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Article

On the Origin and Essence of Life

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Abstract

Based on the core hypothesis that *ether = energy*, this paper proposes a three-level ether motion model (low-level motion corresponding to physical and chemical phenomena, intermediate-level motion to life phenomena, and high-level motion to consciousness phenomena), and systematically expounds the origin and essence of life. The study holds that life is an ordered intermediate-level motion form of ether (energy) organized in specific material structures, which can self-maintain and self-replicate. Focusing on intermediate-level ether motion, this paper redefines the core characteristics of life from the perspective of ether dynamics, analyzes the interdependence between life and material structures, and explores the essence of death. It also briefly mentions the basic category of high-level ether motion and demonstrates the continuous spectrum characteristics of the three-level ether motion, providing a brand-new speculative framework for the unified understanding of the physical world, life phenomena and conscious activities.

Keywords: ether; energy; essence of life; origin of life; three-level motion model; cosmic evolution

1. Introduction

What is life? This question has been an ultimate pursuit of philosophy and science since ancient times. From the mechanistic view that *life is a machine* to the vitalism that *life possesses a special vital force*, human exploration of the essence of life has never ceased [1]. Modern biology has achieved numerous great accomplishments, such as the discovery of the DNA double helix structure, the revelation of the genetic code, and the mapping of genome sequences. However, a unified answer to the fundamental question of *what exactly life is* has not yet been formed.

The core dilemma faced by current life science lies in the obvious disciplinary divide between physics, which studies *non-life*, and biology, which studies *life*. We can accurately describe the motion of atoms and molecules and detail the biochemical reactions within cells, yet we cannot answer the core question: why does a collection of atoms and molecules become a *living* organism when organized in an orderly manner? Where exactly does the *vitality* of life originate?

Based on the core hypothesis of *ether = energy* proposed by Jian'an Wang [2–5], this paper extends it to the field of life and constructs a three-level ether motion model (low-level physical motion, intermediate-level life motion, and high-level consciousness motion). It aims to focus on answering the following key questions: What is the essence of life? How did life originate? What is the relationship between life and matter? Meanwhile, it briefly outlines the basic framework of high-level ether motion and demonstrates the continuous spectrum characteristics of the three-level ether motion, providing clues for subsequent interdisciplinary research.

2. Theoretical Foundation: Ether and the Three-Level Motion Model

2.1. A Redefinition of Ether

The *ether* discussed in this paper is not the mechanical ether regarded as the medium for light propagation in 19th-century physics, but is defined as the most fundamental physical reality in the universe. Its core properties are based on Jian'an Wang's research on the modification and extension of the theory of relativity and quantum mechanics [2–6,8], specifically including:

1. **Ether = Energy:** The two are different expressions of the same entity. Mass and energy can be converted into each other ($E=mc^2$), which are essentially different forms of existence of ether.
2. **Ether pervades the universe:** Cosmic space is not a vacuum but is filled with ether (background energy), which is the scalar superposition result of all ether fields such as the gravitational field, electromagnetic field, strong interaction field, weak interaction field, and wave function [3]. This view is consistent with Jian'an Wang's conclusions on the modification of the law of universal gravitation and the research on dark matter [4].
3. **Various fields are different forms of ether aggregation:** The gravitational field, electromagnetic field and others are essentially formed by the aggregation of ether in different forms. Each particle or object carries an *ether layer* (influence range) that moves with it [2].
4. **Energy density determines the properties of space-time:** The higher the local ether density in space, the slower the time elapses and the more obvious the material contraction, satisfying the relationship ($qt = b$, energy density \times time = constant). This conclusion is derived from Jian'an Wang's modification of the special theory of relativity and his research on the temporal essence of the Mpemba effect [2,7].

2.2. The Three-Level Ether Motion Model

Based on the complexity and organizational levels of ether, this paper proposes a three-level ether motion model, where the three levels have an inheritance and emergence relationship: high-level motion relies on the support of intermediate-level motion, and intermediate-level motion relies on the support of low-level motion. Moreover, each high-level motion emerges with new laws that cannot be completely reduced to low-level motions. Centered on ether dynamics, the model integrates the essential connections between physical motion, life motion and consciousness motion, with the specific division as shown in the table below:

Level	Motion Form	Carrier/Structure	Core Laws	Typical Phenomena
Low-level	Physical and chemical motion	Macroscopic objects, elementary particles, atoms, molecules, electromagnetic waves, wave functions (ether waves)	Physical laws such as Newtonian mechanics, electromagnetism, and quantum mechanics	Object motion, chemical reactions, electromagnetic wave propagation, quantum entanglement
Intermediate-level	Life motion	Cells, organs, organisms	Metabolism, self-maintenance,	Biological activities, development, and evolution

			growth and reproduction	
High-level	Conscious motion	Neural networks, brain	Logical reasoning, subjective cognition, autonomous decision-making	Thinking activities, perceptual experience, consciousness awakening

Note: This paper focuses on the systematic interpretation of intermediate-level ether motion (life motion). As an important part of the three-level model, the detailed mechanism of high-level ether motion (conscious motion) needs further exploration through interdisciplinary research combining neuroscience and cognitive science, and is only mentioned conceptually without in-depth discussion in this paper [6].

3. The Essence of Life: Intermediate-Level Ether Motion

3.1. Definition of Life

Under the three-level ether motion model, life is an ordered intermediate-level motion form of ether organized in specific complex material structures, which can self-maintain and self-replicate. Based on the *ether = energy* hypothesis [2], this definition breaks through the limitations of traditional life definitions and clarifies the physical essence of life, including four core elements:

1. **Ether as the matrix:** Life is not a *vital force* or mysterious entity outside matter, but a motion form of ether, the fundamental reality of the universe.
2. **Material structure as the carrier:** Complex biological macromolecules such as DNA, proteins and lipids form an *energy structure scaffold*, providing the physical basis for intermediate-level ether motion. These material structures themselves are also products of the *ether field that contains and compresses ether* [2].
3. **Ordered motion as the essence:** The *vitality* of life is reflected in the orderly, dynamic and self-sustaining flow of ether in the scaffold. Cell division, metabolism and signal transduction are all specific manifestations of this ordered motion.
4. **Self-maintenance and replication as characteristics:** Life can absorb ether (food) in the form of low-level motion from the environment, convert it into energy to maintain its own ordered motion, and replicate its own energy structure (reproduction).

3.2. Life and Entropy: A Local Ordered Structure in the Cosmic Context

To understand the essence of life, it is necessary to place it in the macroscopic context of cosmic evolution and analyze it in combination with the second law of thermodynamics. Entropy is a measure of the disorder degree of a system. The second law of thermodynamics states that the total entropy of an isolated system will never decrease, but only increase or remain unchanged. This means that the universe as a whole is moving towards an increasingly disordered state in the process of expansion.

Life phenomena seem to contradict this trend: during the development of a fertilized egg into a complex organism, its internal structure becomes more and more ordered, and entropy shows a decreasing trend. The core of the contradiction is that life is not an isolated system but an open one. By continuously exchanging matter and energy with the environment, a living organism takes in low-

entropy matter (ordered energy structures) and excretes high-entropy waste (disordered energy structures), thus realizing the reduction of its internal entropy while causing an increase in environmental entropy. On the whole, the total entropy of the organism + the environment still shows an increasing trend, which is fully consistent with the second law of thermodynamics. This process is consistent with the formation mechanism of dissipative structures in non-equilibrium thermodynamics and is also a specific manifestation of the flow of ether energy.

This process can be restated in the language of ether dynamics [2,3]:

1. Low-entropy substances such as glucose and amino acids are energy structures formed by the highly ordered organization of ether.
2. Through metabolism, living organisms decompose low-entropy substances, extract the ether (energy) from them to maintain and expand their own energy structures (cell division, growth), and discharge the decomposed disordered products (CO₂, H₂O, heat) into the environment.
3. The final result is: the ether density and order of the living organism increase (entropy decreases); the ether density of the environment decreases and disorder increases (entropy increases), and the total entropy of the universe keeps increasing.

Therefore, life is a local entropy reduction phenomenon realized through energy flow against the background of the overall entropy increase of the universe. Its *existence* is not a violation of physical laws, but an exquisite utilization of them.

3.3. Energetic Dynamic Explanation of Life Characteristics (Including the Entropy Perspective)

Traditional biological explanations of life characteristics mostly stay at the level of phenomenological description. Based on the *ether = energy* hypothesis and the three-level ether motion model, the essential explanation of the core characteristics of life can be given from the perspective of energetic dynamics combined with entropy changes, as shown in the table below:

Life Characteristic	Traditional Biological Explanation	Ether Dynamic Explanation
Metabolism	Exchange of matter and energy	<i>Negative entropy pump</i> of energy structure: takes in low-entropy matter (low-level ordered energy structures), extracts ether to maintain and increase its own order (reduce its own entropy), and excretes high-entropy waste (increase environmental entropy) at the same time
Homeostasis	Stability of the internal environment	Dynamic balance of energy density: regulates the ether density in each internal region through feedback mechanisms to keep it within the range that allows the structure to survive, and resists the entropy increase trend of the environment

Irritability	Response to external stimuli	Disturbance and response of energy structure: external stimuli disturb the energy field of the living organism, and the living organism adjusts through internal energy flow to maintain structural stability and avoid uncontrolled entropy increase
Growth	Increase in volume	Expansion of energy structure: absorbs low-entropy matter from the environment according to the DNA <i>energy blueprint</i> , integrates its ether into its own energy field, and expands the structural scale (the overall order increases)
Reproduction	Production of offspring	Replication of energy structure: copies the information (DNA) of the ordered energy structure, injects energy converted from new low-entropy matter taken from the environment, and constructs a new independent energy structure – a strategy to resist individual entropy increase and continue order on the time scale
Evolution	Genetic changes in populations	Optimization algorithm of energy structure information: <i>coding errors</i> (mutations) in replication lead to the diversity of energy structures. The information of those energy structures that can more effectively take in low-entropy matter from the environment and maintain their own ordered structures is continued and diffused

3.4. The Origin of Life: Energy Phase Transition and Entropy Game in Cosmic Evolution

Life is an inevitable product of cosmic energy evolution dominated by cosmic expansion, a local entropy reduction phenomenon emerging in an entropy-increasing universe [8]. Its emergence has an evolutionary sequential connection with the emergence of high-level ether motion (consciousness) [6], but the specific evolutionary paths of the two still need further research. Based on the *ether = energy* hypothesis [2], the three-level ether motion model and the laws of cosmic evolution, the process of life origin can be divided into six key stages:

1. **Early universe:** Only low-level ether motion (elementary particles, radiation) existed, with high energy density but simple structure. The universe was in a state close to thermal equilibrium, and entropy increased rapidly.
2. **Cosmic expansion and cooling:** With the expansion of the universe, the average energy density decreased, creating conditions for the formation of complex structures. Atoms, molecules and macromolecules appeared in turn. During this process, the total entropy of the universe continued to increase, but local regions began to show uneven distribution of energy density, laying the foundation for the formation of ordered structures, which is consistent with Jian'an Wang's research conclusions on the cosmic ether distribution [4].
3. **Driving by energy flow:** Sustained energy flows such as solar radiation, geothermal heat and lightning existed on the early Earth, driving non-equilibrium processes and maintaining some regions in a state far from thermal equilibrium. According to non-equilibrium thermodynamics, under such conditions, the system may spontaneously form ordered dissipative structures to dissipate energy more effectively [9].
4. **A critical energy phase transition point:** In specific environments such as the warm shallow seas of the early Earth, organic molecules were accidentally organized into systems that could use external energy flows to maintain their own structures. These systems could take in low-entropy organic molecules from the environment, extract energy, and discharge high-entropy waste outward to achieve local entropy reduction.
5. **Conditions for phase transition:** The specific gravitational field strength on the Earth's surface made the energy structure of organic molecules reach the critical threshold for organizing life; liquid water, as a medium, could buffer temperature fluctuations (maintain stable energy density) and provide an ideal environment for the formation of energy structures.
6. **Birth of life:** The appearance of the first self-replicating energy structure such as the primitive RNA world marked the beginning of intermediate-level ether motion. Since then, energy no longer only passively followed physical laws and the entropy increase trend, but began to actively and strategically resist local entropy increase, and opened up an ordered *island* in the entropy-increasing universe through self-maintenance and replication.

In summary, the origin of life is a local entropy reduction phenomenon emerging under the drive of energy flow in an expanding and entropy-increasing universe, an inevitable result of cosmic expansion. This explanation also provides a brand-new physical perspective for the research on the origin of life.

3.5. The Boundaries Between Life and Non-Life, and Consciousness

In the three-level ether motion model, the boundaries between life (intermediate-level motion) and non-life (low-level motion), and consciousness (high-level motion) can be further defined by the organizational level and core characteristics of ether motion, with the core differences as shown in the table below:

Characteristic	Non-life (Low-level Motion)	Life (Intermediate-level Motion)	Consciousness (High-level Motion)

Energy Structure	Static or simple periodic structures (e.g., crystals)	Dynamic, complex, self-sustaining structures	Highly complex dynamic structures relying on neural networks [6]
Entropy Behavior	Passively subject to environmental entropy increase	Actively regulate entropy: reduce its own entropy through metabolism and increase environmental entropy	On the basis of entropy regulation of intermediate-level motion, realize the ordered construction at the level of subjective cognition
Energy Flow	Passively respond to external energy input (e.g., thermal expansion)	Actively absorb energy, directionally maintain its own flow, and resist entropy increase	On the basis of life energy flow, form directional transmission and integration at the level of neural signals
Core Capabilities	No self-repair or replication capabilities	Self-repair, autonomous replication, growth and development	Logical reasoning, subjective experience, autonomous decision-making [6]
Dependence Relationship	Independent of other motion levels	Rely on the support of low-level motion, and high-level motion does not necessarily emerge	Rely on the material structure of intermediate-level motion (life) as the carrier and cannot exist independently

4. The Continuous Spectrum of the Three-Level Ether Motion: Gradient Complexification of Ether Energy Structures

The three-level ether motion does not have clear-cut absolute boundaries, but is a continuous spectrum of the continuous complexification of ether energy structures in the process of cosmic evolution. From low-level physical and chemical motion to intermediate-level life motion, and then to high-level consciousness motion, it is a gradient evolutionary process of ether energy organization forms from simplicity to complexity and from disorder to order. Various material and life forms occupy different evolutionary positions in this spectrum and become bridges connecting different motion levels. This continuous evolutionary characteristic further confirms that life and consciousness are not special accidental products of the universe, but natural results of the evolution of ether energy in accordance with physical laws.

4.1. Microorganisms: A Transitional Form from Low-Level Physical Motion to Intermediate-Level Life Motion

With single cells as the basic structural unit, microorganisms are the simplest form of ether energy structures realizing *self-maintenance and self-replication*, and occupy a key transitional zone spanning from low-level physical motion to intermediate-level life motion. Their energy organization form has significant degeneracy: they only realize the absorption and dissipation of ether through the material exchange of cell membranes, complete the replication of energy structures with a simple nucleic acid and protein system, and have no complex organ differentiation and energy regulation network.

This simple energy organization method makes them maintain a close genetic relationship with pure physical and chemical motion: the life activities of microorganisms are highly dependent on the physical and chemical conditions of the environment, and their energy flow regulation mechanism is almost a direct physical response to environmental stimuli. Marginal life entities such as viruses and prions are at the midpoint of this transitional zone — viruses cannot independently complete the absorption of ether and energy flow, and must rely on the energy structure of host cells to realize replication. They themselves are only ether energy fragments with specific information, quasi-life energy structures that have not yet fully realized independent self-maintenance, and become a direct link connecting non-life and life.

4.2. Plants: A Model of Pure Intermediate-Level Ether Motion

Plants are typical intermediate-level life motion forms organized by ether energy structures. They have completed the evolutionary leap from low-level transitional forms to mature intermediate-level motion, forming a highly complex and self-consistent multicellular energy regulation system. Through chloroplasts, plants capture solar energy (ether energy in the environment), convert low-entropy inorganic substances into high-entropy organic substances through photosynthesis, and build a complete closed loop from energy capture and storage to utilization. At the same time, they have evolved the differentiation of organs such as roots, stems, leaves, flowers and fruits, formed specialized structures for energy transport (vascular tissue) and reproduction (combination of male and female gametes), and realized the stable replication and intergenerational continuation of ether energy structures.

The ether energy organization method of plants is fully equipped with all core characteristics of intermediate-level ether motion (life), but has not reached the critical complexity for the emergence of high-level consciousness motion: the regulation of their energy flow and life activities mainly relies on plant hormones and physical and chemical signals from the external environment, without specialized neural structures for the integration and processing of energy information. Ether motion always stays at the intermediate level of *life maintenance*, unable to produce subjective perception and autonomous decision-making, making plants a representative of pure and mature intermediate-level ether motion.

4.3. Lower Animals: A Bridge for Intermediate-Level Motion to Bear the Germ of High-Level Motion

On the basis of plant-level intermediate-level ether motion, lower animals have realized the further complexification of ether energy structures, becoming a key bridge connecting intermediate-level ether motion (life) and high-level ether motion (consciousness). While maintaining complete life functions such as energy capture, metabolism and reproduction, these living organisms have evolved primitive neural network structures — from the nerve net of coelenterates to the ladder-like nervous system of annelids. The flow of ether energy is no longer only used for life maintenance, but also begins to form a specialized *information transmission channel*.

The primitive neural network enables ether motion to realize self-perception in the form of *sensation* for the first time: lower animals can perceive mechanical, chemical, light and other external stimuli through nerve endings and make favorable and avoiding responses through the transmission of neural signals. This subjective perception of the environment is not mature consciousness, but a germ form of high-level ether motion, which is completely attached to the carrier of intermediate-level ether motion and cannot exist independently of the energy flow of life. At this time, the ether energy structure has begun to evolve towards a higher order of *cognizing itself and the environment*.

4.4. Higher Animals: The Pinnacle of the Complexification of Ether Motion

The ether energy structures of higher animals such as humans have evolved to the pinnacle state in the current universe (more advanced extraterrestrial life may also exist), marked by the formation of a highly developed central nervous system (brain and spinal cord). This has elevated high-level ether motion from the primitive germ of sensation to a mature conscious form with emotions, logical reasoning, abstract thinking and creativity [10]. The neural networks of higher animals form complex synaptic connections and functional partitions, which can deeply integrate, process and store neural signals transmitted by ether energy, realizing a qualitative leap from *perceiving the environment* to *cognizing oneself and transforming the environment* [6].

At this evolutionary stage, the organizational form of ether has reached an unprecedented level of complexity: it not only maintains a highly sophisticated intermediate-level ether motion (such as the coordination of complex organ systems and the precise regulation of metabolism), but also emerges high-level ether motion (consciousness) that cannot be completely reduced to low-level and intermediate-level ether motions on this basis. Here, ether is not only organized into life that can self-maintain and self-replicate, but also into conscious entities with subjective existence — capable of producing emotional experiences, making logical judgments, formulating behavioral strategies, and even thinking about the existence of the universe and itself. From mammals to humans, the complexity of high-level ether motion continues to increase, and the human brain has become the most complex carrier of ether energy structures known so far, realizing the highest-level expression of ether motion.

4.5. Core Enlightenment of the Continuous Spectrum

The continuous spectrum of the three-level ether motion reveals a core law: life and consciousness are not mysterious exceptional existences, but natural products emerging gradually from low-level motion through the continuous complexification of ether energy structures against the background of cosmic expansion and entropy increase. From the quasi-life energy fragments of viruses to the simple life structures of microorganisms, to the pure intermediate-level ether motion of plants, the germ of consciousness in lower animals, and finally to the mature consciousness of higher animals, each form is an inevitable stage in the evolution of ether energy structures, and each opens up an ordered *island* in the expanding and entropy-increasing universe by *exquisitely utilizing* physical laws in its own unique way.

This continuous evolutionary process always abides by the second law of thermodynamics and the law of conservation of energy: every complexification of the ether energy structure is at the cost of absorbing low-entropy energy from the environment and discharging high-entropy waste into the environment, and local entropy reduction is always accompanied by the overall entropy increase of the universe. The emergence of life and consciousness is not a breakthrough of physical laws, but an

ultimate utilization and wonderful interpretation of physical laws by ether energy in cosmic evolution.

5. The Essence of Death: The Disintegration of Energy Structures Leading to the Termination of Sustaining Intermediate-Level Ether Motion

Based on the three-level ether motion model, the essence of death can be clearly defined: death is the process in which the complex material structures sustaining intermediate-level ether motion suffer irreversible damage, leading to the termination of ordered energy motion (intermediate-level ether motion); at the same time, the high-level ether motion (consciousness) relying on intermediate-level motion as the carrier also dissipates accordingly. This definition reveals the physical essence of death from the perspective of ether dynamics.

5.1. The Physical Process of Death

Death is an irreversible process from order to disorder and from local low entropy to environmental high entropy. Combined with the evolutionary laws of ether energy, its core physical steps are:

1. **Structural damage:** Factors such as disease, trauma and aging lead to the damage of the structural integrity of cells, tissues and organs. These material structures are the *energy structure scaffold* of intermediate-level ether motion and the basic condition for maintaining local low entropy; at the same time, the neural network structure is irreversibly damaged, and the carrier of high-level ether motion no longer exists.
2. **Motion cessation:** The damage of the *energy structure scaffold* makes it impossible to maintain the ordered flow of ether, leading to the termination of metabolism, the cessation of cell division and the loss of organ functions. The ordered, self-sustaining energy flow in the living organism gradually weakens until it stops completely, and the mechanism of local entropy reduction fails completely; the high-level ether motion (consciousness) relying on neural networks also terminates accordingly. Vegetative state is a phenomenon where high-level ether motion (consciousness) terminates but intermediate-level ether motion (life) still exists.
3. **Energy dissipation:** The local high-density ether field of the living organism begins to disintegrate, and ordered energy is converted into disordered energy such as heat, which dissipates into the environment in the form of infrared radiation. The temperature of the living organism gradually reaches equilibrium with the environment, a process in which entropy increases sharply.
4. **Return to low-level motion:** The atoms and molecules constituting life still exist and continue to participate in physical and chemical motion (low-level motion), but can no longer be organized into ordered intermediate-level ether motion, returning to a part of the inorganic nature and simply following physical laws and the entropy increase trend.

5.2. Death and the Conservation of Energy as Well as Entropy Increase

Death does not mean the *disappearance of energy*. Ether (energy) itself is not annihilated, but only its form of existence changes. This process is fully consistent with the law of conservation of energy:

1. **Before death:** Energy exists in the living organism in a highly ordered, localized low-entropy form, supporting complex intermediate-level ether motion and providing an energy basis for high-level ether motion (consciousness).
2. **After death:** Energy returns to the environment in a disordered, diffused high-entropy form, participating in low-level motions such as physical and chemical processes (e.g., heat loss, chemical energy of decomposition products); high-level ether motion no longer exists due to the loss of its carrier, and its corresponding energy form is also converted into disordered energy and returns to the environment.

Therefore, the core of death is the *termination of ordered intermediate-level ether motion*, the failure of the local entropy reduction mechanism, and the process in which the living organism is forced to return to the overall entropy increase current of the universe; it is also the process of the dissipation of high-level ether motion (consciousness). The matter and energy constituting life always exist, but lose the special organizational way that can resist local entropy increase and the complex structural basis supporting high-level motion.

5.3. Consistency with the Second Law of Thermodynamics

The complete life process — from birth, development and maturity to death — is highly consistent with the second law of thermodynamics and always follows the law of the increase of the total entropy of the universe:

1. **Birth and development:** Living organisms achieve local entropy reduction by taking in low-entropy matter from the environment, but this process will lead to a greater increase in environmental entropy, and the total entropy of the universe will eventually increase; at the same time, the development of neural networks and the germination of high-level ether motion are essentially also processes of local entropy reduction, also at the cost of environmental entropy increase.
2. **Maturity stage:** Living organisms maintain a dynamic balance, take in low entropy and discharge high entropy through continuous metabolism, and continuously increase environmental entropy while maintaining their own order; the operation of high-level ether motion also relies on the continuous supply of energy, also following the entropy increase law.
3. **Death:** The mechanism maintaining local entropy reduction fails, the ordered structure of the living organism collapses, and the stored *negative entropy* is released and returns to the environment, accelerating the overall entropy increase process of the universe, and finally being completely consistent with the entropy increase trend of the universe; high-level ether motion dissipates due to carrier damage, and its corresponding ordered energy is also converted into disordered energy, further promoting entropy increase.

Life is a short and wonderful local entropy reduction episode realized through energy flow against the background of the overall entropy increase of the universe, and consciousness, as a high-level ether motion, is a more complex ordered expression in this episode [6,11]. Their existence itself is a way for the universe to know itself through its own evolution.

6. Discussion

6.1. Significance of the Theory

1. **Constructing a unified framework:** Integrating the physical world, life phenomena and conscious activities into the same ontological system of *ether = energy* [2,3], bridging the conceptual gaps between *non-life* and *life*, and *life* and *consciousness*, and proving that life and consciousness are not mysterious exceptions but inevitable products of cosmic expansion and energy evolution.
2. **Deepening the explanation of life characteristics:** Providing a physical basis of energetic dynamics for the core characteristics of life such as metabolism, homeostasis, growth and reproduction, moving from *phenomenological description* to *law derivation*, and explaining the internal causes of life characteristics.
3. **Compatibility with existing biology:** The three-level ether motion model is compatible with the basic discoveries of molecular biology, cell biology and developmental biology. At the same time, it provides an in-depth explanation of phenomena such as the DNA double helix structure, protein folding and cell differentiation from the perspective of *energy structure* [2]; the description of the correlation between consciousness and neural networks is also consistent with the basic cognition of neuroscience [6].

4. **Providing a new perspective for interdisciplinary research:** Regarding diseases as *abnormal energy structures* and treatment as *restoring the ordered flow of ether energy* may inspire new medical research ideas; at the same time, the three-level model builds a bridge for interdisciplinary research between life science, cognitive science and physics, and provides a brand-new physical perspective for exploring the origin of consciousness.
5. **Improving evolutionary cognition:** Proposing the continuous spectrum characteristic of the three-level ether motion, breaking through the absolute division of motion levels, explaining the evolutionary process from non-life to life and from life to consciousness from the perspective of gradient evolution, and providing a more coherent speculative perspective for understanding the evolution of the universe and life.

6.2. Limitations of the Theory

1. **Inability to explain specific operational mechanisms:** This theory can answer *why* life exists (an inevitable result of energy complexification), but cannot explain the specific details of life operation, such as how DNA replicates accurately and how enzymes catalyze reactions. These problems still need molecular biology to provide specific mechanisms; the description of high-level ether motion (consciousness) only stays at the conceptual level, and its specific energy flow mechanism and precise corresponding relationship with neural networks still need further interdisciplinary research [6].
2. **Compatibility issues with mainstream physics:** This theory relies on the specific interpretation and modification of the theory of relativity and quantum mechanics [2,3], which is in fundamental conflict with the core views of mainstream physics. If these modifications cannot be verified, the foundation of the theory will be shaken.
3. **Unresolved boundary issues:** Although the classification of marginal life entities such as viruses and prions can be initially explained by *viruses being incomplete energy structures*, further theoretical discussion and experimental verification are still needed; issues such as the emergence threshold of consciousness (high-level motion) and the hierarchical differences of consciousness in different species have not yet formed clear judgment criteria.
4. **Lack of quantitative research on the continuous spectrum:** This theory proposes the continuous spectrum characteristic of the three-level ether motion, but has not yet made a quantitative definition of the complexification degree of ether energy structures, cannot accurately judge the specific evolutionary positions of different life forms in the spectrum, and lacks quantifiable research indicators and methods.

7. Conclusion

Based on the core hypothesis of *ether = energy* [2,3] and the three-level ether motion model, through systematic analysis, this paper draws the following core conclusions:

1. **The essence of life:** Life is an ordered intermediate-level motion form of ether organized in specific complex material structures, which can self-maintain and self-replicate. It is not a *vital force* outside matter, but an inevitable product of energy evolution in the process of cosmic expansion, a local entropy reduction phenomenon realized against the background of the overall entropy increase of the universe.
2. **The relationship between life, matter and consciousness:** The material structures such as DNA and proteins in living organisms are the *scaffolds* and *tracks* of ether energy motion, and the two are two sides of the same coin — the damage of material structures leads to the termination of energy motion, and the cessation of energy motion leads to the disintegration of material structures; as a high-level ether motion, consciousness must take the material structure (neural network) of intermediate-level ether motion (life) as the carrier, cannot exist independently, and its emergence is a higher-order expression of cosmic energy evolution [6].

3. **The origin of life:** Life does not originate from accidental chemical accidents, but a local entropy reduction structure emerging from non-equilibrium systems under the drive of continuous energy flow in the process of cosmic expansion [2]. When the universe cools to a stage suitable for the formation of complex structures, on planets with liquid water and an appropriate gravitational field, energy will spontaneously organize into self-sustaining structures, life is thus born, and starts a journey to resist local entropy increase in the entropy-increasing universe.
4. **The development of life:** The process from a fertilized egg to an independent life is a process in which the potential energy structure, triggered by external energy, gradually constructs a self-sustaining system through ordered energy flow such as cell division, differentiation and morphogenesis — a process in which the entropy of the living organism decreases significantly; at the same time, the development of neural networks lays the foundation for the germination of high-level ether motion (consciousness).
5. **The essence of death:** Death is the process in which the material structures sustaining ordered intermediate-level ether motion suffer irreversible damage, leading to the termination of intermediate-level ether motion. Energy itself abides by the law of conservation and will not perish, but the ordered energy structure disintegrates, the local entropy reduction mechanism fails, and the living organism finally returns to the overall entropy increase current of the universe; the high-level ether motion (consciousness) relying on the carrier of intermediate-level ether motion also dissipates accordingly.
6. **Evolutionary characteristics of the three-level ether motion:** The three-level ether motion has no absolute boundaries, but is a continuous spectrum of the continuous complexification of ether energy structures. Microorganisms are transitional forms from low-level ether motion to intermediate-level ether motion, plants are models of pure intermediate-level ether motion, lower animals are bridges for intermediate-level ether motion to bear the germ of high-level ether motion, and higher animals are the pinnacle of the complexification of ether motion. This spectrum confirms that life and consciousness are the results of the natural evolution of cosmic expansion and energy.

This theoretical framework provides a brand-new speculative basis for the unified understanding of the physical world, life phenomena and conscious activities. Life is not a violation of physical laws, but an exquisite utilization of physical laws — especially the second law of thermodynamics; consciousness, as a high-level ether motion, is a higher-order extension of the order of life. In the entropy-increasing universe, life and consciousness together form a bright entropy reduction landscape, and their existence itself is a way for the universe to know itself through its own evolution. Moreover, the continuous spectrum characteristic of the three-level ether motion makes the process of this cosmic evolution more coherent and clear, providing brand-new ideas for subsequent exploration of the mysteries of the evolution of the universe and life.

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