrt{(x_1x_2)}/\mathbf{D}_0]^2=[\sqrt{(x_1x_2)}/\mathbf{D}_0]$
$=[\sqrt{(X)}/\mathbf{D}_0]^2=[\sqrt{(X)}/\mathbf{D}_0]$
$=[\sqrt{\mathbf{D}}/\mathbf{D}_0]^2=[\sqrt{\mathbf{D}}/\mathbf{D}_0]=\{0 \text{ to } 1\};$

Equation (9.2.2) derives the reciprocal relationship of "multiplication and addition". And unify "addition and subtraction", "multiplication and addition", and "power and square root". It can be generalized to any higher-order equation (there will be a special proof later).

9.2.2. Calculation results of quadratic equation in one variable

The formula (9.2.1) of the quadratic equation in one variable has three calculation results, which are called "field equations":

(9.2.3)
$(X-\sqrt{\mathbf{D}})^{K(2)/t}=[(1-\eta^2)\cdot\{0\}\cdot\mathbf{D}_0]^{K(2)/t}=\{0\}^{K(2)/t}$; (two dimension rotation, subtraction);

(9.2.4)
$(X+\sqrt{\mathbf{D}})^{K(2)/t}=[(1-\eta^2)\cdot\{2\}\cdot\mathbf{D}_0]^{K(2)/t}=\{2\cdot\mathbf{D}\}^{K(2)/t}$; (3D precession, superposition, addition);

(9.2.5)
$(X\pm\sqrt{\mathbf{D}})^{K(2)/t}=[(1-\eta^2)\cdot[(0\leftrightarrow 2)\mathbf{D}_0]^{K(2)/t}=\{(0\leftrightarrow 2)\cdot\mathbf{D}\}^{K(2)/t}$;
(two (two groups) element five-dimensional (rotation + precession) vortex space);

9.2.3. One-dimensional linear equation

When (S=1), it becomes a "one-dimensional" correlation equation, and the correlation appears as a group combination of multiple variables:

(9.2.6) $(X\pm\mathbf{D})^{K(1)/t}=[(1-\eta^2)\cdot[(0\leftrightarrow 2)\mathbf{D}_0]^{K(1)/t};$

(9.2.7) $X=(1-\eta^2)\mathbf{X_0};\ \ \mathbf{D}=(1-\eta^2)\mathbf{D}_0;$

In the formula: $[(1-\eta^2)\cdot[(0\leftrightarrow 2)\mathbf{D}_0]$ is a one-dimensional primary five-dimensional (rotation + precession) vortex space; $(1-\eta_\omega^2)=0$ correspond $X_0=\mathbf{D}_0$

Scientific experiments have proved that the two ends from high to low between two spheres have the shortest arrival time in the form of a circular logarithm $(1-\eta^2)^K$ curve, which is called the principle of minimum action and so on. In 2018, the Spanish-American "Light Observation" experimental team confirmed that the motion of light has a five-dimensional vortex space phenomenon, which is called basic physics-mathematical space.

In this way, the linear and nonlinear equations of traditional mathematics and statistics, in addition to discrete types, also have linear and nonlinear equations that are related.

9.2.4. Root calculation of quadratic equation in one variable

The root calculation of a quadratic equation of one variable traditionally adopts the Veda theorem or the cross method (with guessing components). The calculation of the root increases with the increase of the number of multi-variables. At present, only cubic and quartic equations can be achieved, and the specified root The solution is symmetric. For the root of the asymmetry, an "error approximation" calculation is used, and there is no satisfactory solution equation.

Select the symmetry of the center zero circle logarithm$(1-\eta_\omega^2)^K=0$ corresponds to $X_0=\mathbf{D}_0$The value is between the two variablesX_1 and X_2, the center zero point satisfies $(-\eta_\omega)^K+(+\eta_\omega)^K=0$ or the probability circle pair $\mathbf{D}_0$ corresponding to the number $(-\eta_{h1})+(+\eta_{h2})=1$,

(9.2.8) $x_1=(1-\eta_{h1})\mathbf{D}_0;\quad x_2=(1+\eta_{h2})\mathbf{D}_0;$

(9.2.9)
$X^2=x_1x_2=(1-\eta_{h1})(1+\eta_{h2})\mathbf{D}_0^2=(1-\eta^2)\mathbf{D}_0^2;$

9.2.5. The meaning of solving the quadratic

equation in one variable:

Broadly speaking, a quadratic equation in one variable is two asymmetric functions with a resolution of **2**, which become a relatively symmetrical function through circular logarithms. The two elements (asymmetric function) share a circular logarithmic factor, forming an "even function", which is convenient for finding the root solution. There is covariance, or equivalent substitution, between the two roots. Conversely, from a mean value $\{\mathbf{D}_0\}^{(1)}$, any one of the two granular elements can appear randomly through the logarithm of the circle. It can also be any element wave function of the two wave properties $\{\mathbf{D}_0\}^{(2)}$. Physics is called "wave-particle duality".

In number theory, it is said that two asymmetrical prime number functions form a relatively symmetrical prime number function, which is called "Strong Goldbach's conjecture: the sum of two prime numbers large enough is even". It also involves the transformation of Fermat's Last Theorem inequalities into relative symmetry equations.

In particular, in order to maintain the stability of the solution of the multi-body equation of the system, the circular logarithm shared by two (more) functions satisfies the solution of the central zero point, and the multi-level, calculus power function tree coding expansion is carried out. Ensure integerity, stability, and zero-error expansion of tree-encoded power functions.

9.3. Unary cubic equation

9.3.1. Establishment of one-dimensional cubic equation

Known: Unknown variable $X^3=x_1x_2x_3$; unit variable $X=(^3\sqrt{(x_1x_2x_3)}$; called "triple generator".

Group variable $\mathbf{D}=\mathbf{D}_1\mathbf{D}_2\mathbf{D}_3=(^3\sqrt{(\mathbf{D})})^3$, items A,B,Ccontain the mean value $(\mathbf{D}_0)=(1/3)(\mathbf{D}_1+\mathbf{D}_2+\mathbf{D}_3)$

Among them: adapting $\{x_1+x_2=x_3\}$ and $\{x_1+x_2\neq x_3\}$, both are asymmetric $\{\prod x_1x_2\neq\prod x_3\}$, and the logarithm of the circle satisfies them to become relative symmetry.

Average value of item C: $X_0^2=[(1/3)(\mathbf{x_1x_3+x_2x_3+x_3x_1})]=3[(1/3)^{-1}(\mathbf{x_1^{-1}+x_2^{-1}+x_3^{-1}})]^{-1}\cdot(x_1x_2x_3)$

Polynomial coefficients: $Bx^2=3\mathbf{D}_0x^2$; $Cx=3\mathbf{D_0^2X}=3[(1/3)(\mathbf{D}_1+\mathbf{D}_2+\mathbf{D}_3)]^2X$;

Regularization combined coefficients (1：3：3：1); sum of coefficients:$\{2\}^3=8$;

Discriminant:

(9.3.1)

$(1-\eta^2)=(^3\sqrt{(\mathbf{D})/\mathbf{D_0}})^3=(^3\sqrt{(\mathbf{D})/\mathbf{D_0}})^2=(^3\sqrt{(\mathbf{D})/\mathbf{D_0}})^1\leq 1$;

Circle logarithm:

(9.3.2)

$(1-\eta^2)=[(^3\sqrt{(\mathbf{X^3})/\mathbf{D_0}})]^3=[(^3\sqrt{(\mathbf{X^3})/\mathbf{D_0}})]^2=[(^3\sqrt{(\mathbf{X^3})/\mathbf{D_0}})]^1=\{0 \text{ to } 1\}$;

Probability circle logarithm:

(9.3.3)

$(1-\eta_H^2)=(x_1+x_2+x_3)/B=(1-\eta_{h1}^2)+(1-\eta_{h2}^2)+(1-\eta_{h3}^2)=1$;

Center Zero Symmetrical Circle Logarithm

(9.3.4)

$(1-\eta_\omega^2)=(x_1+x_2+x_3)/X_0=(1-\eta_\omega^2)^{+1}+(1-\eta_\omega^2)^{-1}=\{0,1\}$;

Circular logarithmic symmetry:

(9.3.5) $(-\eta_{12}^2)+(+\eta_3^2)=0$; or $(-\eta_{12})+(+\eta_3)=0$;

9.3.2. One-dimensional cubic equation calculation

(9.3.6)

$X^3\pm BX^2+CX\pm\mathbf{D}=X^3\pm 3X^2(\mathbf{D_0})+3X(\mathbf{D_0})^2\pm\mathbf{D}$
$=(1-\eta^2)[X_0^3\pm 3(\mathbf{D_0})X_0^2+3(\mathbf{D_0})^2X_0+\mathbf{D}_0^3]$
$=(1-\eta^2)[X_0\pm\mathbf{D}_0]^3$
$=[(1-\eta^2)(0,2)\{\mathbf{D}_0\}]^3=0$;

9.3.3. There are three calculation results for the one-dimensional cubic equation:

(9.3.7) $(X-\sqrt{\mathbf{D}})^3=[(1-\eta^2)\cdot\{0\}\cdot\mathbf{D}_0]^3=0$; (balance, rotation, subtraction);

(9.3.8) $(X+\sqrt{\mathbf{D}})^3=[(1-\eta^2)\cdot\{2\}\cdot\mathbf{D}_0]^3=8\cdot\mathbf{D}$; (precession, superposition, addition); .

(9.3.9)

$(X_0\pm\sqrt{\mathbf{D}_0})^3=[(1-\eta^2)\cdot[\{0\leftrightarrow 2\}\mathbf{D}_0]^3=\{0\leftrightarrow 8\}\cdot\mathbf{D}$; (vortex space expansion);

9.3.4. Solving the root

(A) There are two steps to solve the root: first, to solve the combined root of the equation group; second, to solve the univariate root of the combined root of the group;

(1), Symmetric distribution: A·B≠C: (1-ηω2)={0}; (1-ηH2)={0,(1/2),1}; the position of the zero point of the probability center is the same as (x2) Coincidence, the other one is symmetrically distributed with the other element. This is what traditional algebraic equations call "three real roots". It is called central ellipse, isosceles triangle, central ellipse, and the root solution of traditional one-dimensional cubic equation.

(9.3.11)

$(x_1)=[(1-\eta_{h1}^2)\mathbf{D}_0$; $\mathbf{D}_0=(x_2)$; $(x_3)=(1-\eta_{h3}^2)\mathbf{D}_0$;

(2), Asymmetric distribution: A·B≠C: such as Fibonacci sequence (A+B=C);$(1-\eta_\omega^2)=\{0,(1/2),1\}$; center zero $(1-\eta_\omega^2)=(1/2)\{\mathbf{D}_0\}$,The position of$\{\mathbf{D}_0\}$ is between(x_1x_2) and (x3), with relative symmetry of two and one elements of asymmetric distribution. An eccentric ellipse, an arbitrary triangle. The eccentric ellipse has center zero points $(1-\eta_1^2)(1-\eta_2^2)\{\mathbf{D}_0\}$ and$(1-\eta_3^2)\{\mathbf{D}_0\}$ respectively;

(9.3.12)

$(x_3)=(1-\eta_1^2)(1-\eta_3^2)\mathbf{D}_0$; $(x_{12})=(1-\eta_2^2)(1-\eta_3^2)\mathbf{D}_0$;
$(x_1)=(1-\eta_2^2)(1-\eta_3^2)\mathbf{D}_0$; $(x_2)=(1-\eta_2^2)(1-\eta_3^2)\mathbf{D}_0$;

(3), The logarithm of the circle of symmetry: A·B≠C: the logarithm of the circle is used to satisfy the symmetry,

(9.3.13) $\sum(\eta_1+\eta_2)=\sum(\eta_3)$;

For example, the traditional calculation uses "complex number" processing for symmetrical roots, and it is very difficult to process asymmetrical roots. Only the "three real roots" of circular logarithms can be solved by using the central zero point circle logarithmic symmetry.

(B), the method of solving multiple roots:

When three or more elements A+B+C, $(D_{01})=(1/3)(A+B+C)$ form the basic circle function of the triple generator, it becomes an eccentric ellipse, which is decomposed according to the level. :

(1), The first level: the center zero point is two symmetrical circular logarithmic factor groups $A\cdot B\neq C$: $(1-\eta_{\omega}^2)=\{0\}$; $(1-\eta_H^2)=\{0,(1/2),1\}$.

$A\cdot B=(1-\eta_{[1]}^2)^{K=+1)}(D_{01}^2),C=(1-\eta_{[1]}^2)^{K=-1)}(D_{01})$; $(A\cdot B)=(1-\eta)(D_{01}),C=(1+\eta)(D_{01})$。

(2), The second level: the remaining two circle logarithmic factor groups continue to be decomposed into two symmetrical groups of the next level of symmetry through the center zero point, $(A\cdot B)=(1-\eta_{[1]}^2)^{K=+1)}(D_{01}^2)$ is decomposed,$(D_{02})=(1/2)(A+B)$; $A\neq B$: $A=(1-\eta_{[2]}^2)^{K=+1)}(D_{02}),B=(1-\eta_{[2]}^2)^{K=-1)}(D_{02})$; $(1-\eta)^{K=+1)}(A),(1+\eta)C$;

(3), If there are any, until the last two logarithmic factors are left to form symmetry, so far, all univariate elements are obtained by analysis. On the contrary, all univariate elements become group combinations.

This kind of "tree code" or "time series" is generated at the center zero point hierarchy or composition level, which determines the speed, acceleration, and the depth and breadth of zero error calculation of analyzable or combined functions.

9.3.5. The meaning of solving "cubic equation":

The innovative point of cubic equation - asymmetry calculation, from the unique solution method of cubic equation can be extended to high-dimensional equations with any asymmetric distribution. Generates the "one-dimensional cubic equation" by solving infinite triples.

In number theory, "weak Goldbach conjecture: (the sum of any three elements is even)" is solved. The best result so far is that the sum of Tao Zhexuan's five prime numbers is even.

"Fibonacci sequence（A+B=C）, that is, the latter value is the sum of the former two values", which can be extended to establish a triple generator equation. Such as: electromagnetic equations are also "two asymmetric triple equations" to form a six-dimensional space calculation problem.

9.4. Unary quartic equation

9.4.1, the establishment of one yuan four times

Known: Dimension（S=4）, $X^4=x_1x_2x_3x_4=\mathbf{D}_1\mathbf{D}_2\mathbf{D}_3\mathbf{D}_4=(^4\sqrt{(\mathbf{D})}^4$; X represents a block of integers, and **D** represents a block surrounded by boundaries.

Unit group $X=(^4\sqrt{(x_1x_2x_3x_4)}=(^4\sqrt{(x)}$;

Group combination: $\mathbf{D}=\mathbf{D}_1\mathbf{D}_2\mathbf{D}_3\mathbf{D}_4=(^4\sqrt{(\mathbf{D})}^4$,

Equation C term average: $(\mathbf{D_0})$, $\mathbf{D_0}^{(-2)}=[(1/6)^{(-1)}(\mathbf{D_1}^{(-1)}+\mathbf{D_2}^{(-1)}+\mathbf{D_3}^{(-1)}+\mathbf{D_4}^{(-1)})]^{(-2)}$;

Average value of term B of equation: $(\mathbf{D_0})$, $\mathbf{D_0}^{(+1)}=[(1/4)^{(+1)}(\mathbf{D_1}^{(+1)}+\mathbf{D_2}^{(+1)}+\mathbf{D_3}^{(+1)}++\mathbf{D_3}^{(+1)})]^{(+1)}$;

Discriminant: $(1-\eta^2)=[(^4\sqrt{(\mathbf{D})}/\mathbf{D_0}]\leq 1$;

(9.4.1)
$X^4\pm BX^3+CX^2\pm DX+\mathbf{D}=(1-\eta^2)[X_0^4\pm 4\mathbf{D}_0X_0^3+6\mathbf{D}_0^2X_0^2\pm 4\mathbf{D}_0^3X_0+(\mathbf{D_0})^4]$;

Polynomial coefficients: the second item and the fourth item satisfy the regularized distribution, and the combined coefficient is 4.

regularization combined coefficients(1：4：6：4：1); sum of coefficients: $\{2\}^4=16$;

$Bx^3=4\mathbf{D}_0x^3=4[(1/4)^{(+1)}(\mathbf{D_1}^{(+1)}+\mathbf{D_2}^{(+1)}+\mathbf{D_3}^{(+1)}+\mathbf{D_4}^{(+1)})]x^3=4\mathbf{D}_0x^3$

$\mathbf{D}X^1=[(\mathbf{x_1x_2x_3+x_2x_3x_4+x_3x_2x_4+x_2x_4x_1})]x=[(\mathbf{x_1^{-1}+x_2^{-1}+x_3^{-1}+x_4^{-1}})]^{-1}x\cdot(x_1x_2x_3x_4)x=4\mathbf{D}_0^3x$;

$CX^2=[(\mathbf{x_1x_2+x_2x_3+x_3x_4+x_4x_1+x_1x_3+x_2x_4})]x^2=[(\mathbf{x_1^{-1}+x_2^{-1}+x_3^{-1}+x_4^{-1}})]^{-2}(x_1x_2x_3x_4)x^2=6\mathbf{D}_0^2x^2$;

Discriminant:

(9.4.2)
$(1-\eta^2)=\{[(^4\sqrt{(X^4)}]/[\mathbf{D_0})]\}^4=(^4\sqrt{(\mathbf{D})}/\mathbf{D_0})^4=\ldots=(^4\sqrt{(\mathbf{D})}/\mathbf{D_0})^1=[(^4\sqrt{(\mathbf{X^4})}/\mathbf{D_0})]^1\leq 1$;

Isomorphic circle logarithm:

(9.4.3)
$(1-\eta^2)=[\mathbf{D_0}^{(-1)}/\mathbf{D_0}^{(+1)}]^4=\ldots=[\mathbf{D_0}^{(-1)}/\mathbf{D_0}^{(+1)}]^4=\{0 \text{ to } 1\}$; The logarithmic relationship between the sub-term and the circle: (the fifth term with a coefficient of 1 is not calculated)

(9.4.4)
$\pm BX^3+CX^2\pm DX^1=\pm(4D_0)X^3+(6D_0^2)X^2\pm(4D_0^3)X^1$
$=(1-\eta^2)(\pm 4X_0^3 D_0^1+6X_0^2D_0^2\pm 4X_0 D_0^3)$
$=(1-\eta^2)(0\text{-}16)D_0^3$;

logarithm of probability circle

(9.4.5)
$(1-\eta_H^2)$
$=(x_1+x_2+x_3+x_4)/B=(1-\eta_{h1}^2)+(1-\eta_{h2}^2)+(1-\eta_{h3}^2)+(1-\eta_{h4}^2)=1$;

Center Zero Symmetrical Circle Logarithm

(9.4.6)
$(1-\eta_{\omega}^2)=(x_1+x_2+x_3+x_4)/X_0=(1-\eta_{\omega}^2)^{+1}+(1-\eta_{\omega}^2)^{-1}=\{0\}$;

logarithmic symmetry

(9.4.7) $(-\eta_{\omega}^2)+(+\eta_{\omega}^2)=0$; or $(-\eta_{\omega})+(+\eta_{\omega})=0$;

9.4.2. Unary quartic equation

(9.4.8)
$X^4\pm BX^3+CX^2\pm DX^1$
$=X^4\pm(4D_0)X^3+(6D_0^2)X^2\pm(4D_0^3)X^1\pm\mathbf{D}$
$=(1-\eta^2)[X_0^4\pm(4D_0)X_0^3+(6D_0^2)X_0^2\pm(4D_0^3)X_0^1\pm\mathbf{D}]$
$=(1-\eta^2)[X_0\pm\mathbf{D_0}]^4$

$=[(1-\eta^2)(0,2)\{\mathbf{D_0}\}]^4=0$;

(9.4.9) $(1-\eta^2)=\{0 \text{ or } (0 \text{ to } 1/2 \text{ to } 1) \text{ or } 1\}$;

In the formula: $(1-\eta^2)=\{0 \text{ or } 1\}$ represents the jump transition between integers of probability circle logarithm unity, $(1-\eta^2)=(0 \text{ to } 1)$, represents the continuous smooth transition between topological circle logarithms.

9.4.3. There are three calculation results for the quadratic equation in one variable:

(9.4.10) $(X-\sqrt{\mathbf{D}})^4=[(1-\eta^2)\cdot\{0\}\cdot\mathbf{D_0}]^4=0$; (balance, rotation, subtraction);

(9.4.11) $(X+\sqrt{\mathbf{D}})^4=[(1-\eta^2)\cdot\{2\}\cdot\mathbf{D_0}]^4=8\cdot\mathbf{D}$; (precession, superposition, addition); .

(9.4.12) $(X_0\pm\sqrt{\mathbf{D_0}})^4=[(1-\eta^2)\cdot[\{0\leftrightarrow 2\}\mathbf{D_0}]^4=\{0\leftrightarrow 16\}\cdot\mathbf{D}$; (Vortex space expansion);

9.4.4. The meaning of solving "quadric equation in one variable":

The innovative point of quartic equation - unified calculation of symmetry and asymmetry, from the unique solution method of quartic equation can be extended to high-dimensional equations with any asymmetric distribution. Among them, the jump transition between (real infinite) functions in graph theory and the continuous smooth transition between (latent infinite) functions are included. The most obvious example is the "four-color theorem".

9.5. The relationship between the quintic equation and the logarithm of the circle

In order to facilitate the understanding of the relationship between equations and circular logarithms, taking the general solution of the so-called century-old mathematical problem "quintic equation" as an example (including the unification of discrete-entanglement calculations), a verifiable, reliable, concise, zero error is proposed. calculate. Based on circular logarithmic isomorphism, it can prove the generalization to any higher-order equation calculation and to any higher-order neural network and dynamic control principle generalized to any system with many bodies.

Known conditions: the number of power dimension elementsS=5 remains unchanged; the average value $D_0=12$, including polynomial coefficients; it is an invariant group; boundary function D, combination coefficient: (1:5:10:10:5:1) , the sum of coefficients: $\{2\}^5=32$; (m represents the upper and lower bounds of the element combination).

This calculation example proves that:

(1), The traditional calculus univariate(x)equal-order multivariate mean function $\{X_0\}^K$ becomes an invariant group of closed combinations.

(2), $\{\mathbf{D_0}\}$ has a deterministic combination of multiple elements, the boundary function **D** is determined by the logarithm of the circle $(1-\eta^2)^K$, and the boundary function **D** determines the state of the logarithm of the circle$(1-\eta^2)^K$.

(3), The traditional calculus cannot deal with the problem of the relationship between $\{\mathbf{D_0}\}$ and **D**, which will be solved here.

The power function $K(5)/t=K(Z\pm(S=5)\pm(N=0,1,2)\pm(m)\pm(q=5))/t$ controls the depth of the five-dimensional fundamental group and breadth.

Select different boundary conditions and the logarithmic relationship of the circle: arbitrarily selected values to satisfy the conditions of the discriminant:

[Example 1]: Select the discrete zero-order boundary condition: $D=(\sqrt[5]{248832})^{K(5)/t}$;

[Example 2]: Select the first-order calculus boundary condition: $D=(\sqrt[5]{79002})^{K(5)/t}$;

[Example 3]: Select the second-order calculus boundary condition: $D=(\sqrt[5]{7962624})^{K(5)/t}$;

9.5.1. [Numerical example 1]: discrete one-variable quintic equation (zero-order calculus equation) $(1-\eta^2)^K=1$;

Known: Boundary function: $\mathbf{D}=\{12\}^5=(\sqrt[5]{248832})^{\cdot K[(S=5)\pm(N=0)\pm(q=0\leftrightarrow 5)]}$;

Power function: : $K(5)/t=K(Z\pm(S=5)\pm(N=0,1)\pm(m)\pm(q=0\leftrightarrow 5))/t$; (m represents the upper and lower limits of element change).

The dimension of the invariant group element:(S=5),$\mathbf{D_0}=12$; ((K=+1,±0±1,-1),

Discriminant:$(1-\eta^2)^{K(\pm 0,\pm 1)}=[\sqrt[5]{\mathbf{D}/\mathbf{D_0}}]^{(\pm 1,\pm 0)}=\{248832/248832\}^{(\pm 1,\pm 0)}=\{^{K5}\sqrt{248832/12}\}^{(+5)}=1$; Discrimination result: $(1-\eta^2)^{K(\pm 1,\pm 0)}=\{1 \text{或} 0\}$、K=(±1,±0); it belongs to discrete neutral (positive

and negative, conversion) big data calculation.

Calculus equation(±N=0) Zero order calculus equation, neutral function or forward and reverse balance function transformation or rotation function:

(9.5.1)

$\{x\pm\sqrt{\mathbf{D}}\}^{\mathbf{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow 5)]/t}}=Ax^{(q=5)}+Bx^{(q=4)}+Cx^{(q=3)}+Dx^{(q=2)}+Ex^{(q=1)}+\mathbf{D}$

$=x^{(q=5)}\pm 60x^{(q=4)}+1440x^{(q=3)}\pm 17280x^{(q=2)}+103680x^{(q=1)}\pm(\sqrt[5]{248832})^{(q=5)}$

$=(1-\eta^2)[x^5\pm 5\cdot 12\cdot x^4+10\cdot 12^2\cdot x^3\pm 10\cdot 12^3\cdot x^2+5\cdot 12^4\cdot x^1\pm 12^5]$

$=[(1-\eta^2)\cdot\{x_0\pm 12\}]^{\mathbf{K[(S=5)\pm(N=0,1,2)\pm\pm(q=0\leftrightarrow 5)]/t}}$

$=[(1-\eta^2)\cdot\{0,2\}\cdot\{12\}]^{\mathbf{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow 5)]/t}}$;

9.5.2. Calculation results of discrete quintic equation

（1）、Balance $(1-\eta^2)=1$、(K=±1) (neutral function), two-dimensional axis rotation, annular space, vector subtraction;

(9.5.2)
$\{x\text{-}^5\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=[\{0\}\cdot\{12\}]^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$;

(2)、Balance $(1-\eta^2)=1$、 three-dimensional axis precession and radiation (+1), vector addition;

(9.5.3)
$\{x+^5\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=[2\cdot12]^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$;

(3)、Equilibrium $(1-\eta^2)=1$, the radiation and motion of the periodic spiral space of the five-dimensional basic space of neutral photons;

(9.5.4)
$\{x\pm^5\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=[(0\leftrightarrow2)\cdot\{12\}]^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$;

(4)、Balance $(1-\eta^2)^K=0$、(K=±0) center zero symmetry expansion, balance conversion;

(9.5.5)
$\{x\text{-}^5\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=[\{0\}\cdot\{12\}]^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$;

(5)、Balance $(1-\eta^2)=0$、(K=±1), center zero symmetrical point, tree code decomposition point.

(9.5.6)
$\{x\pm^5\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=\{0\}^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t(q=0\leftrightarrow5)]/t}$;

9.6. [Numerical example 2]: Convergent quintic equation (±N=1),$(1-\eta^2)^{(+1)}\leq1$, **the calculus time represents the state.**

9.6.1. Convergence of the first-order calculus equation of the quintic equation in one variable:$(1-\eta^2)^{(+1)}\leq1$;

Boundary function: $\mathbf{D}=\{12\}^5=(^5\sqrt{79002})^{K[(S=5)\pm(N=0,1)\pm(q=1\leftrightarrow5)]}$;

Power function: K(5)/t=K(Z±(S=5)±(N=0,1)±(m)±(q=1↔5))/t ; (m represents the upper and lower limits of element change).

Features: Invariant group (S=5),$\mathbf{D}_0=12$; (K=+1,0,-1)property area,

Discriminant:
$(1-\eta^2)^{K(+1)}=[^5\sqrt{\mathbf{D}/\mathbf{D}_0}]^{K(+1)}=\{79002/248832\}^{(+1)}=\{^{K5}\sqrt{79002/12}\}^{(+5)}\leq1$; Discrimination result: $(1-\eta^2)^{K(+1)}\leq1$, belonging to convergent big data entanglement calculation, positive function),

The calculus equation (±N=1) is a first-order calculus equation, which is a convergent and decaying function; $d\{x\pm^5\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=0)\pm(q=1\leftrightarrow5)]/t}$; or $\int\{x\pm^5\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=-1)\pm(q=1\leftrightarrow5)]/t}dx$;

(9.6.1)
$\{x\pm\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\text{-}(N=0,1)\pm(q=1\leftrightarrow5)]/t}$
$=\underline{Ax}^{(q=5)}[\pm Bx^{(q=4)}+Cx^{(q=3)}\pm Dx^{(q=2)}+Ex^{(q=5)}=\mathbf{^5\sqrt{D}}^{(q=4)}\mathbf{]^K}\pm\underline{\mathbf{D}}$
$=x^{(q=5)}[\pm60x^{(q=4)}+1440x^{(q=3)}\pm17280x^{(q=2)}+(\mathbf{^5\sqrt{79002}})^{\mathbf{K(q=4)}}\mathbf{]^K}\pm\underline{\mathbf{D}}$
$=[(1-\eta^2)\cdot\{x_0\pm12\}]^{\mathbf{K((S=5)\pm(N=0,1,2)\pm(q=1\leftrightarrow5)]/t}}$
$=[(1-\eta^2)\cdot\{0,2\}\cdot\{12\}]^{\mathbf{K((S=5)\pm(N=0,1,2)\pm(q=1\leftrightarrow5)]/t}}$;

9.6.2. Calculation results of the first-order calculus equation of the one-dimensional quintic equation with convergence:

(1), Indicates balance, two-dimensional rotation, conversion, and vector subtraction.

(9.6.2)
$\{x\text{-}^5\sqrt{\mathbf{D}}\}^{\mathbf{K((S=+5)\pm(N=0,1)\pm(q=1\leftrightarrow5)]/t}}$
$=[(1-\eta^2)\cdot\{0\}\cdot\{12\}]^{\mathbf{K((S=5)\pm(N=0,1)\pm(q=1\leftrightarrow5)]/t}}=0$;

(2), Indicates balance, three-dimensional axis precession, radiation, and vector addition.

(9.6.3)
$\{x+^5\sqrt{\mathbf{D}}\}^{\mathbf{K((S=+5)\pm(N=0,1)\pm(q=1\leftrightarrow5)]/t}}$
$=[(1-\eta^2)\cdot\{2\}\cdot\{12\}]^{\mathbf{K((S=5)\pm(N=0,1)\pm(q=1\leftrightarrow5)]/t}}$;

(3), represents the convergence expansion of the periodicity of the five-dimensional basic vortex space.

(9.6.4)
$\{x\pm^5\sqrt{\mathbf{D}}\}^{\mathbf{K((S=5)\pm(N=0,1)\pm(q=1\leftrightarrow5)]/t}}$
$=(1-\eta^2)^{(+1)}[0\leftarrow\{32\cdot12^5\}\rightarrow0]^{\mathbf{K((S=5)\pm(N=0,1)\pm(q=1\leftrightarrow5)]/t}}$;

9.7. [Numerical example 3]: Diffusion type one-variable quintic second-order equation $\mathbf{(1-\eta^2)(-1)\leq1}$;

9.7.1. Diffusion-type second-order calculus equation: $\mathbf{(1-\eta^2)^{(-1)}\leq1}$;

Boundary function: $\mathbf{D}=\{12\}^5=(^5\sqrt{7962624})^{K[(S=5)\pm(N=0,1,2)\pm(q=2\leftrightarrow5)]}$;

Power function: K(5)/t=K(Z±(S=5)±(N=0,1)±(m)±(q=2↔5))/t ; (m represents the upper and lower limits of element change).

Invariant group (S=5),$\mathbf{D}_0=12$; (K=+1,0,-1) property area,

Discriminant:
$(1-\eta^2)^{K(-1)}=[^5\sqrt{\mathbf{D}/\mathbf{D}_0}]^{K(-1)}=\{7962624/248832\}^{(-1)}=\{^{K5}\sqrt{7962624/12}\}^{(-1)}\leq1$;

Discrimination result:$(1-\eta^2)^{K(-1)}\leq1$, (K=-1) control function convergence, based on {7962624≥248832} belongs to diffusion type second-order calculus equation (±N=0,1,2) , $(1-\eta^2)^{(-5)}\leq1$, satisfying the function of expansion and growth;

$\partial^2\{x\pm^5\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=0)\pm(q=0\leftrightarrow5)]/t}$; or $\partial\{x\pm^5\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\text{-}(N=-1)\text{-}(q=1\leftrightarrow5)]/t}$;
$\int^2\{x\pm^5\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)+(N=-2)+(q=2\leftrightarrow5)]/t}dx^2$; or $\int\{x\pm^5\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)+(N=-1)+(q=1\leftrightarrow5)]/t}dx$;

(9.7.1)
$\{x\pm^5\sqrt{\mathbf{D}}\}^{K[(S=5)\text{-}(N=0,1,2)\pm(q=0\leftrightarrow5)]}$
$=Ax^{(-5)}+Bx^{(-4)}+Cx^{(-3)}+Dx^{(-2)}+Ex^{(-1)}+\mathbf{D}$
$=x^5\pm60x^4+1440x^3\pm17280x^2+103680x^1\pm7962624$
$=(1-\eta^2)^{(-5)}\cdot[x^{(-5)}\pm5\cdot12\cdot x^{(-4)}+10\cdot12^2\cdot x^{(-3)}\pm10\cdot12^3\cdot x^{(-2)}+5\cdot12^4\cdot x^{(-1)}\pm12^{(-5)}]^{(-1)}$
$=[(1-\eta^2)\cdot\{x_0\pm12\}]^{K(S=5)\pm(N=0,1,2)\pm(q=2\leftrightarrow5)]/t}$;
$=[(1-\eta^2)\cdot\{0,2\}\cdot\{12\}]^{K(S=5)\pm(N=0,1,2)\pm(q=2\leftrightarrow5)]/t}$;

9.7.2. Calculation result of diffusion type quintic equation:

(1), indicating balance, two-dimensional rotation, conversion, vector subtraction,

(9.7.2)

$\{x-^5\sqrt{\mathbf{D}}\}^{K(S=5)\pm(N=0,1,2)\pm(q=2\leftrightarrow5)]/t}=[(1-\eta^2)\cdot\{0\}\cdot\{12\}]^{K(-5)/t}=0$;

(2), indicating balance, three-dimensional axis precession, radiation, and vector addition,

(9.7.3)

$\{x+^5\sqrt{\mathbf{D}}\}^{K(S=5)\pm(N=0,1,2)\pm(q=2\leftrightarrow5)]/t}=[(1-\eta^2)\cdot\{2\}\cdot\{12\}]^{(-5)/t}$;

$=(1-\eta^2)^{K(S=5)\pm(N=0,1,2)\pm(q=2\leftrightarrow5)]/t}\cdot 7962624$;

(3), represents the periodic diffusion expansion of the five-dimensional basic vortex space,

(9.7.4)

$\{x\pm^5\sqrt{\mathbf{D}}\}^{K(S=5)\pm(N=0,1,2)\pm(q=2\leftrightarrow5)]/t}$

$=(1-\eta^2)^K\cdot[0\leftarrow\{32\cdot12^5\}\rightarrow0]^{K((N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$

$=\{0\leftrightarrow7962624\leftrightarrow1\}^{K((N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$;

9.8. [Numerical example 4]: Analysis and combination:

The above three examples of "one-variable quintic equation" have the same elements - the number of clusters (S=5) and the mean function (positive, medium, and inverse eigenmodes) $\{\mathbf{D}_0\}^K$: $B=S\mathbf{D}_0=60$; $\mathbf{D}_0$ It is called eigenmode for the deterministic invariant group. Based on different boundary functions D, the composition deterministically controllable $(1-\eta^2)^K\leq1$;

According to the principle of circular logarithm isomorphism and the center zero point, it is most convenient to choose the second term coefficient of the zero-order polynomial (constituting the conceptual circle logarithm) $(1-\eta^2)B=(79002/248832)\cdot60=0.317491=19/60$; the center zero point $\mathbf{D}_0=12$, the evaluation center zero point is between $\{x_1x_2x_3\}$ and $\{x_4x_5\}$. $(\eta^2=17/60)$ formed by the center zero.

If:$\eta^2=19/60$ the test does not satisfy the symmetry, try again near the center zero: $(\eta^2=17/60)$ (to satisfy the equilibrium symmetry).

Left-right symmetry based on circular logarithmic factor: get

(9.8.1)

$(1-\eta^2)B=[(1-\eta_1^2)+(1-\eta_2^2)+(1-\eta_3^2)]-[(1-\eta_4^2)+(1-\eta_5^2)]\cdot60$

$=[(1-9/12)+(1-5/12)+(1-3/12)]-[(1+7/12)+(1+10/12)]\cdot60$

$=\underline{(17/60)-(17/60)}=0$; (to satisfy the left-right symmetry of the circular logarithmic factor).

Obtain the calculus equation element-cluster root element analysis:

(9.8.2)

$x_1=(1-\eta_1^2)\mathbf{D_0}=(1-9/12)12=3$;

$x_2=(1-\eta_2^2)\mathbf{D_0}=(1-5/12)12=7$;

$x_3=(1-\eta_3^2)\mathbf{D_0}=(1-3/12)12=9$;

$x_4=(1+\eta_4^2)\mathbf{D_0}=(1+7/12)12=19$;

$x_5=(1+\eta_5^2)\mathbf{D_0}=(1+10/12)12=22$;

Continue to analyze the multi-parameter and heterogeneity of the pattern recognition cluster set $(x)=(x_\omega)=(x_j\omega_iR_k)=(1-\eta_\omega^2)=(1-\eta_{\omega i}^2)(1-\eta_{xj}^2)(1-\eta_{Rk}^2)$,

(9.8.3)

$x_1=(1-\eta_1^2)(1-\eta_{\omega1}^2)\mathbf{D_0}=3_{\omega1}$;

$x_2=(1-\eta_2^2)(1-\eta_{\omega2}^2)\mathbf{D_0}=7_{\omega2}$;

$x_3=(1-\eta_3^2)(1-\eta_{\omega3}^2)\mathbf{D_0}=9_{\omega3}$;

$x_4=(1+\eta_4^2)(1-\eta_{\omega4}^2)\mathbf{D_0}=19_{\omega4}$;

$x_5=(1+\eta_5^2)(1-\eta_{\omega5}^2)\mathbf{D_0}=22_{\omega5}$;

Cognitive, supervised learning that becomes interpretable:

Verification:

(1)、 $\mathbf{D}=(3\cdot7\cdot9\cdot19\cdot22)=79002$(Satisfy);

(2)、

$\{x-\sqrt{\mathbf{D}}\}^5=[(1-\eta^2)\{0\}\{x_0\pm12\}]^5$

$=(1-\eta^2)[12^5-5\cdot12^5+10\cdot12^5-10\cdot12^5+5\cdot12^5-79002]$

$=0$; (satisfies the balance and symmetry formula)

For the relative symmetry composed of two uncertain elements, the center zero point can have a center zero point between the two root combinations that satisfy the circle logarithmic factor {1/2} symmetry: $\{x_A=(x_1x_2x_3x_4);x_B=(x_5)\}$; $\{x_A=(x_1x_2x_3);x_B=(x_4x_5)\}$: $\{x_A=(x_1x_2);x_B=(x_4x_5)$; $x_c=x_3\}$: $\{x_A=(x_1x_3);x_B=(x_4x_5);x_c=x_2\}$: and other forms, all must satisfy symmetry:

$x_A=(1-\eta)\mathbf{D_0}$; $x_B=(1+\eta)\mathbf{D_0}$;

The logarithm of the center zero point circle is embodied here, resulting in the same"η" corresponding to $(+\eta)=(-\eta)$ or $(1-\eta^2)^{(+1)}=(1-\eta^2)^{(-1)}$, which are two certainties , which satisfies the stability and symmetry circular logarithmic factor for covariance transformation.

The composition of x_A and x_B has reciprocal covariance and equivalent substitution, and the geometric space is converted into an elliptic function $x_{AB}=(1-\eta^2)^K\mathbf{D}_0^2$ with a long axis and a short axis, which shows that the gap between the elliptic function and the perfect circle function is $(1-\eta^2)^K$. In other words, through circular logarithmic processing, the two asymmetry functions are converted into a shared relative symmetry function, and the circular logarithmic factor is between {0 to 1/2 to 1}, with {1/2} is the synchronous expansion of the center point (in the form of any axis) to the boundary.

9.9. Unity of high-dimensional (11-dimensional) space and neural network:

In order to intuitively understand the high-dimensional space and neural network, the combination of11-dimensional=5-dimensional+6-dimensional space is selected to prove the unity of high-dimensional space and neural network.

Known: two asymmetry functions

$\{x\pm({}^{K(5)}\sqrt{\mathbf{D}})\}^{\mathbf{K}[(S=5)-(N=0,1)\pm(q=5)]/t}$,$\{x\pm({}^{K(6)}\sqrt{\mathbf{D}})\}^{\mathbf{K}[(S=6)-(N=0,1)\pm(q=6)]/t}$ and$({}^{K(11)}\sqrt{\mathbf{D}})=({}^{K(5)}\sqrt{\mathbf{D}_5})+({}^{K(6)}\sqrt{\mathbf{D}_6})$; the polynomial coefficients contain the regularization combination coefficients. Calculus order(±N=0,1,2);

(9.9.1)

$$\{x\pm\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5+6)-(N=0,1,2)\pm(q=1\leftrightarrow 5)]/t}$$
$$=Ax^{(q=11)}\pm Bx^{(q=10)}+Cx^{(q=9)}\pm\ldots\pm Px^{(q=2)}+Ex^{(q=1)}+({}^{K(11)}\sqrt{\mathbf{D}})^{(q=11)}\pm\mathbf{D}_{11}$$
$$=[(1-\eta^2)\cdot\{x_0\pm\mathbf{D}_{11}\}]^{\mathbf{K}((S=11)\pm(N=0,1,2)\pm(q=1\leftrightarrow 11)]/t}$$
$$=[(1-\eta^2)\cdot\{0,2\}\cdot\{\mathbf{D}_{011}\}]^{\mathbf{K}((S=5)\pm(N=0,1,2)\pm(q=1\leftrightarrow 11)]/t};$$

Expand in a parallel function way,

(9.9.2)

$$\{x\pm\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5+6)-(N=0,1,2)\pm(q=1\leftrightarrow 5)]/t}$$
$$=Ax^{(q=11)}\pm Bx^{(q=10)}+Cx^{(q=9)}\pm\ldots\pm Px^{(q=2)}+Ex^{(q=1)}+({}^{K(11)}\sqrt{\mathbf{D}})^{(q=11)}\pm\mathbf{D}_{11}$$
$$=[Ax^{(q=5)}\pm Bx^{(q=4)}+Cx^{(q=3)}\pm Ex^{(q=2)}+Fx^{(q=1)}\pm\mathbf{D}_5]+[Ax^{(q=6)}\pm Bx^{(q=5)}+Cx^{(q=4)}\pm Ex^{(q=3)}+Fx^{(q=2)}\pm Gx^{(q=1)}\pm\mathbf{D}_6]$$
$$=[(1-\eta^2)\cdot\{x_0\pm\mathbf{D}_{05}\}]^{K((S=5)\pm(N=0,1,2)\pm(q=1\leftrightarrow 5)]/t}$$
$$+[(1-\eta^2)\cdot\{x_0\pm\mathbf{D}_{06}\}]^{\mathbf{K}((S=6)\pm(N=0,1,2)\pm(q=1\leftrightarrow 6)]/t}$$
$$=[(1-\eta^2)\cdot\{0,2\}\cdot\{\mathbf{D}_{05}\}]^{\mathbf{K}((S=5)\pm(N=0,1,2)\pm(q=1\leftrightarrow 5)]/t}$$
$$+[(1-\eta^2)\cdot\{0,2\}\cdot\{\mathbf{D}_{06}\}]^{\mathbf{K}((S=6)\pm(N=0,1,2)\pm(q=1\leftrightarrow 6)]/t}$$
$$=[(1-\eta^2)\cdot\{0,2\}\cdot\{\mathbf{D}_{011}\}]^{\mathbf{K}((S=11)\pm(N=0,1,2)\pm(q=1\leftrightarrow 11)]/t};$$

Based on the isomorphism of circular logarithms, there is a common center-zero symmetry, that is, the center zeros of the two functions are superimposed as a center point, synchronously at $(1-\eta^2)^K=\{0\leftrightarrow(1/2)\leftrightarrow 1\}$ or $(1-\eta^2)^K=\{-1\leftrightarrow(0)\leftrightarrow+1\}$Expand:

(9.9.3) $(1-\eta^2)^K=(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=-1)}$;

Equation (9.9.3) as $(1-\eta^2)^{K(Z)/t}=\{0 \text{ or } 1\}$ in the dynamic space of the fundamental mode means that in a circular logarithmic manner between $\{\mathbf{D}_5\}$ and $\{\mathbf{D}_6\}$ or $\{\mathbf{D}_{05}\}$ and $\{\mathbf{D}_{06}\}$ jump between. Each has its own precession and rotation inside, forming a five-dimensional (triangular torus network, the element is $3^{(Kw=+1)}+2^{(Kw=-1)}$ and six-dimensional space, a distance-shaped ring network (element is $4^{(Kw=+1)}+2^{(Kw=-1)}$, or five-dimensional vortex (three-dimensional precession + two-dimensional rotation) space, or double (element is $4^{(Kw=+1)}+2^{(Kw=-1)}$ spiral space. It can also form an 11-dimensional (element is $7^{(Kw=+1)}+4^{(Kw=-1)}$ high-order network.

This network element has associative interactions, which can simulate the plasticity and stability of the human brain. That is, this kind of network learns and memorizes new knowledge unsupervised in a controllable circular logarithmic manner, and does not destroy the original knowledge during learning, and retains the memory content. This is based on the principle of self-excitation and self-inhibition dynamics of biological cells and neurons to guide learning. The output layer is for various multi-directional information transmission (including the respective parameter features of the combined neurons), and the input layer recognizes the corresponding circular logarithmic category in a controllable pattern, through bidirectional connections (including the decomposition of the respective parameter features of the neurons), Forward and reverse conversion and exchange, reception memory and recognition are performed at the center zero point of the neuron connection point to achieve synchronous resonance. It is called "adaptive resonance".

Working principle: As a neuron multivariate, the "multiplication and addition reciprocity rule" is converted from asymmetric continuous multiplication to probability continuous addition to obtain the center zero point, which satisfies the expansion of the symmetry factor (tree coding decomposition symmetry), and the working conditions are The closed feature mold is invariant, and the information transmission of circular logarithm is carried out:

Output layer: $\rightarrow(1-\eta^2)^{(Kw=+1)}=[(1-\eta_1^2)+(1-\eta_2^2)+(1-\eta_3^2)+\ldots]^{(Kw=+1)}\rightarrow$,

Center zero conversion: $\rightarrow(1-\eta^2)^{(Kw=\pm 1)}=[(1-\eta_1^2)+(1-\eta_2^2)+(1-\eta_3^2)+\ldots]^{(Kw=\pm 1)}=0\leftarrow$,

Input layer: $\leftarrow(1-\eta^2)^{(Kw=-1)}=[(1-\eta_1^2)+(1-\eta_2^2)+(1-\eta_3^2)+\ldots]^{(Kw=-1)}$,

Learning and work are achieved through memory comparison between the circular logarithmic input information mode and the output circular logarithmic mode. The process is executed by repeated automatic verification mechanism, so that when the multi-directional output and input information reach resonance, the circular logarithm of the output layer and the input layer are achieved. When the circular logarithm achieves synchronous resonance, it has zero error to reflect the learning classification (including decomposing the respective parametric characteristics of neurons). Does not affect the characteristic of the characteristic mold, so far the computer work is completed.

The reality of the cosmic space is also that an extra-large network becomes an infinitely higher-order equation, that is, "group combination-circular logarithm-neural network". Each network node (eigenmode) contains infinite neurons, which realizes the speed of infinite dimension and infinite orientation. Transmission or mutual entanglement phenomenon.

9.10. The connection between neural network and multivariable dynamic control principle

The human brain has 10^{10}-10^{12} nerve cells, these nerve cells are distributed in about 1000 main modules, each module has hundreds of neural networks, each neural network has about 100,000 nerve cells, nerve cell axons and other nerve cells. Cell dendrites or cell bodies are connected one by one, forming nerve cells (neurons) into an arbitrary hierarchical combination of mutual entanglement $\{S=[S\pm Q\pm M]\pm N\pm\ldots\pm q\}=\{q\}\in\{q_{jik}\}$ When expanded, $\{q_{jik}\}$ represents the basic space of the three-dimensional stereo generator $\{q_{jik}\}$.

(9.10.1)

$\{X^S\}$

$=\Pi_{(i=S)}\{(x_{Q1}x_{Q2}x_{Q3}\ldots x_{QQ}),(x_{M1}x_{M2}x_{M3}\ldots x_{MM}),(x_{S1}x_{S2}x_{S3}\ldots x_{SS}),\ldots\}$

$=\Pi_{(i=S)}\{(x_{Q1}x_{M1}x_{S1}\ldots x_{QQ1}),(x_{Q2}x_{M2}x_{S2}\ldots x_{MM2}),(x_{Q3}x_{M3}x_{S3}\ldots x_{SS3}),\ldots\}$

$=\Sigma_{(i=S1)}\{\Pi_{(i=S1)}(x_{Q1}x_{M1}x_{S}\ldots)+\Pi_{(i=S2)}(x_{Q2}x_{M2}x_{S2}\ldots)+\Pi_{(i=S3)}(x_{Q3}x_{M3}x_{S3}\ldots x_{SS3}),\ldots$

$=\{(1-\eta^2)\cdot\{0,2\}\cdot(\mathbf{D_0})\}^{K(Z\pm Q\pm(S=qjik)\pm((N=\pm 0,1,2)+((qjik)/t}$;

(9.10.2) $(1-\eta^2)^K=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}$;

It includes dynamic analysis, judgment, and results of nerve cell elements, and can also perform automatic verification. The circular logarithmic algorithm satisfies the arithmetic analysis of "irrelevant mathematical model, unsupervised learning" between {0 to 1}.

10. Discussion: Circular logarithmic description of the evolution of the universe

The evolution of the universe has been a hot topic of discussion among physicists since 2000. On the one hand, there are many unknown problems in the universe that need to be observed scientifically. How to conduct in-depth observation and verification? On the other hand, scientists have discovered that the macroscopic universe and microscopic particles have many similarities, and how to establish their unified mathematical model.

In particular, when contemporary mathematics has penetrated into the theoretical system of "group combination-circular logarithm", it is natural for people to ask such a question? How does the circular logarithm adapt to the evolution of the universe, and can the circular logarithm be described uniformly? Including the description of the circular logarithm model of the gauge field, thereby demonstrating the reliability, feasibility and universality of its circular logarithm with historical verification and practical experiments.

The purpose of this example is to be familiar with the parallel equation calculation method, and to further understand the circular logarithmic equation. Provide model demonstrations for compiling random programs and participate in discussions on the evolution of the universe.

10.2.1. Computational conditions for parallel/serial equations of {Ω} 11-dimensional equations in cosmic space

In the example of digital imitation, it is assumed that the universe equation consists of 11 dimensions = **5** dimensions (five smallest natural numbers **1, 2, 3, 4, 5)** + **6** dimensions (six smallest prime numbers **(1+2), 3, 5, 7, 11, 13)** numbers composition, in which under the symmetrical covariance of the center zero point, although the values of the 5th dimension and the 6th dimension are different, they have a shared circular logarithmic factor, that is to say, the 5th dimension and the 6th dimension have random covariance and equivalent permutation.

(1), [A simulation data]: known conditions: the variable is the five smallest natural numbers;

5-dimensional selection of 5 neutral primes {1,2,3,4,5} (for the central state with property invariance k=±0,±1),

Combination coefficient: $(1/C)^{K(Z\pm(S=5)}=\{1:5:10:10:5:1\}=\{2\}^5=32$;

5-dimensional boundary condition: $D=\{1\times2\times3\times4\times5\}=120$;

5-dimensional eigenmode: $\{D_0\}=(1/5)\{1+2+3+4+5\}=15/5=\{3\}$; $\{3\}^5=243$;

5-dimensional equation discriminant: $(1-\eta^2)=243/243=1$; discrete quintic equation;

(2), [B simulated data]: known conditions: the variable is the six smallest prime numbers.

Combination coefficient: $(1/C)^{K(Z\pm(S=6)}=\{1:6:15:20:15:6:1\}=\{2\}^6=64$;

6-dimensional selection of 6 prime numbers {(1+2),3,5,7,11,13}(for ionic states with property variability (k=+1,±0±1,-1),

6-dimensional eigenmode: $\{D_0\}=(1/6)\{3+3+5+7+11+13\}=42/6=\{7\}$;

6-dimensional boundary conditions: $D=\{3\times3\times5\times7\times11\times13\}=45045$; $\{7\}^6=117649$; 6-dimensional equation discriminant: $(1-\eta^2)=45045/117649\leq1$, entangled univariate six-degree equation,

(3), [C simulation data]:

Dynamic energy: [simulation data A]+[simulation data B]$=D_5+D_6=120+45045=45165$;

Static energy: [Analog data A]+[Analog data B]$=2\cdot[D_5+D_6]=2\cdot[117649+243]=235784$;

Form the power function of 11-dimensional equation: [D0Ω]K(Z±Ω±N±11)/t= [D0Ω]K(Z±Ω±N±6)/t ·[D0Ω]K(Z±Ω±N± 5)/t respectively form a circular logarithmic equation to directly calculate the value of each cosmic element.

11-dimensional selection of 6 ionic primes {3,3,5,7,11,13} + neutral primes {1,2,3,4,5}

Among them, the ionic prime number: is the ionic state with property variability k=+1,±0±1,-1) corresponding to $(1-\eta^2)^K$, (K=k=+1,±0±1,-1), respectively,

Combination factor:

$(1/C)^{K(Z\pm(S=11)}=\{1:11:55:165:330:462:462:330:165:55:11:1\}$

$=\{2\}^{11}=\{2\}^{K(5+6)}=\{2\}^{11}=64\times32=2048$;

11-dimensional eigenmode: $[D_{0\Omega}]^{K(Z\pm\Omega\pm N\pm11)/t}=[D_{0\Omega}]^{K(Z\pm\Omega\pm N\pm6)/t}\cdot[D_{0\Omega}]^{K(Z\pm\Omega\pm N\pm5)/t}$

11-dimensional boundary conditions: $[D_{\Omega}]^{K(Z\pm\Omega\pm N\pm11)/t}=[D_{\Omega}]^{K(Z\pm\Omega\pm N\pm6)/t}\cdot[D_{\Omega}]^{K(Z\pm\Omega\pm N\pm5)/t}=\{45045\cdot243\}$;

11-dimensional equation discriminant: $(1-\eta^2)=\{45045\cdot243\}/[\{7^6\}\cdot\{3^3\}]\le1$; entangled one-dimensional 11th-degree equation, reflecting the asymmetry of the universe (physically called symmetry breaking The dynamic evolution of entangled and discrete types.

The internal balance and transition conditions of the universe: satisfy the conservation of cosmic energy (ie, the invariant cosmic characteristic mode)

$[D_{0\Omega}]^{K(Z\pm\Omega\pm N\pm11)/t}=[D_{0\Omega}]^{K(Z\pm\Omega\pm N\pm6)/t}\cdot[D_{0\Omega}]^{K(Z\pm\Omega\pm N\pm5)/t}=[\{7^6\}\cdot\{3^3\}]$;

That is to say, the universe evolves arbitrarily, and cannot violate the invariance rule of the characteristic modulus $[D_{0\Omega}]$.

(4), [D simulation data] 11-dimensional numerical equation of the universe (simulate its gravitational field - weak nuclear force field - photon force field - thermal force field - strong nuclear force field - electromagnetic force field); simulate its cosmic equation, cosmic evolution, Explanation and calculation of parity non-conservation and vacuum-excited superenergy.

(1), The five discrete prime numbers (corresponding to neutral and inactive particles) are represented by the smallest natural numbers (1,2,3,4,5) corresponding to clear matter and clear energy, and the numerical value does not change during the calculation;

(2), Six prime numbers of entanglement type (active quantity particles corresponding to ionic properties) are calculated with the smallest prime numbers ((1+2),3,5,7,11,13) corresponding to dark matter and dark energy, and the values do not change during evolution;

(3), realize the synchronization of 5-dimensional$[D_{\Omega}]^{K(Z\pm\Omega\pm N\pm5)/t}$ and 6-dimensional $[D_{\Omega}]^{K(Z\pm\Omega\pm N\pm6)/t}$ at $\{0\leftarrow(1/2)\rightarrow1\}$ Expand, the superimposed center zero point (1-ηc2)K=0, corresponding to the eigenmodes {7} and {3} respectively; the center zero point superposition and overlap can make the two domain spaces synchronously expand and co-variate with each other, and the same dimension takes second place Integer (eigenmodulus) energy jumps.

10.2.1. Digital simulation of the universe equation {Ω}

As a group combined unit body, the universe has discrete states and entangled states, respectively, and undergoes vortex ring motion or evolution with a positive and negative nature. The entire universe and individual star clusters, galaxies, and planets are composed of neutral symmetry reciprocity K=(±0) (satisfying energy conservation).

For example, the initial state before observation and test (prior value, target average) and the result after observation (posterior value, average) are symmetrical. This part has the description of the reciprocity K=(±1) (neutral) with overall symmetry such as neutral light and energy conservation. The discriminant $(1-\eta^2)^K=1$ belongs to discrete quantum computing.

For example, the results after observation and experiment (posterior value, actual average value) are asymmetric, with asymmetric reciprocity K=(+1,-1) (positive, negative) description, the discriminant $(1-\eta^2)^K\le1$ belongs to entangled quantum computing.

The circular logarithmic equation proves that under the action of entanglement, the spin state and the motion state are interdependent and restrict each other.

The topological isomorphism, reciprocity, privacy, and boundary properties of circular logarithms make various nonlinear combinations, exchanges, and collections within the boundary of the universe (clusters, galaxies, planets, and microscopic particles) normalized as Multi-element 1-1 linear combination. That is to say, as long as the interaction of any two individual star clusters, galaxies, planets, and microscopic quantum particles in the whole universe is observed, the changing rules of the whole universe can be deduced. Accordingly, the scientific nature of Newton's universal gravitational-Culomb electromagnetic force can be proved. On the contrary, also established.

If it is applied to the development of quantum bits and architecture chips, the calculation program will be greatly simplified, which is conducive to realizing the high efficiency, multi-function, loss reduction, accuracy, security, boundary, privacy, openness and equality of quantum computers.

Let: the universe **Ω** is composed of any finite (11=5+6) dimensional basic generator equation: it is composed of two parallel simulated algebraic integer equations: the quintic equation of one variable belongs to discrete symmetric calculation; the six-order equation of one variable belongs to entanglement type Asymmetry calculation. The parallel/serial calculation of the eleven-dimensional equations is the superposition of the above two equations.

10.2.1. Cosmic number (calculus±N=0,1,2) equation:

(10.2.1)

$\{A({}^{K(6)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=0))/t}\pm B({}^{K(6)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=1))/t}$
$+C({}^{K(6)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=2))/t}\pm D({}^{K(6)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=3))/t}$
$+E({}^{K(6)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=4))/t}\pm F({}^{K(6)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=5))/t}$
$\pm({}^{K(6)}\sqrt{\mathbf{D}})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=6))/t}\}$
$+\{A({}^{K(5)}\sqrt{x})^{K(Z\pm(S=5)\pm(N=0,1,2)\pm(qjik=0))/t}\pm B({}^{K(5)}\sqrt{x})^{K(Z\pm(S=5)\pm(N=0,1,2)\pm(qjik=1))/t}$
$+C({}^{K(5)}\sqrt{x})^{K(Z\pm(S=5)\pm(N=0,1,2)\pm(qjik=1))/t}\pm D({}^{K(5)}\sqrt{x})^{K(Z\pm(S=5)\pm(N=0,1,2)\pm(qjik=1))/t}$
$+E({}^{K(5)}\sqrt{x})^{K(Z\pm(S=5)\pm(N=0,1,2)\pm(qjik=1))/t}\pm({}^{K(5)}\sqrt{\mathbf{D}})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=5))/t}\}$
$=\{({}^{K(6)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=0))/t}\pm 42({}^{K(6)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=1))/t}$
$+105({}^{K(6)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=1))/t}\pm 840({}^{K(6)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=1))/t}$
$+105({}^{K(6)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=1))/t}\pm 42({}^{S}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=1))/t}$
$+({}^{K(6)}\sqrt{45045})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=5))/t}\}$
$+\{A({}^{K(5)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=0))/t}\pm 15({}^{K(5)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=1))/t}$
$+30({}^{K(5)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=1))/t}\pm 30({}^{K(5)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=1))/t}$
$+15({}^{K(5)}\sqrt{x})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=1))/t}+({}^{K(5)}\sqrt{243})^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik=5))/t}\}$
$=\{x\pm({}^{K(6)}\sqrt{45045})\}^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik))/t}+\{x\pm({}^{K(5)}\sqrt{243})\}^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik))/t}$
$=(1-\eta_6^2)[x_0\pm\mathbf{7}]^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik))/t}+(1-\eta_5^2)[x_0\pm\mathbf{3}]^{K(Z\pm(S=5)\pm(N=0,1,2)\pm(qjik))/t}$
$=[(1-\eta_6^2)(0\leftrightarrow2)\cdot\{\mathbf{7}\}]^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik))/t}$
$+[(1-\eta_5^2)(0\leftrightarrow2)\cdot\{\mathbf{3}\}]^{K(Z\pm(S=5)\pm(N=0,1,2)\pm(qjik))/t}$;
$=[(1-\eta_{11}^2)(0\leftrightarrow2)\cdot\{{}^{K(2)}\sqrt{\mathbf{21}}\}]^{K(Z\pm(S=11)\pm(N=0,1,2)\pm(qjik))/t}$;

(10.2.2) $0\leq(1-\eta^2)^{K(Z\pm(S=11)\pm(N=0,1,2)\pm(qjik))/t}\leq1$;

10.2.2. There are three results of calculation (calculus ±N=0,1,2):

(1), Cosmic precession: $[(1-\eta_{11}^2)(2)\cdot\{{}^{K(2)}\sqrt{\mathbf{21}}\}]^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik))/t}$;

(2), universe conversion: $[(1-\eta_{11}^2)(0)\cdot\{{}^{K(2)}\sqrt{\mathbf{21}}\}]^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik))/t}$;

(3), Evolution of the universe: $[(1-\eta_{11}^2)(0\leftrightarrow2)\cdot\{{}^{K(2)}\sqrt{\mathbf{21}}\}]^{K(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik))/t}$;

10.2.3. Numerical calculation of universe evolution convergence and expansion (it has been assumed that the 6th dimension is an ionic state, and the 5th dimension does not change):

(1), Convergence: K=+1, elements from {7}→{3},
$(1-\eta^2)^{(K=+1)}=[\{3\}/\{7\}]^{(K=+1)(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik))/t}$;

(2), Expansion: K=-1, the element is from {7}→{13},
$(1-\eta^2)^{(K=-1)}=[\{13\}/\{7\}]^{(K=-1)(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik))/t}$;

(3), balance: K=±1, the element is from{7}→{7},
$(1-\eta^2)^{(K=\pm1)}=[\{7\}/\{7\}]^{(K=\pm1)(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik))/t}$;

(4) Conversion:Kw=±0, element {42}→{42},
$(1-\eta^2)^{(Kw=\pm0)}=[\{42\}/\{42\}]^{(Kw=\pm0)(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik))/t}$;

10.3. Mathematically simulate the relationship between the universe equation and the logarithm of the circle:

The cosmic space {**Ω**} has two states of "rotation and revolution" of planets and "radiation and spin" of quantum. They can exist independently, and it is also assumed that there can be dynamic equations of many-body eleven-dimensional space and one-dimensional time in a combined complex system.

There are five-dimensional (vortex) space and six-dimensional (Kalabi-Qiu Chengtong) space for mathematical description. Every space (group, cluster, galaxy, planet, quantum particle) has symmetry and asymmetry corresponding to the reciprocity theorem. The circular logarithm proves that under the entanglement of the six natural forces (light, gravitation, electromagnetism, hadron force, electromagnetism, and temperature), each element is interdependent and restricts each other. It becomes a three-dimensional high-dimensional vortex (precession + spin) neural network space with the (5+6) dimension as the basic generator.

The cosmological constant is called the energy invariance characteristic mode, but it is actually the cosmic quantum element of the cosmic unit (called cosmic neuron).

$\{\{X_\Omega\}=\mathbf{D}_\Omega=MC^2\}^{(Kw=\pm1)(Z\pm(S=11)\pm(N=0,1,2)+(qjik)/t}$;

The calculus equations of the dynamics of the universe (N=±0,1,2) are: zero order (transformation, singularity), first order (momentum), and second order (energy);

(1), cosmic energy:

(10.3.1)
$E=(1-\eta_\Omega^2)^{(Kw=\pm1)}\{\mathbf{D}_\Omega\}^{(Kw=\pm1)(Z\pm(S=11)\pm(N=0,1,2)+(qjik)/t}$;

(2), the dynamic equation of the universe:

(10.3.2)
$\{X_\Omega\}^{(Kw=\pm1)(Z\pm(S=11)\pm(N=0,1,2)+(qjik)/t}$
$=[(1-\eta^2)\{\mathbf{D}_{6\Omega}\}]^{(Kw=\pm1)(Z\pm(S=6)\pm(N=0,1,2)+(qjik)/t}$

$+[(1-\eta^2)\{\mathbf{D}_{5\Omega}\}]^{(Kw=\pm1)(Z\pm(S=5)\pm(N=0,1,2)+(qjik)/t}$;

(3) Forward energy≠reverse energy or reverse energy≥positive energy, which is called parity non-conservation law and spontaneous breach.

(10.3.3)

$\{X_\Omega\}^{(Kw=+1)(Z\pm(S=11)\pm(N=0,1,2)+(qjik)/t}$
$\neq\{X_\Omega\}^{(Kw=-1)(Z\pm(S=11)\pm(N=0,1,2)+(qjik)/t}$,

(4) The circular logarithmic balance equation of cosmic energy:

(10.3.4)

$(1-\eta_\Omega{}^2)^{(Kw=\pm1)(Z)/t}=(1-\eta_\Omega{}^2)^{(Kw=+1)(Z)/t}\cdot(1-\eta_\Omega{}^2)^{(Kw=-1)(Z)/t}=\{1\}$;

(5), through the circle logarithm conversion according to the symmetry circle logarithm rule:

(10.3.5)

$|(1-\eta_\Omega{}^2)]^{(Kw=\pm1)(Z\pm(S=11)\pm(N=0,1,2)+(qjik)/t}|$
$=|(1-\eta_\Omega{}^2)]^{(Kw=\pm1)(Z\pm(S=11)\pm(N=0,1,2)+(qjik)/t}|$;

(6), The cosmic rotation and the precession equation are added to form a circular logarithmic three-dimensional three-dimensional five-dimensional-six-dimensional rotating space:

(10.3.6)

$[(1-\eta_\Omega{}^2)^K\{\mathbf{D}_\Omega\}]^{K(2\pi k)(Z)/t}=\{0\leftrightarrow2\}^{K(2\pi k)(Z)/t}$;

(7), The cyclic evolution history of the universe $(1-\eta_\Omega{}^2)^K\{\mathbf{D}_\Omega\}$ cycles between$[0\cdot\{\mathbf{D}_\Omega\}]$ and$[1\cdot\{\mathbf{D}_\Omega\}]$:

(10.3.7) →the universe converges toward the center point$\{\mathbf{D}_\Omega\}^{(K=+1)}$→black hole$[0\cdot\{\mathbf{D}_\Omega\}]^{(Kw=+1)}$

→Singularity (first singularity[α]$^{(Kw[\alpha]=\pm0)}$center point conversion)

→Wormhole$[1\cdot\{\mathbf{D}_\Omega\}]^{(Kw[\alpha]=\pm1)}$

→Wormhole expansion$\{\mathbf{D}_\Omega\}^{(Kw[\alpha]=-1)}$

→(cosmic expansion process))$\{\mathbf{D}_\Omega\}^{(K=-1)}$

→(white hole)$\{\mathbf{D}_\Omega\}^{(K=-1)}$

→Singularity (the second singularity[β]$^{(Kw[\beta]=\pm0)}$ transforms to the boundary layer

→white hole convergence$\{\mathbf{D}_\Omega\}^{(Kw[\beta]=+1)}$→;

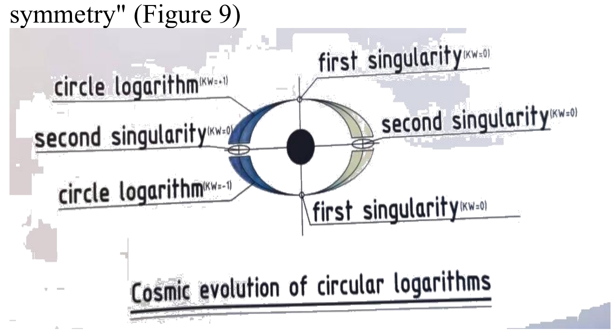
(8), The circular logarithmic equation describes the evolution history and cycles between the value {0 and 1}:

(10.3.8)

$\rightarrow(1-\eta_\Omega{}^2)^{(K=+1)(Z\pm(S=11)\pm(N=0,1,2)+(qjik)/t}$
$\rightarrow(1-\eta_\Omega{}^2)\{0\}^{(Kw=+1)}$
$\rightarrow[\alpha](1-\eta_\Omega{}^2)^{(Kw[\alpha]=\pm0)}\rightarrow(1-\eta_\Omega{}^2)^{(Kw[\alpha]=\pm1)}$
$\rightarrow(1-\eta_\Omega{}^2)^{(Kw[\alpha]=-1)}\rightarrow(1-\eta_\Omega{}^2)^{(K=-1)(Z\pm(S=11)\pm(N=0,1,2)+(qjik)/t}$
$\rightarrow(1-\eta_\Omega{}^2)\{1\}^{(K=-1)}$
$\rightarrow(1-\eta_\Omega{}^2)\{1\}^{(Kw=-1)}\rightarrow[\beta](1-\eta_\Omega{}^2)^{(Kw[\beta]=\pm0)}$
$\rightarrow(1-\eta_\Omega{}^2)^{(Kw[\beta]=+1)}$;

Among them:(Kw[α]=+1), (Kw[α]=±0), (Kw[α]=-1); (Kw[β]=+1), (Kw[β]=±0), (Kw[β]=-1) represents the transition state inside the singularity and zero point (black hole, wormhole, white hole).

The center point of the first singularity[α] is converted to the center of the black body hole; the center point of the second singularity[β] is converted to the boundary of the white body hole (parallel universe, virtual world). The traditional saying: the cyclic conversion of the universe is "mass symmetry", which is actually a phenomenon caused by "mass asymmetry", and their symmetry is described by the circular logarithm rule of conversion, which is called "relative symmetry" (Figure 9)



(Fig.13 Schematic diagram of the evolution of the universe cycle)

In the picture: the upper picture is the real (macro) world, and the lower picture is the virtual (micro) world (parallel universe). Our planetary world lives in the first quadrant world of cosmic space coordinates. The small circle in the middle is the circular logarithmic description of the eccentricity of the super universe.

In particular, the evolutionary energy of the universe $E=MC^2$ is conserved and invariant, and the energy changes in the evolution are asymmetrical. There are convergence（Kw=+1）, expansion（Kw=-1）, balance（Kw=±1）, transformation（Kw=±0）phenomenon. The circular logarithm uniformly describes the eternal and unchanging rules of evolution of the universe.

10.4. The phenomenon of digital evolution of the universe:

Interestingly, the evolution of the universe has coincidentally produced similar evolutionary effects for the six smallest prime numbers {(1+2),3,5,7,11,13} and the five smallest natural numbers {1,2,3,4,5}

There are: digital simulation (six prime numbers are called active numbers, which can have changes in nature (ionic state); five natural numbers are (neutral invariable properties, do not participate in the evolution phenomenon).

Matter-energy conversion (Note: the equation calculates three results:$(1-\eta^2)^{(K=\pm1)}=[\{0\leftrightarrow2\}\cdot(D_5+D_6)]$;

(1), Convergence: K=+1,

the elements from {7}→{3}, $(1-\eta^2)^{(K=+1)}=[\{3\}/\{7\}]^{(K=+1)(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik))/t}$;

(2), expansion: K=-1,

the element is from{7}→{13},

$(1-\eta^2)^{(K=-1)}=[\{13\}/\{7\}]^{(K=-1)(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik))/t}$;

(3), balance: K=±1,

the elements from {7}→{7}, $(1-\eta^2)^{(K=\pm1)}=[\{7\}/\{7\}]^{(K=\pm1)(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik))/t}$;

(4), conversion: Kw=±0,

the element {42}→{42}, $(1-\eta^2)^{(Kw=\pm0)}=[\{42\}/\{42\}]^{(Kw=\pm0)(Z\pm(S=6)\pm(N=0,1,2)\pm(qjik))/t}$;

[Analog data A]+[Analog data B]=D_5+D_6=243+45045=45288;

(A), mass-energy ratio

Mass-to-energy ratio: the ratio of bright matter to dark energy;

Clear matter (gravitational mass: public spin+spin): (2)×[$D_{06}+D_{05}$]=2×(117649+243)=235784;

Expansion material: $(1-\eta_{\Omega 6}{}^2)^{(K=-1)}(D_{06})^{(K=-1)(Z\pm(S=6)\pm(N=0,1,2)+(qjik)/t}=\{13^6\}^{(K=-1)}$=4826809

Dark Matter:[13^6-2×[$D_{06}+D_{05}$]]=(4826809-235784)

Bright Matter (gravitational mass): [13^6-2×[$D_{06}+D_{05}$]]=(4826809-235784)

Bright matter:Dark Matter

2·[$D_{05}+D_{06}$]:[13^6-(2)×[$D_{06}+D_{05}$]]

=(235784):(4826809-235784)

=4.88488% (bright matter) : 95.11519%(dark matter);

(B),The ratio of bright energy to dark energy;

Under the collision of high-energy particles, a vacuum appears at the point of contact between particles and particles, causing "vacuum excitation energy", or dark energy.

Bright energy (mass energy):[D_{06}]=7^6=117649; ([Spin] and [D_{05}] energy is 0, no effect)

Dark energy:

$(1-\eta_\Omega{}^2)^{(kw=-1)}$[$D_{06}$]=$13^6$=4826809;

[D_{06}]:[13^6]=117649:4826809

=1:41.02720;

(C), the ratio of vacuum collision residue to clear mass;

Under the collision of vacuum particles, the contact point leaves collision residues, causing "vacuum residual energy particles" called other unknown particles.

Clear matter (mass):[D_{06}]=[$D_{06}+D_{05}$]=7^6+3^5=117892;

Chemical residue:

$(1-\eta_\Omega{}^2)^{(kw=-1)}$[$D_{05}+D_{06}$]=$3^5+3^6$=972;

[D_{06}]:[3^6+3^5]=117892:972=121.2880:1;

comparing the numerical results (B)-(C) with the high-energy particle collision test data, the energy is expanded by 40 times, the vacuum residual energy particles are 0.00820 total particles, and the explanation for the generation of unknown particles.

(D), the ratio of bright energy to chemical energy;

Under the collision of chemical particles, a non-vacuum appears at the contact point, causing "chemical excitation energy", or chemical energy.

Bright energy (mass energy): [D_{06}]=7^6=117649;

([Spin] and [D_{05}]energy is 0, no effect)

Chemical excitation energy:

$(1-\eta_\Omega{}^2)^{(kw=-1)}$[$D_{06}$]=$11^6$=1771561;

[D_{06}]:[11^6]=117649:1771561=1:15.0580;

(E), the ratio of chemical residual substances to clear energy;

Under the collision of chemical particles, a non-vacuum appears at the contact point, causing "chemical excitation energy", or chemical energy.

Bright energy (mass energy): [D_{06}]=7^6=117649;

([Spin] and [D_{05}] energy is 0, no effect)

Chemical residue:

$(1-\eta_\Omega{}^2)^{(kw=-1)}$[$D_{06}$+]=$5^6$=15625;

[D_{06}]:[5^6]=117649:15625

=7.529:1;

(D) and (E) Results of the chemical particle reaction, the energy is expanded by 15 times, and the chemical residual energy particles are 0.13282 total particles.

(F), the ratio of light particle bright (positive) energy to light ion dark (anti) energy conversion and balance;

Under the collision of neutral particles, vacuum and non-vacuum appear at the contact point, causing "conversion or decomposition", and its own mass-energy remains unchanged, which is called inactive material.

Bright energy (mass energy): [$D_{06}+D_{05}$]=7^6+3^5=117892;

Neutral conversion energy:

$(1-\eta_\Omega{}^2)^{(kw=-1)}$[$D_{06}$]=$7^6$=117892;

[D_{06}]:[11^6]=117892:1771561=1:1;

among them: (A) and (B) calculation results: astronomical observations, high-energy particle collision test data and digital simulation calculations are surprisingly consistent. Other mechanical terms also reflect the symmetry breaking phenomenon.

From the perspective of the entire process of the evolution of the universe, asymmetrical expansion (kw=-1) will inevitably lead to asymmetrical convergence (kw=+1), and similarly asymmetrical convergence (kw=+1) will inevitably lead to asymmetrical expansion. (kw=-1), which proves that the total cyclic transformation is balanced and symmetrical (kw=+1)·(kw=-1)=1.

It can be seen that the phenomenon of asymmetry not only exists in weak force, but also exists in other fields of mechanics. The breaking of cosmic asymmetry is a universal phenomenon. This principle needs to be discussed and verified.

Especially, comparing with [S]=[S,Q,M], when $\{q_{\Omega}\}=\{11_{\Omega jik}\}$ elements are the three-dimensional generating metagroup combination of the universe. Both circular logarithms and neural networks. Through the combination of "tree coding levels" (zero order is the starting and ending point, the first tree coding (S) hierarchical equation; the second tree coding (Q) the speed and kinetic energy of the first order; the third tree coding (M) the acceleration of the second order , energy) calculus equation. The computing power of these three levels reaches $\{10\}^{(Kw=\pm1)(288.6)}$, and the accuracy always reaches zero error calculation.

That is to say, the depth of the computable universe reaches $\{10\}^{(Kw=\pm1)(288.6)}$ (the minimum boundary value of the universe "fine-tuning, microscopic") and $\{10\}^{(Kw=\pm1)(288.6)}$ (the maximum boundary value of the universe" Cosmic Chaos Particle Soup"), all particles are no different at this time. The whole universe (rotation + precession) is contained in the dynamic space of $\{10\}^{(Kw=\pm1)(288.6)}$ three-dimensional ($q_{\Omega jik}$) neural network. The universe is the largest neural network, and it controls the movement and change rules of all events in the universe in a unified, omni-directional and rapid manner.

For thousands of years, people have been discussing: whether it is science, philosophy, theology, ..., what is God? Where is he? Explanation of this article: God or "the smallest 6 prime numbers {(1+2),3,5,7,11,13} and the smallest 5 natural numbers{1,2,3,4,5}" , they form the mean value function of the universe, replace God and incarnate as the logarithmic rule, control the entire universe from the macroscopic world to the microscopic world, presenting all kinds of events in nature and the ever-changing phenomena of unity.

11. Summary and Outlook

The numbers we are familiar with are Arabic numerals, which are widely used in scientific engineering and daily life calculations to form various complex functional forms. So where are the specific functions and values expressed? That is to say, they are correspondingly reflected on the eigenmodes, and the commonality of the changes of the eigenmodes is extracted to generate circular logarithms, and the circular logarithms can be compiled into "place value system tables" with different calculation depths. Such as: logarithm of probability circle - logarithm of topological circle - logarithm of center zero point circle, which meets the requirements of symmetry calculation.

The stability of many bodies in the system, in any event that artificial intelligence responds to, is determined by three elements:

(1) The known boundary condition $D=({}^{K(S)}\sqrt{D})$, the boundary condition that the number theory object is composed of ideal numerical functions.

(2) Any events can be extracted from their common component eigenmodes (median inverse mean function) $\{D_0\}^{K(Z\pm S)/t}$.

That is, the positive and negative mean function, establish a higher-order equilibrium equation, and map it to the controllable circle logarithm of the three-dimensional three-dimensional five-dimensional spatial neural network with "irrelevant mathematical model and no specific element content".

(3) Controllable circular logarithm $(1-\eta^2)^K=\{0or(0$ to $(1/2)$ to$1)or1\}^K$ expansion, the rules of uniform change in the form of place values describe any function and between functions difference.

Therefore, as long as two of the three events can be known, the remaining number theory event can realize zero-error control calculation, and give full play to the stability of arithmetic calculation and the accuracy of zero-error.

Written as a unified formula:

(11.1) $W=(1-\eta^2)^{K(Z)/t}\cdot W_0$;

(11.2) $(1-\eta^2)^{K(Z)/t}=\{0 \text{ or } [0 \text{ to } (1/2) \text{ to } 1] \text{ or } 1\}^{K(Z)/t}$;

In the formula:W , W_0 are the event-neural network, $(1-\eta^2)^{K(Z)/t}$is the change rule of each level of the event-neural network. {0 or [0 to (1/2) to 1] or 1} is the upper and lower bounds of the change, including the jump transition between the real infinity and the continuous transition inside the latent infinity. (1/2) is the center point corresponding to all event changes.

The specific contents of the group combination-circular logarithm theorem include: proof of the reciprocity theorem (including the reciprocity of multiplication and addition); integer theorem (expanding the power function integer to become a unitary probability circular logarithm); isomorphism "P=NP" theorem (Simple and complex have consistent calculation time and become isomorphic circle logarithm); the zero point symmetry of the critical point (1/2) of the Riemann function becomes the center zero point symmetry circle logarithm, etc. It becomes the circle logarithm theorem. The circular logarithm can effectively, reasonably, reliably and controllably convert any asymmetric function (including symmetry and asymmetry, uniform and non-uniform, sparse and dense, fractal and chaos) into relatively symmetrical functions, which is called the perfect circle mode. The adaptation to the processing object is extensive, reliable and feasible. Adapt to the 3D/2D environment from the center to the surrounding or from the surrounding to the center, multi-directional, synchronous and fast information transmission, image (including audio, video, language, text, password, etc.)

zero error efficient, high computing power processing.

The circular logarithm extends to artificial intelligence corresponding to: contemporary physics, astronomy, life science, information coding, uniform and non-uniform, symmetric and asymmetric, sparse and dense, fractal and chaos, discrete and entangled phenomena of complex multi-body systems, satisfying The reform of traditional calculus-pattern recognition method realizes the unification of "discrete and entangled", "completeness and compatibility".

Chinese famous saying: The great road leads to simplicity. Any complex function can be called cognition by establishing "place value (perfect circle mode - neural network)", and the inverse process is called analysis of each specific element from "place value (perfect circle mode - neural network)", which brings the calculation circle. Logarithmic wide adaptability. In this way, all kinds of traditional functions are uniformly converted into simple circular logarithms,

The magic of group combination-circular logarithm is based on the proof and verification of a series of mathematical problems through the circular logarithm method. The practice of these problems proves that to start a problem, it must be linked to other problems. Therefore, it is difficult to solve any mathematical problem one by one. They restrict each other, depend on each other, and complement each other.

For example, among the so-called ten-century mathematical problems composed of the seven major mathematical problems in the 21st century and the three recognized mathematical problems in modern mathematics, the Clay Mathematical Institute in the United States has the skills to solve them: the most basic is the "reciprocal theorem" , and the new fundamental theorem of circular logarithm derived from it, converted into a higher-order equation, and analyzed and recognized in {0 to 1} of circular logarithm.

For example: **"Hodge's conjecture"** is a problem of integer expansion and "normalization" (involving nonlinear conversion to linear probability processing and analysis) of arbitrary functions. Only integers can be proved on the basis that the logarithm of the probability circle is 1. The extension Prove the circular logarithm theorem of probability.

For example, **"The (1/2) central zero point of Riemann's conjecture"** can conveniently find the central zero point (1/2) on the basis of the probability-topological circle logarithm, so that the probability-topological circle logarithmic symmetry is expanded to zero. The critical point (1/2) and the "prime number theorem" involving the "Riemann conjecture" and the circular logarithm "prime number theorem" and "twin prime number theorem" composed of "four prime numbers" are centered on the prime number characteristic modulus {5} Point, with the expansion of the power function, you can obtain the "prime" and "twin prime" before a known value; establish a stable isomorphic topological logarithm, and extend the proof of the central zero-point symmetry circle logarithm theorem and the prime number theorem.

Such as:**"P=NP problem"** how to prove that complex polynomials and simple polynomials have isomorphic consistent time calculation, and extend the proof of isomorphic circle logarithm theorem

Such as: "Poincaré topology conjecture" (including the unification of single-connected topology and donut topology), establish a controllable circle logarithmically close connection to become a controllable neural network, from the center to the boundary or from the boundary to the center 3D/2D, multi-body, multi-parameter, heterogeneous, multi-directional information rapid transmission, cognition and analysis of the system.

For example, the **"BSD conjecture"** involves the transformation of Fermat's last theorem inequality into a relative symmetry equation, and the unification of the Pythagorean string theorem of the sum of squares. Among them are "Fermat's Last Theorem (Wiles proves: "Perfect circle and ellipse", "rational number and irrational number" are incompatible, and the said Fermat's Last Theorem is not valid. The circular logarithm proves the inequality of reciprocity And relative symmetry equations, they have the unity of "completeness and compatibility", and can be converted and unified with each other". Fermat's last theorem becomes the symmetry and symmetry equations.

For example, **"gauge field"** describes multivariate with entanglement effect, and performs "calculation without specific mass elements". Examples of engineering applications: Maxwell's electromagnetic equations; Einstein's gravitational equations, as well as information transmission and image processing principles of neural networks. All are reflected in the mathematical equations of "univariate higher-order equations" mapped to circular logarithms - neural networks performed at controllable abstract bit values {0 to 1}.

For example: **"NS equation"** describes multivariables with discrete asymmetric effects, and carries out: "Calculations without specific spatial elements". The article was published in the American Journal of Mathematical and Statistical Sciences in April 2018, and was invited to participate in the 34th World Congress on Mechanics and Computing in New York, USA in August 2018.

For example: **"Goldbach's conjecture"** two asymmetric functions can be formed by circular logarithms to form a shared function of relative symmetry and become even. There are three calculation results of "zero", "2" and "0↔2" for the calculation results of the equation, which avoids the difficulty of expressing complex numbers in asymmetric equations. For example, the "four-color theorem" involves how to satisfy integer jump transitions between integers (tiles), and how to satisfy continuous, smooth and gapless transitions between integers. Among them, "Gauge Field", "NS Equation", and "Four Color Theorem" were all published in the American Journal of Mathematical and Statistical Sciences (JMSS) No and (2),No.(4), and 11 in 2018.

For example: **"Fermat's Last Theorem"**, which involves the conversion of inequalities into relative symmetry equations through circular logarithmic proof, was published in the American "Researchers' Journal" in November 2020.

For example, **"one-variable quintic equation"** breaks through "Abel's impossibility theorem", which enables any higher-order equation to obtain the root solution of zero-error calculation, and extends to prove the composition of multi-level neural networks.

where: the root of the multivariate becomes

(1) The eigenmode (positive and negative mean function) becomes a neural network node.

(2) The multivariate of the neural network node becomes the neuron synapse that maintains the characteristics of each element and becomes the network transmission line, which carries out multi-directional, multi-parameter and heterogeneous rapid information transmission.

Such as: engineering application examples: **Maxwell's electromagnetic equation; Einstein's gravitational equation, Yang Zhenning gauge field, higher-order equations and information transmission of neural networks, image processing principles,** etc. All are reflected in the mapping of arbitrary higher-order equations centered on the application case of "one-variable quintic equation" mathematical equations to circular logarithm-neural network.

The above series of mathematical problems are all connected by circular logarithms to form a shared circular logarithm-neural network space - a calculation of "irrelevant mathematical model, no specific element content", which is universal and reliable. , feasibility, zero error accuracy.

The circular logarithm is perhaps what many mathematicians call "the biggest, hardest, and last law of nature that man has probably yet discovered."

We have a research team composed of more than 20 people at our own expense. After decades of hard work, we have gradually established a novel and independent mathematical algorithm system. Based on limited capacity, it is inevitably incomplete and not rigorous. It is expected that domestic and foreign research institutions, experts, scholars and teachers will actively participate in and cooperate with each other to make substantial progress in the history of mathematics.

In the inheritance and innovation of the experience and achievements of the predecessors of mathematicians, circular logarithms bloom with new vitality in the mathematics-physics-world. It belongs to the crystallization of the collective efforts of all mathematicians and scientists. It belongs to all mankind. (over)

About the author:

Wang Yiping1 Researcher, Senior Engineer, Quzhou City Elderly Science and Technology Workers Association,
wyp3025149@163.com; Zhejiang324000;
Li Xiaojian 2* Professor, Ph.D.North China University of Technology Corresponding author:lxj1166@qq.com;Beijing 101144;
He Huacan 3 Professor, Ph.D. Supervisor, Northwestern Polytechnical University, hehuac@nwpu.edu.cn; Xi'an 710072

References

[1], [United States] M. Klein, Deng Dong Gao translated "Ancient and Modern Mathematical Thoughts" (Volumes 1, 2, and 3) Shanghai Science and Technology Press, August 2014
[2], [United States] John Debbie Hill, "The Love of Prime Numbers - Riemann and the Unsolved Mystery"
Mathematics, translated by Chen Weipeng, Shanghai Science and Technology Education Press, 2nd Edition, August 2009
[3], Sun Jixiang, "Modern Pattern Recognition", p793-p798 Higher Education Press, January 2, 2012
[4], Chen Na, Gu Xiaofeng, "Optimal Transmission Principle and Calculation", Higher Education Press, October 2021
[5], Xu Lizhi, "Selected Lectures on Mathematical Methodology" p47-p101 Huazhong Institute of Technology Press, first edition in April 1983
[6], Einstein's "Special and General Theory of Relativity", translated by Yang Runyin, Shanghai Science and Technology Education Press, 3rd printing in April 1979
[7], Einstein Selected Works of Einstein, translated

by Fan Dainian and Xu Liangying, Shanghai Science and Technology Education Press, 3rd Edition, April 1979
[8], Li Zhengdao, "Introduction: Prospects for the Development of Science in the 21st Century" 100 Scientific Problems in the 21st Century p5 Jilin People's Publishing House, 3rd Edition, January 2000
[9], Wu Xuemou, Pansystem Theory and Mathematical Methods, Jiangsu Education Press, 1990
[10], He Huacan, "Creating a New Paradigm of Artificial Intelligence Logic Foundation" at the Zhixin Cup 2021-12-19 conference report.
[11], Zhong Yixin, Editor-in-Chief of "Paradigm Revolution: The Only Way for Innovation in the Origin of Artificial Intelligence Theory" [Academic Frontiers] 24 Research Projects
[12], Wang Yiping, "NP-P and the Construction of Relative Basis" [US] "Journal of Mathematics and Statistical Sciences" (JCCM) 2018/9 p1-14 September 2018.
[13], Wang Yiping, Li Xiaojian, "Circular logarithm and pattern recognition analysis in "0 to 1"", "JAS" 2020/11p54-82 November 2020 edition.

4/2/2022