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Space and Time—The Sixth Time Using the Philosophical Principles of Cosmic Origin to Solve the Theoretical Contradiction between Quantum Mechanics and Relativity

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Abstract

Space and time are linguistic, words, and numerical descriptions that humans use to represent the domains and processes of human and material existence. They form the fundamental questions of human philosophical thought. Some 2500 years ago, the philosophy of the cosmic origins contemplated space and the existence within it. Aristotle's philosophy of matter pulled human philosophical inquiry down from the heavens to the earth, initiating the exploration of material philosophy and material science (Russell, 2017). This shift set aside the concept of space and the existence within space, treating time as a concrete existence (Liu, 2025a). Leaving behind the trap of Aristotelian material philosophy. Humanity then marched forward, probing into material science and material philosophy, until the advent of modern science—quantum mechanics and relativity—reached the pinnacle of material science. The resulting "theoretical contradictions" in these modern theories forced a renewed consideration of space and time. Humans have defined the terms "space" and "time," but without clarifying what space and time truly are, we cannot resolve these theoretical contradictions in modern physics. This will hinder scientific progress and affect our understanding of existence and survival. Building upon six articles published in the UK discussing cosmic origins (Liu, 2024a) and five articles published in the US on the "theoretical contradictions" of quantum mechanics and relativity, as well as the author's previously published books and all related articles (please see all the references), this paper continues the inquiry into these fundamental philosophical issues that humanity has created, Resolving the "theoretical contradiction" between quantum mechanics and relativity.

Keywords

Space, Time, Energy, Matter, Information, Human Thought,
Daoist Philosophy, Buddhist Philosophy, Cosmic Origins Philosophy,
Material Philosophy, Structure and Configuration

1. Literature Review

1.1. Revering Space

Currently, the scientific knowledge and information humans possess pertains only to the concept of "matter" (Liu, 2024g). It is inappropriate to use the concept of matter to understand and name space. Human language, words, and numbers merely use the external forms of existence to express space. Expressions of space cannot be separated from existence: as many forms of existence as there are, there are as many forms of spatial expression as there are types of existence.

Existence in space is an eternal object of human exploration. Without fully understanding "existence," we cannot clearly express space, and the theoretical contradiction between quantum mechanics and relativity cannot be resolved.

The concept of space and time is not clearly expressed, or the origin of space and time is not clear, which is the core problem of the "theoretical contradiction" between relativity and quantum mechanics.

Science proves that Einstein's theory of the curvature of space-time (general relativity) is correct. But what is the concept and origin of this time and space?

The theoretical community takes seriously the question of a PhD in engineering science: What is space? What is time?

This question is the supreme philosophical question of human thought. More than 2000 years ago, the lack of logical and thoughtful information made Aristide shelve the problem of space (Refs. 1-26; Aristotle, 2019, 2016). There is no answer yet. Time is human's artificial description of natural phenomena, such as year, month, day, hour and second, in order to facilitate the expression of the process of material existence (cf. 1-26). For such a supreme philosophical question without an answer, whether the scientific community or a theoretical scientist has the right to evaluate or express whether it is curved or not. This is a serious philosophical question of science.

When the concept and origin created by human beings with language, words and numbers can not be expressed, what is the "space-time bending" proved by science? This is a major problem that violates the basic principles of philosophy and basic logic and falls into the trap of Aristotle's material philosophy. (Liu, 2024e)

The theoretical scientific community has made one of the most basic philosophical logic errors, but it is also a reality of the stage of human development. Space and time are the most basic philosophical questions to which mankind has yet to find an answer.

Specifically, the "domain" in which the material of the three-dimensional world exists is called "space"; The process of existence is called time. However, this is not the complete concept of "space" and "time", let alone the original. Judging from the analysis of the cosmic original philosophy: space is the matrix of all existence; Mechanics is the perception between existence; Time is the human perception and artificial expression of the process of existence (Liu, 2024g).

Quantum mechanics and relativity have brought new scientific information to human beings, and there is an opportunity to re-understand "space" and "time". The concept of time and space in the cosmic origin of our ancestors 2500 years ago can be referred to and discussed in this paper.

Question: Physics usually expresses space as three-dimensional, calling it three-dimensional space. This includes parameters like time, position, mass, change, and velocity. Is it correct to call space three-dimensional? Within the three-dimensional universe, calling space three-dimensional is undoubtedly correct—thanks to Descartes' three-dimensional coordinate system, we can carry out mathematical calculations and physical research in a three-dimensional material universe.

However, from the perspective of cosmic origins, this is not correct because we are using the external form of material existence to define the domain of material existence. From the principles of cosmic origins, matter comes from the "non" and "empty" aspects of non-material energy and information (Liu, 2024e). The existence of energy and information is non-material and has no dimension (Liu, 2024f). Analyzing from the perspective of energy science and information science, we need to re-examine the space of energy and information (Liu, 2024g, 2025a, 2025b). This is because what fills the entire space is not matter, but energy and information. Matter is merely one form of energy. Even in the so-called three-dimensional material universe, matter only occupies about 4.9% (Hiroshi Ohguri, 2015).

Therefore, it is inappropriate to express space using dimensions. We can call the universe a dimensional universe in which existence can have describable dimensions—three dimensions, zero dimensions, or other dimensions (Liu, 2020, 2021a, 2021b, 2021c). Space itself is "Tan 惔" (an ancient, reverential reference). It is "empty, void," dimensionless (Liu, 2024b), and is the "womb" that is so vast it lacks an outside boundary and so tiny it lacks an inside boundary 其大无外，其小无内 (Liu, 2024g). From the information humans currently possess, if energy and information are the "children" of the universe, then matter and humanity are the "grandchildren"—all are existences within space.

Definition of space in the "Cihai" 辞海 (Comprehensive Dictionary): (Edited by Xia, 1999: p. 4809).

In philosophy, together with "time," space constitutes the two fundamental forms of the existence of moving matter. Space refers to the extension of material existence; time refers to the duration and sequence of material motion. Space and time are objective and inseparable from moving matter. There is no space and

time independent of matter in motion, and no matter in motion that is not in space and time. Space and time are also interconnected. The development of modern physics, especially relativity, proves that space and time have an inseparable relationship with moving matter. Space and time unify the infinite and finite. For the universe as a whole, space is boundless and time is without beginning or end. For each concrete entity, space and time are finite. We measure space in meters and its subdivisions (e.g., centimeters, micrometers) or multiples (e.g., kilometers). To measure distances between celestial bodies, we use astronomical units, light-years, and parsecs.

This concept from the "Cihai" is cited here not to judge its correctness but to serve as a basis for thought.

Definition of space in the "Great Dictionary of Physics": (Dou, 2017: p. 3).

It is very cautious in defining space. Instead of defining space alone, it describes space together with time. It states:

Space reflects the extension of material motion. The distance between two points in space is called length. Time and space are two fundamental physical quantities whose connotations and properties continuously change and enrich as understanding deepens. Assigning different properties and structures to time and space leads to different theoretical frameworks. In physics, time is usually assumed to be homogeneous, and space is assumed to be homogeneous and isotropic. These assumptions are related to the conservation laws of energy, momentum, and angular momentum. In Newtonian mechanics, time and space are absolute, and space is flat, as described by Euclidean geometry. In relativity, time and space are regarded as one entity called spacetime. Spacetime no longer has an absolute meaning and depends on the reference frame. In special relativity, spacetime is flat and described by Minkowski geometry; in general relativity, spacetime is curved and described by Riemannian geometry.

Comparing the definitions and descriptions of space in these two reference works, the "Great Dictionary of Physics" leans more toward a dialectical philosophical outlook of cosmic origins. Modern scientific information from quantum mechanics and relativity once again offers humanity opportunities to reconsider space and time. Space and time are eternal topics of human exploration. Space is the womb, and we should revere space.

From the above definition analysis, science and physics of the philosophical definition of space is not uniform. Logically, scientific conclusions based on the understanding of space on the basis of inconsistency and contradictions will inevitably appear.

Any existence within space is a child-existence of space. We can use space to describe the form and domain of existence, but we cannot tie space together with that existence.

1.2. Clarifying the Concept and Origin of Time

Currently, humans, based on the scientific knowledge and information they possess, have defined the concept of time: years, months, days, hours, minutes, and

seconds. Undoubtedly, this represents a form of human ingenuity. However, what is the original nature of time? What kind of existence is it? By defining the concept of time, humans have, in a sense, been perplexed by it.

In fact, time is merely a conceptual tool humans created to describe the processes of existence. It is a man-made conceptual construct (Liu & Liu, 2021a). Once we invented this concept and became adept at applying it to describe material existence processes, we must ask: how should we describe the "time" of energy and information? For this, new thinking is necessary (Liu, 2024f, 2024g). We must clarify the concept and origin of time.

In the "Cihai" (Xia, 1999: pp. 3726-3727), definitions are given for "shi 时" (time/season), "Shijian 时间" (time), and "shikongguan 时空观" (view of space-time):

Shi 时 (Time/Season): Refers to seasons, such as the four seasons of spring, summer, autumn, and winter. Evidently, humans first scientifically observed the phenomenon of four seasons and then used language, words, and numbers to define it as "shi 时."

Shijian 时间 (Time): Refers to the measurement of time, including both intervals and instants. The former refers to the stages through which material motion passes, and the latter refers to a particular moment of material motion, generally based on Earth's rotation. It points to the duration and sequence of motion processes. See also space.

Shikongguan 时空观 (View of Space-Time): Refers to fundamental views on time and space. Idealism denies that time and space are forms of material existence, viewing them as products of consciousness or ideas. Metaphysical materialism acknowledges the objective reality of time and space but does not understand their inseparability from material motion. Dialectical materialism holds that time and space are forms of existence of moving matter and possess objectivity. At the same time, it considers that people's conceptions of time and space are relative and changeable. Time, space, and moving matter are inseparably connected.

Definition of Time in the "Great Dictionary of Physics": (Dou, 2017: p. 3).

Time: Time characterizes the duration of material motion and has a unidirectional, measurable nature. The standards for measuring time and length change continuously with the development of science and technology. Currently, the standard for measuring time is based on the radiation frequency corresponding to the transition between two hyperfine energy levels of the cesium-133 atom, ν = 9,192,631,770 Hz. One second is defined as 1 s = 9,192,631,770/ν. In 1983, the 17th International Conference on Weights and Measures used the constant speed of light in a vacuum (c = 299,792,458 m/s) to define the unit of length, stipulating that 1 meter is the distance light travels in a vacuum in 1/299,792,458 of a second.

A concept defined by human philosophical thought, what kind of existence is time?

Answer: It is essentially nothing but a concept created by humans and existence to perceive the process of existence (References 1-26), defined by human language,

writing, and numbers. If approached from the perspective of material philosophy, it may lead to confusion. From the philosophy of cosmic origins, however, it does not cause confusion. Time is simply a scientifically constructed concept derived from natural phenomena for the convenience of human survival.

From the physical analysis: time is the existence process of the thermodynamic occurrence and equilibrium of the universe defined and named by humans, and all kinds of existence will naturally perceive and participate in this process. (Liu, 2024g)

Human definitions of time have become increasingly clear and precise. We must do so because the concept of time is crucial to humanity. Without the concept of time, we would have nothing. However, if we do not clarify the original essence of the concept of time, we will be perplexed by it.

Within the framework of material philosophy, the issues of space and time have become commonplace. When confronted with contradictions in modern physics, re-examining the philosophical thoughts on cosmic origins passed down by our ancestors provides a new avenue for resolving the contradictions in human thought (Liu, 2024e, 2024f, 2024g, 2025a, 2025b).

Understanding this perspective is beneficial for human existence and survival. Humanity can think—this is called philosophical thinking (Liu & Liu, 2020).

2. Material Space and Time

Contemplation of space and time in the West is called "philosophy," while in the East, it is referred to as "absolute studies 绝学," a discipline that inquires into the absolute nature of information and knowledge (Liu & Liu, 2020).

The author, unfamiliar with Western philosophy, read some Western philosophical works with great effort in order to understand the concepts of "emptiness" (kōng) and "nothingness" (wú), and to learn materialist dialectics. However, this effort still did not make the author an insider in the field (Liu, 2024a).

2.1. Western Philosophical Perspectives on Space and Time

From studying Western philosophy, an immature observation arises: from ancient Greek through classical to modern Western philosophy, there is a clear and scientific conceptual understanding of three-dimensional, material cosmic space. However, the fundamental origin of space itself is not clearly studied or described, and is even avoided. It would be helpful if Western philosophers could clarify whether there is a concrete description of the fundamental origin of "space." The author only finds that Western philosophers have extensively studied concepts, phenomena, contradictions, and existential foundations, rather than clarifying the original nature of space (Liu, 2024g).

Even in the context of divine and empty cosmological origins—such as Thales's "All things are full of gods," Anaximander's "Apeiron," Anaximenes's "Air," Pythagoras's "All is number," Xenophanes's "God is everywhere," Parmenides's "Being," Heraclitus's "Logos," Democritus's "Atoms and Void," and Empedocles's

theory of the four roots (water, fire, air, earth)—these sacred, empty concepts were neither affirmed nor definitively denied in Aristotle's Physics and Metaphysics. Instead, these notions of sacred emptiness were partially handed over to theology and metaphysics, and partially to scientific philosophy (Liu, 2024g; Aristotle, 2016; Aristotle, 2019).

Based on Aristotle's material philosophical thought, Western classical philosophy closely supported scientific progress, encouraging advancements in mathematical methods, logical methods, and the philosophical frameworks of scientific thought. Yet even with the advent of modern science, there has been no notable progress in understanding the concept and fundamental nature of space, nor the concept and nature of emptiness and divine existence. This very issue, while enabling the rapid development of Western science, also underpins the theoretical contradictions in quantum mechanics and relativity. It has led some scientists to grow disillusioned with Western philosophy, giving rise to the claim that "philosophy is dead." Strangely, physicists, without fully realizing it, have blazed a philosophical trail back to cosmic origins through mechanics, energy, and information sciences (Liu, 2024e). With the advent of quantum mechanics came the scientific theory of creation. (Liu, 2024e)

Curiously, physicists themselves are unaware of this achievement. They even believe their own theories contain contradictions, and some proclaim that philosophy is unnecessary. Why is this so? (Liu, 2024c, 2024e, 2024f, 2024g, 2025a, 2025b). Because they have forgotten the fundamental origin of space. Space is the mother body of all material and non-material existences—of the sacred, the empty. They have forgotten the concept and original nature of emptiness and divinity within space.

Western philosophy provides a clear and scientific conceptual understanding of time within a three-dimensional material universe, but its investigation and depiction of the fundamental origin of time remain vague. The clockmaking industry and its development led people to regard time as a concrete, material-like existence. Even after defining the second with extreme precision based on the oscillation frequency of fundamental matter (13th CGPM, 1969), people still do not comprehend the principle that "when time is established, things are born 时立而物生" (He Guan Zi [ancient], 2022). This understanding is crucial to the scientific study of the material universe, yet it also creates a cognitive trap. We forget that time is information created by humans to define processes of existence.

2.2. Daoist Perspectives on Space and Time

In the East, the Chinese term for "space 空间" (kōngjiān) consists of two characters: "空" (kōng, meaning "empty," "void," or "sacred") and "间" (jiān, meaning "a region of existence"). Taken literally, "space" refers to "an empty, void, sacred region of existence," an empty domain of existence rather than specifically a material domain. Thus, "universe 宇宙" (Yǔ Zhòu) does not refer only to a three-dimensional space filled with matter (Liu & Liu, 2020).

Studying and contemplating the "Yijing" (Book of Changes) makes it clear that the universe is a living existence of integrated Yin and Yang, encompassing both material and non-material realms, all of which coexist as living Yin-Yang unities (Liu, 2024a).

By using modern physics and materialist dialectics to study and contemplate the "Daodejing", one can understand the fundamental nature of space and time, as well as the logical relationships of all movements and changes occurring within space (Liu & Liu, 2020).

The "Daodejing" is a great classical work of scientific philosophy that cannot truly be translated; it must be read in its original classical form to be experienced and understood. By applying principles of physics, modern science, and materialist dialectics to comprehend the cosmic origin philosophy within the "Daodejing", one finds that it addresses the relationships of space and existence within space (Laozi, 2019; Liu & Liu, 2021d).

Chapter 1 of the "Daodejing":

"道可道，非常道。名可名，非常名。无名天地之始；有名万物之母。故常无，欲以观其妙；常有，欲以观其徼。此两者，同出而异名，同谓之玄。玄之又玄，众妙之门。" (untranslated)

General meaning: Space and all existences, movements, and changes within it are called "Daò 道," which cannot be fully expressed with human language, words, or numbers. "Nothingness 无" (wú) is the beginning of all existence—an absolute zero degree, where material energy (basic energy, dark matter, dark energy, particles, quarks) serves as the origin of the material universe. "Being 有" (yǒu)—particles, protons, atoms, molecules, humans—emerges through the thermodynamic equilibrium of time, giving rise to humanity and all things. From the perspective of the universal origin of "nothingness 无," space is extraordinarily mysterious. From the perspective of material energies and material "being 有," space always comes with certain durations, quantities, and boundaries—relativity.

These two viewpoints use different terms, but share the same source, both belonging to metaphysical and theological inquiry. The author believes that the study of mechanics and time in physics is akin to metaphysics and theology—i.e., the scientific ontology of the universe (Liu, 2024e).

Chapter 4 of the "Daodejing":

"道冲，而用之或不盈。渊兮，似万物之宗；湛兮，似或存。吾不知谁之子，象帝之先。" (untranslated)

General meaning: The "Dao 道" of the universe is the existence of Yin-Yang contradictions within space (道冲 daò chōng). Existence arises from Yin and Yang, is inexhaustible, and can be named fundamental energy (阴 Yáng) and wisdom energy (阳 Yīn). Absolute zero is the coordinate system's origin (Liu & Liu, 2020). Its profundity suggests it is the source and origin of all beings and all things. Its depth suggests what humans name "existence." Who gave birth to whom is unknown. Space and the existence within it may simply be as they are.

The great and humble Laozi admits that, without sufficient information, he does not know what space and its contained existences truly are. Without relativity and quantum mechanics, no one could know. Of course, we can name them.

Modern humanity, knowing only a bit about "matter" (Liu, 2025a), believes it knows everything, which is far from true. We lack vast amounts of information to understand space and existence. It is foolish to view the universe purely as matter. Even with quantum mechanics and relativity, and the scientific ontology of the universe (Liu, 2024e), this is still insufficient. There is no end to human scientific exploration.

Humans must ensure our descendants survive. The cosmic deity created humanity so that we would continuously create, discover, and solve contradictions. Yet we possess only a tiny fraction of cosmic knowledge and have created the brutal reality of massive nuclear arsenals and mutual hostility, betraying our ancestors' teachings (Liu, 2024d).

Chapter 6 of the Daodejing:

"谷神不死，是谓玄牝。玄牝之门，是谓天地根。绵绵若存，用之不勤。" (untranslated)

General meaning: Space and the existence within it are like a valley spirit that never dies—the mysterious feminine, the root of heaven and earth. It may be called basic energy and intellectual energy (Liu & Liu, 2020), akin to the Yin-Yang reproductive organs in animals. This is the source and origin of material energy, matter, humankind, and all things—an infinite, inexhaustible existence.

Chapter 16 of the "Daodejing"：

"致虚极，守静笃。万物并作，吾以观复。夫物芸芸，各复归其根，归根曰静，是谓复命。" (untranslated)

General meaning: In a state of utmost emptiness of thought and profound stillness of the heart, one can perceive, like all other things, the wondrous movements and changes of existence in space. The formation and transformation of material energy and matter follow Yin and Yang cycles, endlessly repeating.

Energy can become matter, and matter can return to energy. Ultimately, each existence has its origin and returns to it. Every existence starts from quiet emptiness and nothingness, from a time-zero coordinate. After that, it follows the natural Yin-Yang principles of cosmic origins into its destined path. All existence possesses perception (Liu & Liu, 2020).

As stated in Zero-Dimensional Universe—The Absolute Space Test (Liu & Liu, 2021c), ancient ancestors in both East and West used this method to understand cosmic origins.

Chapter 21 of the Daodejing:

"孔德之容，唯道是从。道之为物，惟恍惟惚。惚兮恍兮，其中有象；恍兮惚兮，其中有物。窈兮冥兮，其中有精；其精甚真，其中有信。自今及古，其名不去，以阅众甫。吾何以知众甫之状哉？以此。" (untranslated)

General meaning: The great universe is the natural Dao 道 of space and the existence within it. By applying the method described in Chapter 16, one can sense the process of matter forming from nothingness into being. In perception, one discovers a certain "fuzzy, indistinct image 惚兮恍兮，其中有象" within the universe, a non-material existence that modern physics might describe as dark matter, dark energy, particles, quarks, or other wave-like entities. Such non-material, material-like energies can create matter in the universe (Liu, 2024g).

How do they create matter? The universe contains a divine, empty existence—"spirit 精" and "information 信"—profound and obscure. We can confirm that such empty, divine spirit and information truly exist. Existence can perceive force (mechanics) and time.

This method of sensing and understanding the universe was not invented by the author; humankind's ancestors, from ancient times to now, have used this approach to comprehend space, the existence within it, the material existence in the universe, and cosmic origins. The author also uses this method.

Chapter 25, 37, 38, 40, 42, 52, etc. of the Daodejing:

第二十五章：有物混成，先天地生。寂兮寥兮，独立而不改，周行而不殆，可以为天地母。吾不知其名，强字之曰道，强为之名曰大。大曰逝，逝曰远，远曰反。故道大，天大，地大，而人居其一焉。人法地，地法天，天法道，道法自然。(untranslated)

第三十七章：道常无为而无不为。(untranslated)

第三十八章：上德不德，是以有德；下德不失德，是以无德。上德无为而无以为；下德为之而有以为。上仁为之而无以为；上义为之而有以为。上礼为之而莫之应，则攘臂而扔之。(untranslated)

第四十章：反者道之动，弱者道之用。天下万物生于有，有生于无。(untranslated)

第四十二章：道生一，一生二，二生三，三生万物。万物负阴而抱阳，冲气以为和。(untranslated)

第五十二章：天下有始，以为天下母。既得其母，以知其子；既知其子，复守其母，没身不殆。(untranslated)

The cited chapters continue to describe that there was something that existed before heaven and earth, silent and vast, mother of all. The Dao 道 is always non-interfering yet accomplishes everything. Superior virtue does not regard itself as virtue, which is precisely why it is virtue; all things arise from being, and being arises from non-being. The Dao gives birth to One, One gives birth to Two, Two gives birth to Three, and Three gives birth to the myriad things. The myriad things embrace Yin and carry Yang, achieving harmony through blending energies. The world has a beginning, considered the mother of all under heaven. Once you know the mother, you come to know her offspring; once you know the offspring, return to guard the mother, and you will remain unharmed.

All these illustrate that the Daodejing portrays a universal principle from emptiness to existence, describing cosmic origins, space, and the interplay of energies and matter in profound, poetic terms.

By interpreting the Daodejing through modern physics and systems science, one can find that it is a great reference work of scientific philosophy and a monumental text for understanding the concept of cosmic origins. Many chapters discuss space, the existences within space, the interrelationships between these existences, as well as the fundamental principles underlying motion, change, matter, and material energy, presenting extraordinarily subtle and intricate logical relationships (Liu & Liu, 2021d).

Building upon the cosmic origin concepts in the Daodejing, later generations conducted extensive thought and discussion on space and the existences within it.

> In "Wenzi 文子·Ziran 自然", it is stated: "老子曰，朴至大者无形状，道至大者无度量。故天圆不中规，地方不中矩。往古来今谓之宙，上下四方为之宇，道在其中而莫知其所(Not translated)。" (Wenzi [ancient], 2019)

In essence, this means: Space is an infinitely expansive concept without a material dimension, and cannot be measured with compasses or rulers. The temporal passage of past to present can be called "宙 zhòu" (representing time), and the domain of the four directions up and down can be called "宇 yǔ" (representing space). Combined, they are termed "宇宙 yǔzhòu" (the universe). All existences in natural cosmic space undergo change, movement, and being; this is called "Dao," an object of humanity's eternal pursuit of knowledge and information, endless and unfathomable.

Combining space and time into a four-dimensional spacetime concept is not unique to Einstein; the ancestors defined this concept 2500 years ago. The reason for joining space and time and calling it "universe 宇宙" is that all existence in the universe is alive in a process of becoming, and only time can vividly describe changes, movements, and states of being. For example, we say a person lived for many years, rather than measuring existence using other indicators.

However, the "Wenzi" does not regard the universe's original nature as purely material.

In "Wenzi 文子·Xiade 下德", it states: "阴阳陶冶万物，皆乘一炁而生。" (Not translated directly.)

In "Wenzi 文子·Ziran 自然", it says: "万物变化合于一道。" (Not translated directly.)

In essence, the cosmic origin is "qi 炁," and the mechanism of forming all things is the interplay, interaction, perception, and conditional transformations of two natural properties of qi: Yin and Yang. Matter is an existence of change and motion, and this is the "Dao" of space and what exists within space.

Zhuangzi 庄子, a great figure in Chinese history, inherited and developed Laozi's ideas on cosmic origins. Daoist philosophy is sometimes referred to as the teachings of Lao-Zi, and Zhuangzi's portrayals of cosmic space and its existences are exceedingly brilliant (Zhuangzi [ancient], 2017).

Regarding space and the existence within it, there are descriptions such as:

In "Zhuangzi 庄子·Tang Wen 汤问"："上下四方有极乎？无极之外，复无

极也。” (Not translated directly)

This means: Space cannot be described using three-dimensional cosmic numbers and mathematics. It is infinitely large and infinitely small, only describable as “infinite.” It can give birth to and accommodate transformations and existence of matter, energy, and information. It is the mother-body of “being 有,” “non-being 无,” “emptiness 空性,” and “divinity 神性.”

Regarding descriptions of size and quantity of material existence:

In “Zhuangzi 庄子·Qiu Shui 秋水”: “然则吾大天下而小毫末可乎？否。夫物，量无穷，时无止，分无常，终始无故．” (Not translated directly)

This means: Can we simply say celestial bodies are large and hair is small? No. Any comparison requires a coordinate system in the same category. For instance, within a galactic coordinate system, the Milky Way is very large, but in comparison to a supercluster system, it is very small. An atomic structure is tiny, but in the coordinate system of quantum mechanics, it is extremely large. Comparing the sizes or quantities of matter requires establishing multiple coordinate systems; the same holds true for non-material existences, which also require setting a zero-point coordinate system in space.

In the “Modern Physical Philosophy Framework” (Liu, 2024f), a time-zero coordinate system is established for dark matter, dark energy, particles, quarks, atoms, and matter. Setting up this coordinate system can resolve theoretical contradictions between relativity and quantum mechanics, as well as many paradoxes in relativity. Existences in the universe are all relative, contradictory existences.

In “Zhuangzi 庄子·Tianxia 天下”, it is said: “一尺之棰，日取其半，万世不竭。” (Not translated directly)

This means: A one-foot-long stick, if you cut it in half every day, can never be completely divided in a thousand years. For matter, as long as its properties remain unchanged, it can be infinitely divided mathematically. But if the properties of matter change, this no longer holds true.

Consider Zhuangzi’s view of cosmic origins:

In “Zhuangzi 庄子·Dazong Shi 大宗师”: “夫道，有情有信，无为无形。可传而不可授，可得而不可见；自本自根，未有天地，自古以固存；神鬼神地，生天生地；在太极之上而不为高，在六极之下而不为深，先天地生而不为久，长于上古而不为老。” (Not translated directly)

This can be understood as: The cosmic origin is Dao—formless, without subjective awareness, natural, possessing spirit and information, cause and factor. It existed before the creation of heaven and earth and all things. It can be sensed but not seen. It is wondrous: heaven, earth, and all things originate from it. It has no boundaries in height or depth, no time, and never ages (Liu & Liu, 2020).

In “Zhuangzi 庄子·Qi Wu Lun 齐物论”, there is a tongue-twisting passage about the universe:

> “今日有言于此，不知其与是类乎？其与是不类乎？类与不类，相与为类，则与彼无以异乎？虽然，请尝言之。有始也者，有未始有始也者，有未始有夫未始有始也者。有有也者，有无也者，有未始有无也者，有未始有夫

未始有无也者，俄而有无矣，而未知有无之果孰有孰无也。今我则已有谓矣，而未知吾所谓之其果有谓乎？其果无谓乎？” (Not translated directly)

In essence: I speak today without knowing if what I say is of the same category as something else or not. Regardless, since I speak, it becomes a category. Let me try to explain: If the universe has a beginning, there must be a time before that beginning, and before that as well. At the origins of all things, there is a state of existence and a state of non-existence; that non-existence also has a time before it began. This regress continues infinitely. Suddenly there emerges “existence 有” and “non-existence 无,” yet we cannot discern which is truly existence and which is truly non-existence. Even now, I do not know whether I have truly spoken or not (Liu & Liu, 2020).

Regarding cosmic origins, “Zhuangzi 庄子·Geng Sangchu 庚桑楚” states:

“出无本，入无窍。有实而无乎处，有长而无乎本剽。有所出而无窍者有实，有实而无乎处者，宇也；有长而无乎本剽者，宙也。” (Not translated directly)

With modern science, mineral processing, and systems science, this can be understood as: We cannot see where matter comes from—quantum mechanics gives us some clues. We cannot see where matter returns to—classical physics and relativity give us some clues. There is a real existence without a known source or fixed place, and there is growth and change without a visible cause. For example, mechanics and time can only be described as concepts and cannot be seen. Some existences come into being with no identifiable “aperture” or origin. Humans know we come from our parents, but who knows where the earth comes from? From which position in the universe? That which has real existence is the three-dimensional space; the domain of non-material, uncertain existence (energy and information) also belongs to the category of space, collectively called “yu 宇.” The driving forces of growth and change—causes or factors not visible—are called “zhou 宙.” Combined, they form “yǔzhòu 宇宙” (the universe).

Existences in space:

Space can produce matter—the three-dimensional universe, which is the realm of material science; as well as factors that have not yet produced matter-energy and material-energy, the realm of energy science; and the infinite causes that enable change and motion without beginning or end—mechanics, thermodynamics, optics, and information science (References 1-26).

The spatial mother-body and the domain of emptiness and divinity is called “yu 宇.” The domain of matter and material existence is also collectively called “yu 宇.” The forces of existence’s change—factors including mechanics, time, electromagnetic waves—are called “zhou 宙.” Together, they form “yuzhou 宇宙” (the universe).

“Zhuangzi” ’s cosmological considerations surpass the cosmic conceptual scope laid out in “Wenzi”, or rather, express concepts not articulated by “Wenzi”. Here,

all existences in space—both material and non-material—are defined. The concept of "zhou 宙" is no longer a purely temporal concept; it encompasses all causes, including time, mechanics, and factors of information science. Zhuangzi describes the entire cosmic space and the existences within it (Liu & Liu, 2020).

Another important Daoist work from China's pre-Qin era is the "He Guan Zi", which addresses the origin of time and the relationship between time and material existence (He Guan Zi [ancient], 2022).

In "He Guan Zi 鹖冠子·HuanLiu 环流篇", it states: "有一而有气，有气而有意，有意而有图，有图而有名，有名而有形，有形而有事，有事而有约。约决而时成，时立而物生。" (Not translated directly)

This means: Time is a man-made definition for the process of material existence. The existence of matter can be defined by a zero-point temporal coordinate system, thus establishing the survival process of matter. Similarly, the existence process of non-material entities can also be determined and understood through a zero-point temporal coordinate system (Liu & Liu, 2021b; Liu, 2024f).

The core of Daoist philosophy is the concept of cosmic origins. By the time of the Song Dynasty in China, the cosmic origin thought had reached its pinnacle. At this time, Buddhism had already been introduced into China and, along with Daoism and Confucianism, formed what is known as Chinese philosophy—or "absolute studies."

In the Song Dynasty, a great cultivator named Chen Tuan 陈抟 (871-989), often referred to as Chen Tuan Laozu, was a pioneer in advancing the study of the Yijing. If the ancestors discovered the universe's Yin-Yang information, and Fuxi, the Yellow Emperor, and King Wen of Zhou supplemented it with symbols, writing, and divisions into stages, positions, and numbers, then Chen Tuan Laozu created the Taiji Diagram, adding formal (morphological) information to the Yijing. This new information once again advanced humanity's study and enlightenment regarding space and what exists within it.

The person who clearly interpreted and explained the "Taiji Diagram" was the great Song Confucian scholar Zhou Dunyi 周敦颐 (1017-1073), through his work Taijitu Shuo (Zhou Dunyi [Song], 2009). He essentially made clear the relationship between existences in cosmic space and the principles of dynamics using the concepts of Wuji, Taiji, and the Five Elements of generation and restraint 五行生克. The authors, in "Zero-Dimensional Universe—The Survival Test of All Things", use modern science to annotate these ideas and recommend reading the original text without further citation (Liu & Liu, 2021b).

Zhang Zai 张载 (1020-1077) proposed the grand aspiration "为天地立心，为生民立命，为往圣继绝学，为万世开太平。" (Not translated) He believed that "qi 炁" is the origin of matter and humankind. He proposed that the role of "Yin 阴 and Yang 阳 two Qi" in the universe and their causal transformations is the fundamental driving force and reason for the formation of all things (dark matter, dark energy, particles, quarks, atoms, matter, humans, etc.). He advocated a dialectical method of understanding the universe, all things, and humankind, as dis-

cussed in his work "Zheng Meng 正蒙" (Zhang Zai [Song], 2015).

Zhou Dunyi 周敦颐 had two students, the brothers Cheng Hao 程顥 (1032-1085) and Cheng Yi 程颐 (1033-1107), both renowned philosophers. Based on the system of cosmic origin philosophical thought, they posed a very serious, dialectical question: Qi 炁 forms all things in the universe, so why are they not all just a single lump? Why do the things formed differ so vastly? Even entities of the same kind differ greatly. Humans, too, despite all being human, are vastly different from one another. This question seemed like a great cosmic riddle for human thought.

The younger brother, Cheng Yi 程颐, believed the universe has a "principle 理" (lǐ), and that all things should each have their own "principle." The elder brother, Cheng Hao 程顥, believed there must also be a guiding "mind 心" (xīn). These two questions gave rise to two major philosophical inquiries: "Lixue 理学" (the study of principles) and "Xinxue 心学" (the study of the mind). From these emerged two great philosophers: Zhu Xi (Song Dynasty) and Wang Yangming (Ming Dynasty).

Zhu Xi 朱熹 (1130-1200) proposed the theory that the "principle 理" (lǐ) of all things in the universe is primary. He believed "lǐ 理" is the cosmic truth, the law, the Dao of Laozi, the Yin-Yang Taiji 阴阳太极, the innate endowment of the universe and all things within it. He saw "qi 炁" as the raw material from which all things are formed, and he dialectically and systematically explained the relationships among li 理, qi 炁, and Yin-Yang Taiji 阴阳太极. His many works are collected in Zhuzi Quanshu, with his core philosophical thoughts in "Jinsi Lu 近思录" (Zhu Xi [Song], 2008). Zhu Xi is the founder of "Neo-Confucianism 理学" (Lixue), who formulated the Yin-Yang Taiji form and dynamic mechanism of the universe. He proposed "Gewu Zhizhi 格物致知" (the investigation of things to attain knowledge), employing physics to study the origins of the universe, as well as the knowledge of space and existence within space. The universe is essentially a 2^n power Taiji dynamic model of Yin and Yang structures and configurations (Liu & Liu, 2021b).

Physics teaches us about the principles of mechanics, the principles of time, the principles of energy, and the principles of information, yet we still do not know what these "principles 理" ultimately are. Dark matter and dark energy also have principles we have yet to understand due to a lack of information. Particles have their principles—bosons and fermions each have their own "li 理," otherwise atoms could not be formed. Atoms, molecules, and cells also have their principles; otherwise, we could not form plants, animals, humans, and all kinds of matter. These "principles" are all rooted in the Yin-Yang Taiji 阴阳太极 contradictions and dynamics of generation and restraint among the Five Elements 五行生克. They are matters of energy science and information science, fields in which human knowledge is still quite limited. Nonetheless, the mechanisms and principles of space and of existences within space remain consistent.

Using the "principle 理" of cosmic origins to analyze modern physics, the "the-

oretical contradictions" between quantum mechanics and relativity do not exist (References 22-26).

Wang Shouren 王守仁 (1472-1528), known as Wang Yangming 王阳明, wrote "Chuanxilu 传习录" (Wang Yangming [Ming], 2018). In it, he asks: What is the heart of the heavens and earth of the universe? The answer is the human heart, soul and spirit, a luminous intelligence that, like qi 炁, fills the heavens and the earth and permeates the human realm. Space, the existence within space, and humanity all possess minds that are interconnected.

"Reflection and Research on the Origin of the Universe" designates this as wisdom energy, also called the sea of wisdom energy. Mechanics, thermodynamics, matter, and existence, all relate to the perception of time and force-related information (Liu & Liu, 2020). Perception and human feeling are the fundamental dynamic information that drives humanity and all existence, both material and non-material.

Balance is both the driving cause and the purposive cause of existence within space and space itself. It is the direction of cosmic circulation and also represents all existences's tendency to perceive thermodynamics and their orientation in the perception of their existence processes in time. Time is irreversible, and all existences can establish a time-zero reference point in their coordinate systems. This is the fundamental principle of cosmic origins (Liu, 2024f).

The scope of Daoist philosophy is vast and profound. What has been presented here is but a drop in the ocean, illustrating principles of space, the existences within space, cosmic origins, and the explanations of the original nature of time.

2.3. Buddhist Philosophical Perspectives on Space and Time

Buddhist philosophy is expansive and subtle, especially Mahayana Buddhism, which has spread widely in the East and merged into Eastern philosophy. It encourages all humans to become Buddhas or awakened beings, to consciousness to "emptiness 空," "prajna wisdom 般若智慧," and the "Du 度" (dù) of time as cosmic origins. These are fully embodied in the "Diamond Sutra" and the "Heart Sutra" (Liu, 2024g; Shakyamuni (Ancient), 2019).

The author uses modern scientific information to annotate the Diamond Sutra and the Heart Sutra (Liu & Liu, 2024), employing Eastern cosmic origin philosophy to resolve the contradictions between quantum mechanics and relativity. We invite the scientific and philosophical communities to empirically verify space and existence within space (References 22-26).

In Buddhist philosophy, "emptiness 空" does not mean nothingness. Instead, it refers to the emptiness and sacred existence of space and what is within it, including the creation, existence, motion, and transformation of matter. The motion, transformation, and existence of matter are partial contents and connotations of "emptiness."

In Buddhist philosophy, the space and existences within space are essentially consistent with their meanings in Daoist philosophy. Both focus on the essence of

cosmic origins through the theme of material existence and phenomena. Their philosophical thought directly points toward physics and chemistry.

Buddhist philosophy describes this as the causal relationships of "yin 阴" (causes) and "yang 阳" (factor), known as "dependent origination 缘起." This dependent origination is called "the five aggregates are all empty 五蕴皆空" (all phenomena are caused by emptiness).

Emptiness does not mean a mere vacuum. On one hand, it refers to the cosmic origin relative to material and non-material emptiness. This emptiness is an empty existence. Matter originates from energy and, through processes of movement and change, returns to energy, expressed as E1 = E2 = E3 (Liu, 2024f). Such factor (yang) changes occur within the relational conditions (for example, mechanics) of emptiness and sacredness.

Every transformative process of existence must establish a time-zero reference coordinate system. The temporal process in each coordinate system is artificially defined. From start to finish, it is a "measure 度" (du) of the existence process (Liu, 2024f).

Not understanding this point leads to confusion in physics and chemistry. The theoretical contradictions of quantum mechanics and relativity are a concentrated manifestation of such confusion.

This is the cosmic origin thought in Eastern philosophy. Daoist philosophy calls it "Dao 道," and Buddhist philosophy calls it Anuttara-samyak-sambodhi 阿耨多罗三藐三菩提. To understand cosmic origin philosophy is to understand the wisdom of "Dao 道," "prajna 般若," and "emptiness 空." Physics enables humanity to comprehend this wisdom and to understand the cosmic origin thought of Eastern Daoist and Buddhist philosophy. Scientists themselves are bodhisattvas for humankind (Liu, 2024c).

3. Non-Material Space and Time

For Western philosophy and science, this is an unfamiliar domain, yet it lies at the core of the cosmic origin thought in Eastern philosophy. However, while the East possesses philosophical thought about cosmic origins, it has not developed scientific research in this field. Undoubtedly, Eastern and Western philosophical thought have converged at the pinnacle of human material philosophy and material science.

3.1. The Space and Time of Energy

Classical physics tells us that matter (E1) possesses the endowment to sense and perform work under universal gravitation, electromagnetic forces, and thermodynamic equilibrium forces, carrying microscopic radiation, and that it will ultimately return to the energy of black holes (Liu, 2024g).

Relativity tells us that when matter, under the influence of force, reaches the speed of light, it will completely convert into energy. In fact, the speed of light is the ultimate condition and cause. Matter (E2), through thermodynamic and me-

chanical processes of motion and change, returns to energy.

Quantum mechanics tells us that energy—whether called quarks, particles, bosons, or fermions—is discrete energy (E3), the fundamental energy that creates atomic matter.

This leads the scientific and philosophical communities to a crucial task: to confirm whether energy is a non-material form.

Humans have defined the three-dimensional form and spatial domain of "matter" using language, text, and numbers, and have used time to measure processes. The Daoist term for "energy"—the non-material existence—is "wu 无" (nothingness), and Buddhism calls it "kong 空" (emptiness). Physics should name and characterize the form and spatial domain of energy to distinguish it from the mass related to universal gravitation and other forms of mass. This is central to resolving the theoretical contradictions between quantum mechanics and relativity—very important indeed.

In order to study quantum mechanics, physics introduced Planck's constant and Planck parameters.

Planck's constant (h) is a fundamental physical constant that describes the scale of quantum action. Notation: h. Its value is given in Joule-seconds (J·s), specifically $6.62607015 \times 10^{-34}$ J·s.

Its unit is energy multiplied by time, or momentum multiplied by displacement. Because angular momentum calculations often use h/2π, another commonly used quantity is the reduced Planck's constant ($\hbar$), with a value of $1.05457266 \times 110^{-34}$ J·s.

Max Planck discovered Planck's constant in 1900 while studying the laws of thermal radiation of objects. He found that only by assuming that the emission and absorption of electromagnetic waves are not continuous but occur in discrete packets could the calculations agree with experimental results. This theory, known as quantum theory, altered classical physics concepts and explained the discontinuity in blackbody radiation spectra, laying the foundation for the development of quantum mechanics.

The author, an outsider to physics, aims to avoid entangling theories and thus expresses ideas as much as possible in the language of cosmic origin philosophy.

Physics created the Planck unit system, a dimensionless unit system used by theoretical physicists to simplify equations. It is based on fundamental physical constants such as the speed of light, Planck's constant, Boltzmann's constant, and the universal gravitational constant, all set to 1. For example, one Planck time is about 5.39×10^{-44} seconds, one Planck length is about 1.62×10^{-35} meters, one Planck mass is about 2.18×10^{-8} kilograms, and there is also a parameter called Planck temperature.

The Planck temperature is about 1.416833×10^{32} Kelvin. It is derived from quantum mechanics and cosmological theory and represents the extreme high-temperature state of the early universe right after the Big Bang.

The Planck temperature's formula involves multiple physical constants, with

the speed of light (c) at its core. According to Einstein's special relativity, when an object's speed reaches the speed of light, its mass becomes infinitely large. Substituting this value into the Planck temperature formula yields an ultimate temperature limit in the universe that cannot be surpassed.

The physical significance of the Planck temperature is that it represents the extremely high temperature one Planck time after the Big Bang, symbolizing the extreme high-temperature state of the universe's birth. At this temperature, existing physical laws may fail, pushing our understanding of "matter" into a new realm of thought (Liu, 2025a).

From the perspective of cosmic origin thought, Planck's constant and related physical parameters serve as important coordinate system parameters in quantum mechanics and energy science. However, they may have been influenced by the thought patterns of material philosophy, leaving behind philosophical pitfalls in physics.

Similarly, the philosophical studies of M-theory are also trapped by materialist philosophical thinking. Describing space as three-dimensional or multi-dimensional reflects the trap of material philosophy. Whether points, strings, or membranes are material or non-material concepts is a fuzzy philosophical issue (Liu, 2024a), this is not OK.

From the viewpoint of cosmic origins, Planck's constant, related physical parameters, and the speed of light mark a critical boundary between material and non-material existence. We must not fall into the trap of materialist philosophy because of them. Quantum mechanics needs to establish a zero-time baseline coordinate system in energy philosophy (References 22-26).

Professor Max Planck reminded physicists multiple times in his eight lectures at Columbia University that thermodynamics is the most important and fundamental field of study in physics (Planck, 2019).

The wave-particle duality in quantum mechanics indicates that the existence of particles has both material and non-material characteristics. The immeasurability of quantum mechanics implies non-materiality—there is no position to measure until it becomes matter. The concept of superluminal speeds is a mistaken idea stemming from materialist philosophy; if matter does not exist, there is no way to measure position, velocity, or time.

Particle entanglement is a vague philosophical definition. The speed of light cannot be surpassed, time cannot be reversed, and time and space cannot be curved (Liu, 2025b). The above discussion shows that what can be described by "curved" form language must be "material" kind of existence, and cannot be "immaterial" existence.

Therefore, the concept and origin of energy must have a clear philosophical definition. The scientific and philosophical communities need to redefine the space and time of energy through scientific verification.

Based on cosmic origin principles, we can tentatively propose that the spatial form of energy has no dimension, and that the original spatial domain of the uni-

verse is zero-dimensional space. The time coordinate system of energy's existence must be redefined within the concept of cosmic origins.

Physics guides and inspires humanity to understand cosmic origins. This understanding represents a re-recognition in terms of energy science and energy philosophy, requiring a new philosophical framework for thought.

Dark matter and dark energy are new concepts in physics, and we lack sufficient information to define them. Only by redefining them within the quantum mechanical framework of cosmic origins can we further understand the sources and fundamental nature of particles and quarks.

The author believes that particles have structure, and that forming particles and quarks must involve a fundamental force (The force), related to thermodynamics. Interpreting absolute zero from a physical concept indicates that thermal energy is the fundamental force generating the material universe (Liu, 2024c).

In this way, we can scientifically and philosophically define the space and time of energy. The universe is a universe of fundamental energy; all "existence" is energy's existence, motion, and change.

3.2. The Space and Time of Information

The development of information science in computer networks and intelligent industries is evident. However, when it comes to philosophical thinking about information science and energy science, people still rely on materialist philosophical methods. The consideration of information's space and time remains a relatively obscure topic in Western philosophy and science.

What is information? What is the spatial form of its existence? Does information have a temporal process of existence?

From the perspective of the philosophy of science, information pertains to systems science, physics (electromagnetic mechanics, optics), energy studies, thermodynamics, and the study of time. It reflects the perceptual relationship between matter and humankind. In fact, time itself is a human-constructed piece of information.

Humans have mastered the Yin-Yang relationship embodied by the digits 0 and 1, and thus created computers, the internet, and robots. Mastering the information from radiation of matter led to the creation of the atomic bomb. Understanding the DNA in cells gave humanity crucial insights into the vital information within the human body. This information makes people feel both happiness and fear; these emotional responses come from the human mind's perception and judgment of information (Liu & Liu, 2020, 2021a).

Norbert Wiener, the founder of cybernetics, believed: information is information; it is neither matter nor energy (Liu, 2024f). However, there is no energy divorced from mechanics, and no mechanics divorced from energy. There is no existence divorced from time, nor time divorced from existence. The universe is an eternal, living integration of Yin and Yang, an existence in thermal equilibrium.

Yet, the existence of Yin and Yang still cannot explain the complex relationships of contradictions and balances in the universe, nor the complexity of information therein.

Cosmic origin thought suggests that information is a form of emptiness and divinity—intellectual energy—belonging to the realm of theology and metaphysics that humanity will forever explore.

The "Daodejing" refers to it as "jing 精" (spirit) and "xin 信" (information). The Huangdi Neijing (Yellow Emperor's Inner Canon) refers to it in terms of Yin 阴 and Yang 阳 and the generation and restraint cycles of the Five Elements 五行生克。

"Taijitu Shuo 太极图说" (The Diagrammatic Explanation of the Taiji) states:

"无极而太极，太极动而生阳，动极而静。静极复动，一动一静，互为其根。分阴分阳，两极生焉。" (Not translated directly)

It also says:

"阳变阴合，而生水火木金土。五气顺布，四时行焉，五行一阴阳也，阴阳一太极也，太极本无极也。" (Not translated directly)

Using modern scientific data to analyze these passages, we can philosophically interpret them as follows:

The zero-dimensional cosmic space is called "Wuji 无极" (the limitless), or absolute zero degrees, within which fundamental energy and wisdom energy—Yin and Yang—exist. Imbalance in Wuji's Yin and Yang could lead to physical phenomena like the Big Bang. Extremely high temperatures create negative entropy and then, In the balance of static and dynamic change, give rise to new Yin and Yang poles, or what we call a new Taiji—a contradictory existence.

In the normal environment, negative entropy is still produced, manifested in cell-like substances, as discussed in the next article.

Energy in the universe should exist continuously. Once it becomes discrete under certain conditions, it forms discontinuous energy particles and independent material existences, each possessing the ability to perceive contradiction and equilibrium.

Under the influence of Yin 阴 (cause) information, factors change. The root of this change is the causative relationship of generational 生 (shēng) and restraint 克 (kè) among the Five Elements of Qi 炁 (metal 金, water 水, wood 木, fire 火, earth 土). The generative sequence is: metal generates water, water generates wood, wood generates fire, fire generates earth, earth generates metal. The restraining sequence is: metal restrains wood, wood restrains earth, earth restrains water, water restrains fire, fire restrains metal. The complete Yin-Yang Taiji 阴阳太极 result manifests in these processes of generation and restraint. The contradictions are complex, and their ultimate purpose is extremely clear—everything eventually returns to the equilibrium of Wuji 无极 (Liu, 2020).

All existence possesses a heart or soul and can perceive.

Wang Yangming's theory of heart 心学 (Xīnxúe) posits: The universe has a

heart, all things have a heart, humans have a heart, and even computers have a heart; all hearts are one (Liu & Liu, 2021b).

The Heart Sutra states: all existences possess the Five Aggregates—Existence 色, feeling 受, thought 想, action 行, and knowledge 识—and all five aggregates are empty (Liu, 2024g).

The Daodejing states: 宇宙无为而为 (yǔzhoùwǘweíérwéi) The universe acts without deliberate action, yet nothing is left undone.

Universal gravitation is the mutual perception of gravitational masses; electromagnetic force is the mutual perception of N and S poles or positive and negative charges; strong and weak forces are mutual perceptions between particles. All have Yin-Yang relationships. Physics sets up mediating terms: gravitons for gravity, photons for electromagnetic force, gluons for the strong force, and bosons for the weak force—establishing an informational Yin 阴-Yang 阳 relationship for mutual perception of existence. This is crucial for information studies. Except for bosons, there is no philosophical issue with the other mediating particles' models (Liu, 2025b).

Thermodynamics is a kind of perceptual mechanics without a Yin-Yang relationship; it only perceives the equilibrium information of the universe. Thermodynamics is a comprehensive form of mechanics, the original mechanics of the material universe.

Physics should pay attention to the mutual perception information between existences, studying the relationships between different forms of mechanics and the information they carry.

At present, humanity cannot analyze or determine the spatial form and domain of information's existence. This problem must be left for future generations to study. For now, we can temporarily regard information as a kind of energy—non-material—and zero-dimensional-intellectual energy. (Liu & Liu, 2020)

Time is the motion and change process as perceived by matter and all existence under mechanical influence. Humans have named it using language, writing, and numbers. Similarly, we can name the time concepts for various existences. However, we cannot name the time of information, because time itself is information.

4. Space and the Existences within It—Humanity's Eternal Quest

There is no existence detached from space, nor is there space detached from existence. Humans use three-dimensional space to describe space itself. Clearly, human language, words, and numbers only describe the spatial domain of existence in terms of material forms.

Information from modern physics has inspired and verified the cosmic origin thought left to us by our ancestors. It encourages humankind to employ cosmic origin thinking to consider the fundamentals of matter and humanity, and to ponder the existence of "emptiness 空" (kōng) and "nothingness 无" (wú) as information and energy. Physical cosmology tells us that non-material energy and informational existence occupy about 95.1% of cosmic space, while material exist-

ence occupies about 4.9% (Hiroshi Ohguri, 2015).

Treating space, the universe, and the existences within it as purely material objects of thought and research is an incredibly foolish phenomenon of humanity (Liu, 2024e). Yet, this is a kind of helplessness we must confront head-on.

Space, the universe, the existences within the universe, and matter are all alive; all possess heart and soul. With "action through non-action 无为而为" (wuwei er wei) and "the emptiness of all five aggregates 五蕴皆空" (wu yun jie kong), a representative wise substance has been created—we call it humanity 人类 (renlei).

Humans have perception and feeling, possess subjective consciousness, have created language, words, and numerical information tools, and have also created mathematics, coordinate systems, and science. Thus, humankind has become the monarch of the universe.

Humans engage in philosophical thinking and, through it, have come to understand the existence of matter and discovered the existence of energy and information. We comprehend matter, yet we still do not know what energy, information, mechanics, time, and space truly are.

The universe created humankind. For the sake of survival and existence, humans study and explore the universe, an eternal quest. We discover contradictions, create contradictions, and resolve contradictions.

5. Scientific Thinking about Space and Time—A Challenge to Human Thought

Our ancestors bequeathed to us a wealth of wisdom. Aristotle created material philosophy and material science over two thousand years ago. For more than two millennia, we have been unable to deeply consider "emptiness" (kōng) and "nothingness" (wú). Modern physics has enlightened us and confirmed the wisdom of our ancestors. It also inspires new philosophical challenges in considering the space and time of energy science and information science.

6. Conclusion

Modern physics has inspired new philosophical reflections for humankind. The "theoretical contradictions" in quantum mechanics and relativity compel us to reconsider the problem of space and the existence within it.

This paper employs the principles of cosmic origins to conduct a philosophical inquiry in the natural sciences, exploring issues of space and time. It aims to prompt a response from the scientific and philosophical communities and hopes that the scientific community will empirically verify these ideas.

Data Availability Statement

According to publishing standards and terms, the article's data is open access and supports knowledge sharing. Special thanks are given to the contributions from the reference sources.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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