

T-Consciousness Cosmology

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A Collection of Novel Theories in the Field of Cosmology

Originator: Mohammad Ali Taheri

The Observer and the General Centrality of Particles

The Scientific Journal of
CosmoIntel

The First Scientific Journal in
T-Consciousness Research



Mohammad Ali Taheri
Originator of T-Consciousness Theory
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A Collection of Novel Theories in the Field of Cosmology by
Mohammad Ali Taheri

Special Issue

T-Consciousness Cosmology The Observer and the General Centrality of Particles

A documentary concerning the topics addressed in this issue, titled:

“The Observer and the General Centrality of Particles”

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[The YouTube channel of Mohammad Ali Taheri](#)

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Preface

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Introduction

Unveiling the Cosmos

The vast expanse of the cosmos, a celestial ocean teeming with constellations and swirling galaxies, has ignited an unquenchable spark of curiosity within humanity since the dawn of time. This eagerness to understand the universe in which we live has continually driven humankind to uncover the secrets of the cosmos. This endeavor is evident in ancient civilizations that charted constellations, as well as in modern astronomers who peer into the farthest reaches of space. Throughout history, pioneering astronomers like Galileo and Copernicus paved the way for a more tangible understanding of the universe. Eventually, modern cosmology, equipped with powerful telescopes and advanced detectors, has revolutionized our understanding of the universe as a whole, offering a framework for the origin, evolution, and ultimate fate of the universe



From Philosophy to Physics Theories and Observations

The enigma of the cosmos has been and continues to be a pretense for the clash of ideas, inspiration, and countless arguments throughout human history. For tens of thousands of years, the configuration of stars in the sky has captivated our attention and inspired the creation of constellations from which myths and fictional stories were born, followed by philosophical inquiries essentially defining the philosophy of nature. Subsequently, the introduction of mathematics to simplify these philosophical concepts has opened up the world of physics to humanity. Persistent efforts and the accumulation of unanswered questions have not only compelled humans to observe and monitor the cosmos on larger scales with the advancement of technology but also aimed to interpret and analyze its components. This has been achieved through the processing of numerous mathematical models and the formulation of various theories, which sometimes align and sometimes contradict.

However, despite technological advancements, the definition of the cosmos has been obscured in countless equations, calculations, models, and physics theories, with no clear and powerful unified interpretation provided thus far. Humanity remains at a loss in answering the questions: What is the cosmos? Why does it exist, and where is it headed? This is where the power of intuition and perception from a holistic viewpoint becomes essential for understanding and grasping the philosophy of the why and how of the cosmos. From this perspective, T-Consciousness Cosmology has attempted to unravel the complexities of mainstream cosmology and provide a complete, clear, and unified interpretation of the cosmos through new theories. Additionally, this viewpoint addresses all concepts and the nature of what transpires in the cosmos, including Cosmic Information, Cosmic Mind, Cosmic T-Consciousness, and also various forms of Cosmic Life. These topics, however, do not entirely conform to the limited framework of currently accepted theories in physics and cosmology.

The Conventional Cosmological Perspective and Common Theories

Big Bang: The universe originated from an ultra-dense and hot point.

With the advancement of scientific research, the Big Bang theory was eventually established as the dominant cosmological model for the origin of the universe. This theory posits that the cosmos began nearly 13.8 billion years ago from an infinitesimal point with incredibly high density and temperature, known as the singularity. This singularity rapidly expanded and cooled in a fraction of a second, initiating the process of element formation and subsequently the formation of celestial bodies, ultimately leading to the cosmos we observe today.

From the perspective of cosmologists, the Big Bang theory is strongly supported by several key observations. One such observation is the discovery of the Cosmic Microwave Background (CMB). This radiation is considered a faint echo of the early universe, permeating the entire cosmos. In other words, its uniformity across the sky aligns with the predictions of a hot, dense origin of the universe. Additionally, the observed abundance of light elements such as hydrogen and helium in the universe also corresponds with the nuclear synthesis predicted to have occurred following the Big Bang.

Standard Model of Cosmology: A Framework for Cosmic Evolution

Building on the Big Bang theory, the standard model of cosmology (Lambda-CDM) provides another perspective on the universe's initial moments and its evolution, from the formation of fundamental particles to the creation of large structures like galaxies and galaxy clusters. This model incorporates the theory of inflation, a period of rapid exponential expansion believed to have occurred shortly after the Big Bang. The theory addresses the observed uniformity in the large-scale universe and theoretically resolves some of the problems with the Big Bang model. Additionally, the model relies on the existence of dark matter and dark energy, which are considered enigmatic components of the universe. Although invisible, dark matter influences the motion of galaxies and clusters through its gravitational pull. On the other hand, dark energy is believed to be responsible for the currently accelerated expansion of the universe.

Unanswered Questions and Ongoing Explorations

Despite the successes achieved in cosmology, the Big Bang theory and the standard model still face challenges. Questions about how the universe was born, the process of its evolution to its current form, the nature and geometric shape of the cosmos, its ultimate fate, the characteristics of dark matter and dark energy, and the possibility of other universes – along with countless unanswered questions – continue to drive ongoing research. Furthermore, alternative cosmological models such as the steady-state model, and etc, are being examined to ensure a comprehensive understanding of the origin and evolution of the universe.

T-Consciousness Cosmology: A New Perspective on the Universe

Through its novel approach, T-Consciousness Cosmology comprises a collection of theories that examine topics such as the origin of the universe, its nature, the manner of its evolution, its fate, and numerous other theories.

As the name suggests, this perspective introduces a unique consciousness known as T-Consciousness. It posits that in addition to matter and energy, the universe contains another element called T-Consciousness, which differs from definitions previously offered in the history of science or philosophy. From this perspective, it is argued that both matter and energy arise from T-Consciousness.

Furthermore, T-Consciousness Cosmology articulates that the cosmos generally consists of two parts: frequency-based (\sim) and non-frequency-based (-):

The frequency-based part of the cosmos describes behavior that is periodic and non-linear, characterized by amplitude and wavelength, such that it has a non-continuous effect on the cosmos (i.e. all known types of waves and ordinary matter).

In contrast, the non-frequency-based part of the cosmos describes non-periodic and linear behavior, where the amplitude and wavelength are zero, and its effects in the cosmos are linear and continuous.

In this regard, for example, it can be said that space, gravity, and time themselves do not have a frequency effect and have a sustained effect on everything. Even if, for a moment, one of these elements such as gravity, were to exhibit a periodic effect, the entire cosmos would disintegrate. However, it is worth noting that the result of this influence is the emergence of particles (ordinary matter), which exhibit periodic and frequency-based behaviors. Similarly, if time itself were to have a periodic effect, the cosmos would likewise collapse in the same way, despite the fact that we have a periodic method of measurement for time (tick tock of a clock). It follows that from this perspective, for the most part, the known physical aspect of the cosmos is periodic and frequency-based.

An important point to note is that the linearity of the impact of space, gravity, time, dark matter, and dark energy refers to the inherent influence of these factors in the universe, not the outcome of their effects.

Consequently, the frequency-based part (\sim) of the cosmos includes matter and energy, and the non-frequency, non-pulsing part (-) of the cosmos consists of two sections:

A: A section that in mainstream cosmology is referred to with different definitions, such as spacetime, dark energy, and dark matter.

B: T-Consciousness, information, mind, life, dark life energy, and etc., are parts that do not have specific definitions and are not mentioned in mainstream cosmology, while from the viewpoint of T-Consciousness Cosmology, they constitute the main part of the cosmos.

Important Note: In T-Consciousness Cosmology, instead of the concept of "space-time," the term "space, gravity-time" is used, in which gravity and time are always proportionally intertwined and inseparable. In fact, the effect of gravity-time is considered as two sides of the same coin. Moreover, considering that if space did not exist, the cosmos would certainly not exist either. Therefore, while space is neither matter nor energy, it is considered a fundamental element of the cosmos. This means that space is inherently non-pulsing. This concept also applies to dark energy and dark matter, which this perspective identifies as functions of space itself.

Therefore, T-Consciousness Cosmology states that the structure of the components of the cosmos, such as dark energy and dark matter, is not composed of particles. Additionally, because of its non-pulsing nature, gravity is inherently a non-frequency element. Thus, generally, gravity is also not composed of particles (such as the hypothetical graviton particles in mainstream science).

Regarding the non-pulsing nature of gravity or space, it can be noted that physics calculations show that celestial bodies with significant mass or acceleration can disturb spacetime in such a way that it appears as if gravitational waves propagate in all directions. In other words, mainstream cosmology predicts that although they differ from each other, gravitational waves resulting from the spinning of neutron stars, the collision of black holes, and supernova explosions can be analyzed. However, T-Consciousness Cosmology defines what is commonly referred to as gravitational waves in physics simply as the squeezing and stretching of space due to the changing behavior of massive bodies in proximity to one another. Therefore, the changes in gravitational behavior caused by massive bodies only lead to the contraction and expansion of space. In simpler terms, gravity has a linear impact on the structure of space, not a wave-like one.

Like gravity, time exerts its influence in a linear fashion on the cosmos and its components, in tandem with gravity. If gravity were zero, time would also be zero. Conversely, if gravity approached infinity, time would similarly become infinite. It is also essential to mention that the type of timekeeping invented by humans (i.e. the ticking of a clock) is completely arbitrary, as time does not have a frequency or pulsing nature.

Consequently, T-Consciousness Cosmology uses "space, gravity-time" instead of the well-known term "spacetime."

The Origin and Fate of the Universe

Existing models in mainstream cosmology have not yet provided a widely accepted theory about what existed before the Big Bang or how the various forms of matter and energy known today came into being at the initial moment of the explosion. This issue remains shrouded in ambiguity for cosmologists. In this context, by introducing the "Spherical Cosmos Model," T-Consciousness Cosmology not only addresses the origin or how the initial seed of the cosmos came into existence, but also acknowledges the expansion of the cosmos and introduces a shell made of TAM (Taheri Absolute Matter) that isolates the cosmos. This model proposes a different foundational mechanism compared to conventional inflationary models and introduces a new concept called "Space Rebound" to explain the increase in the volume of the cosmos. In fact, the theories of this perspective support each other in the understanding of the structure of the universe as a whole system, making simple predictions about the behavior of the cosmos. Moreover, T-Consciousness Cosmology, by addressing the nature of dark matter and dark energy and their functions, determines the cause of the cosmic expansion and its ultimate fate. Additionally, in line with the Spherical Cosmos Model (SCM), a new theory about another stage of the lifecycle of the cosmos, referred to as its "Reversion," is also proposed.

The Nature of the Building Blocks of the Cosmos

T-Consciousness Cosmology, in addition to addressing the general behavior of the cosmos, also explores the formation and function of its components and introduces new types of matter. According to the Spherical Cosmos Model, there is no contradiction between the formation mechanism of fundamental particles and the initial point of the cosmos (Big Bang). However, in the standard model of cosmology, which includes the theory of inflation and is based on general relativity and the standard model of fundamental particles, there is a clear contradiction known as the singularity at the birth of the universe and the formation of matter. Specifically, the singularity as a consequence of general relativity is an obstacle that is inconsistent with the formation of fundamental particles in the initial moments of the cosmos' birth.

Overall, it can be stated that T-Consciousness Cosmology offers a unique view of the cosmos by altering the perspective of the observer. From this shifted viewpoint, the cosmos is perceived as a grand system endowed with distinct identity, personality, and behavior. This system not only follows a specific trajectory to fulfill a special purpose but also demonstrates a high level of intelligence.

The Multiverse from a New Perspective

T-Consciousness Cosmology asserts that the cosmos in which we currently live follows a sequential principle (Consecutive Cosmos) and has its own lifecycle. It is one of countless homogeneous or heterogeneous universes, each with its own unique characteristics and behaviors (laws of physics).

Additionally, from this viewpoint, the fundamental constants of physics change according to different cosmic epochs and locations. For example, gravity-time will range from infinity at the beginning of the cosmic lifecycle to zero at the terminal edge of the cosmos (the ultimate stage of space rebound).

and...

Originator of T-Consciousness Cosmology: Mohammad Ali Taheri



The Observer and the General Centrality of Particles

Abstract

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According to the latest cosmological theories, the universe that began expanding with the Big Bang is a homogeneous and isotropic universe whose expansion continues to this day. According to cosmologists, based on this principle, the universe does not have a specific spatial center, and the special geometry considered for this viewpoint necessitates that any point in space can be considered the center of the universe. On the other hand, cosmologists consider the Big Bang as a point on a timeline, not a spatial occurrence. They state that our current best understanding of the origin and evolution of the universe is in line with the Standard Model of Cosmology (SMC), also known as the Lambda-Cold Dark Matter (Λ CDM) model. This model is based on two main theories of physics: General Relativity (GR) and the Standard Model of Particle Physics (SM). General Relativity is used to understand how the expansion of the universe is affected by the matter and energy within it, with gravity being the curvature of spacetime caused by the presence of mass and energy. This theory also asserts that a dimensionless quantity can be used to compare the time experienced by different observers in a gravitational field. This dimensionless quantity is often shown as the time dilation factor (Lorentz factor with the symbol γ , gamma). Alongside this theory, the Standard Model describes the fundamental particles constituting matter and the three forces: electromagnetic, strong and weak force, governing the interactions of these particles. In this model, physicists often express time inversely as energy with the unit of giga-electron volts (GeV) and use it as a framework to understand the behavior of various particles in the early universe. Parallel to these theories, T-Consciousness Cosmology introduces the Spherical Cosmos Model (SCM). This model challenges the spatial centrality found in the standard cosmological model, which is based on the principle of isotropy. By doing so, SCM assigns a special place to the Milky Way galaxy, and consequently, to Earth, which is supported by results obtained from measurements and observations made from the depths of the cosmos. In this perspective, time is divided into Longitudinal Time and Transverse Time. The type of time defined in the theory of relativity as a four-dimensional intertwined spacetime is introduced here as an Entropic Time Force, which is a subcategory of Transverse Time. This challenges the definitions provided in SM or GR, raising questions about whether time should be considered a dimension or a quantity. T-Consciousness Cosmology states that the cosmos and every one of its components are subject to the Taheri Uncertainty Principle, and further considers them as virtual, by virtue of how they are defined by this principle. This principle can be examined from various angles, and in this discussion, it is approached from the perspective of time. On the other hand, the Taheri Uncertainty Principle segues to theories such as the Temporal Centrality of Particles, Time Continuity, and Time Uncertainty based on the special vantage point of the human observer, highlighting the fundamental role of humans in giving meaning to these concepts.

Keywords: Longitudinal Time, Transverse Time, Entropic Time Force, Taheri Uncertainty, General Centrality of Particles, Time Continuity, Time Uncertainty

The Observer and the General Centrality of Particles

Introduction

According to the Standard Model of Cosmology or Λ CDM, it is estimated that the universe began with a Big Bang about 14 billion years ago and has been expanding ever since. According to this viewpoint, if

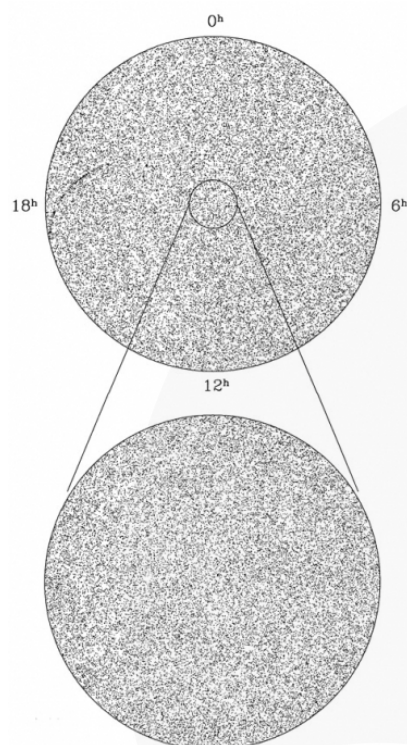


Figure 1: Large-scale universe: The dots in the upper figure indicate the positions of the brightest radio sources observable from the Northern Hemisphere, and the lower figure shows a comparable number of fainter sources within 15 degrees of the North Pole. From the cosmologists' viewpoint, the isotropy of these two figures in the sky confirms that the universe is homogeneous in spatial terms at the largest scales.

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For further explanation, one can use the example of Earth's meridians. On Earth, no meridian is given preference over another, and each can be considered the center for the other meridians on the surface of the sphere. (Figure 2)

In this example, according to the Standard Model of Cosmology, no particle in the universe has a special position relative to other particles. In other words,

we ask cosmologists where the center of the universe is, they will answer that it is everywhere and nowhere.

In other words, this model states that there is no center for the expansion of space in the cosmos and, according to the principle of isotropy, any point from which the universe is observed can be considered the center [1]. (Figure 1)

the prevailing view is that, based on observations and astronomical interpretations made, as well as the specific geometric shape that cosmologists attribute to the universe, there is no finding that indicates any point to be more central or special than another. However, recent observations that have challenged the principle of isotropy will be examined in the theory of Cosmic Rotation.

Figure 2: This image shows that no meridian is the center of another meridian



Centrality of Particles from the Perspective of T-Consciousness Cosmology

The Geometric Shape of the Cosmos

Parallel to various theoretical models, T-Consciousness Cosmology introduces a new model for the geometric shape of the cosmos and interpretation of cosmic events. According to this model, the cosmos is not only not flat but is spherical and has a shell made of Taheri Absolute Matter (TAM), named the “Shell of the Cosmos,” which surrounds and isolates this sphere. TAM is a new type of matter, first introduced by T-Consciousness Cosmology. The function of the shell is such that by disintegrating

from the inside surface towards the interior of the cosmos, it is constantly generating matter and releasing space. This process not only leads to the Rebound of space accompanied by the production of new cosmic objects, but also continuously reduces the thickness and increases the surface area of the shell, constantly adding to the volume of this sphere (Figure 3). In essence, this perspective suggests that all components of the cosmos, such as waves, objects, space, time, gravity, etc., are surrounded and isolated by this shell. Consequently, the spatial centrality of particles in this model gains a whole new meaning due to the spherical shape of the cosmos, which will be discussed in the theory of the Center of the Cosmos

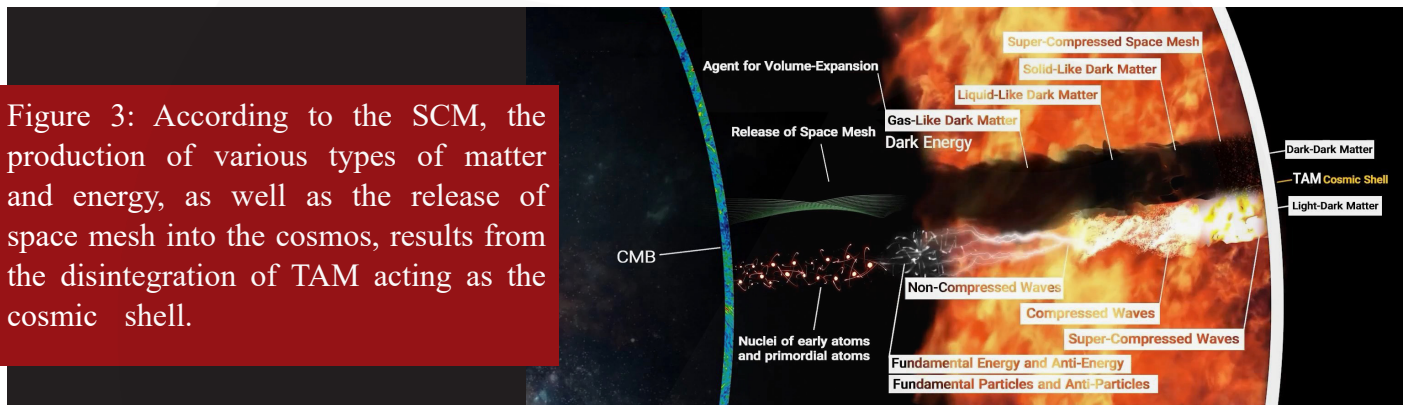


Figure 3: According to the SCM, the production of various types of matter and energy, as well as the release of space mesh into the cosmos, results from the disintegration of TAM acting as the cosmic shell.

A Different View on Particle Centrality

However from another angle, T-Consciousness Cosmology presents a new theory on particle centrality that is independent of the geometric shape of the cosmos and aligns with any model presented by theorists thus far. According to this theory, every particle can be considered the center of the cosmos, not from the standpoint of the principle of isotropy in mainstream cosmology or from a spatial perspective,

but from a temporal perspective.

Time and Space in the Cosmos

Time is a familiar concept, yet defining and understanding it is not simple. Despite the relatively fixed system for measuring time, various perspectives such as science, philosophy, religion, and art have each provided different definitions.

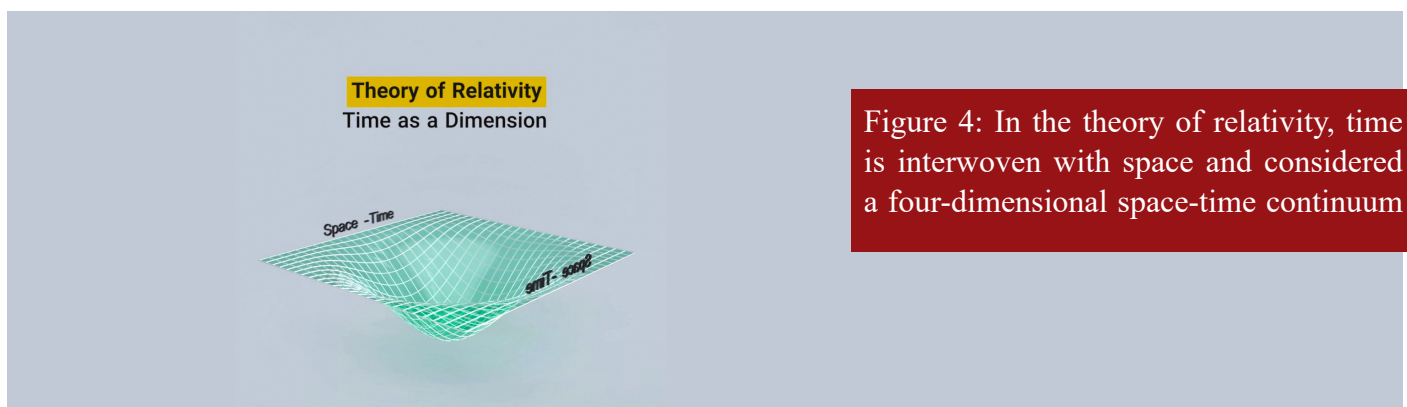


Figure 4: In the theory of relativity, time is interwoven with space and considered a four-dimensional space-time continuum

Although timepieces display moments in seconds, minutes, and hours, the basis for these units has changed over history. Today, seconds of time are defined by the precise oscillations of a cesium-133 atom in its ground state [2]. Additionally, according to the efforts of Hermann Minkowski, who proposed the concept of four-dimensional space-time that was later completed in Einstein's theory of relativity, time is recognized as the fourth dimension and has complex definitions depending on its application [3]. (Figure 4)

The concepts of past, present, and future are also often discussed in physics in relation to the progression of events, with the past referring to events that have already occurred or states that previously existed. The present is the moment separating the past from the future, and the future refers to events that have yet to occur or states that do not yet exist. It's essential to note that these definitions can vary depending on the context or specific interpretations in physics. For instance, in the theory of relativity, the concepts

of past, present, and future can be defined with more complexity due to how space and time are interconnected [4].

However, from the perspective of T-Consciousness Cosmology, what is recognized as the fourth dimension in the theory of relativity is introduced as a subcategory of transverse time called the "Entropic Time Force." The concept of time itself, from this viewpoint, is generally divided into two types: longitudinal time, which is the time that moves forward from one big shock to the next without being influenced by events in the cosmos and never becomes zero or infinite, and transverse time, which has subcategories such as special entropic time force, general entropic time force, and various other types of time (Figure 5). From this perspective, like gravity, time is an outcome of mass and acts to disintegrate it as a force that works opposite to gravity by moving outwards from the center of a mass. This type of time is not recognized as a dimension interwoven within spatial dimensions.

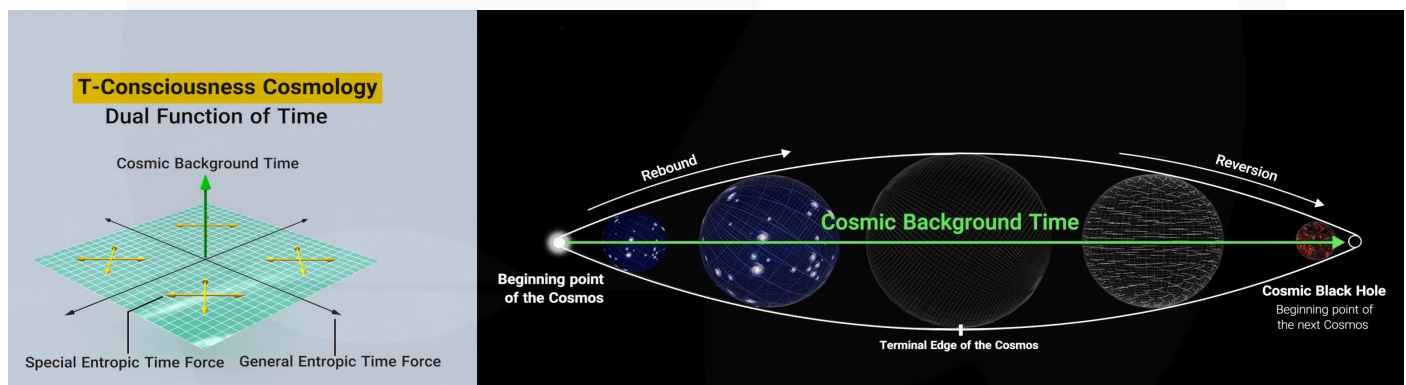


Figure 5: Right Image: Concept of longitudinal time during the lifespan of the cosmos. Left Image: The concept of special entropic time force for each particle, or large-scale mass, and general entropic time force as the overall result of this type of time in the cosmos.

Given the provided definitions, T-Consciousness Cosmology states that without time, describing events becomes meaningless. This means that the existence of all large and small bodies, from formation to complete disintegration, relies on the application of the force of time. The entropic force of time is inversely correlated to the gravitational force of a mass and is considered a subset of transverse time. Along with the Rebound of space (volumetric expansion of the universe), the entropic time force applies force in the opposite direction of gravity

to all types of masses, gradually causing them to disintegrate, ultimately leading to a change in their nature. This process is one of the reasons why the components of the universe exhibit such high diversity.

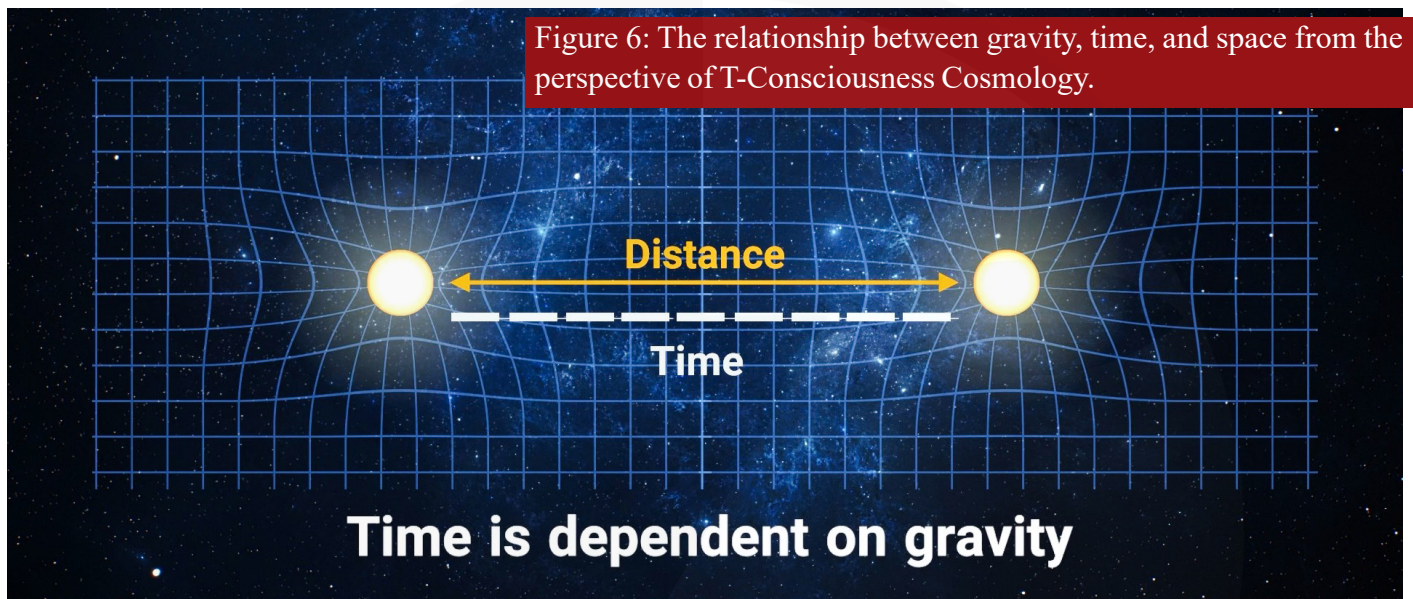
Location in the cosmos is a coordinate that depends on the existence of space and gravity-time. Without space, there would be no foundation for coordinates, and without gravity, the dimensions of length, width, height, and even the shape and curvature of the

coordinate axes, including their origin, could not be defined. In other words, location in space is directly related to gravity; without gravity, the concept of distance between two points is meaningless.

The same principle applies to time. The nature and manifestation of time depend on mass associated with gravitational force. Without this force, not only would the distance between two points become meaningless, but location at a single point would be frozen, eliminating movement and speed.

Consequently, the coordinate axes would become meaningless. Essentially, determining the distance and position between two points in space requires the presence of time (Figure 6).

From the perspective of T-Consciousness Cosmology, mass is a detector of time through gravitational force. This concept is illustrated in special relativity, where time for electromagnetic waves traveling at the speed of light is zero. Therefore, without mass, time would be meaningless.



Time: Dimension or Quantity?

In non-relativistic physics, time is considered a scalar quantity, similar to other fundamental quantities like length, mass, or electric charge, which only have magnitude. [5,6] However, in particle physics, time is often treated as energy using natural units. To simplify calculations, the Planck constant and the speed of light are set to 1. This means time is measured in terms of energy, such as giga-electron volts (GeV), rather than the ticking of a clock. This approach is also used for other

quantities like length, mass, and momentum [7,8]. The system of natural units is widely applied in fields such as nuclear physics, astrophysics, and theories related to quantum gravity.

Physicists use a principle called dimensional analysis to express time in terms of energy. In the natural unit system, since the unit of the reduced Planck constant (\hbar) is equivalent to energy times time, and the speed of light (c) is equivalent to distance over time, we can express time as $1/\text{energy}$. In other words, when time is expressed in GeV, it means that the unit of time is



Figure 7: One instance where time can be expressed in terms of the inverse of energy is Heisenberg's uncertainty principle equation, utilized in particle physics.

the inverse of energy [9]. (Figure 7). In the theory of relativity, time is measured differently depending on the observer's frame of reference for two reasons: time dilation and a concept known as proper time [10]. Reference frames are divided into two types: inertial (in motion) and rest, and essentially constitute the framework within which an observer observes and measures the motion or characteristics of objects such as position, speed, etc. Different reference frames can provide varying perspectives on a situation [11]. (Figure 8)



Figure 8: The difference in measurement by an observer at rest compared to observers in motion.

The concept of time dilation refers to the difference in elapsed time measured by two separate clocks. This discrepancy in measurement is either due to the relative velocity between them (special relativity) or due to the difference in gravitational potential between their respective locations (general relativity). That is, for an observer in an inertial reference frame, the ticking of the clock is measured to be slower than for

an observer in a reference frame at rest. Moreover, in the theory of relativity, the measurement of time for an object in space depends on its velocity and the gravitational field it is in. This means that the faster an object moves, or the more it is pulled by gravitational force, time is measured more slowly for that object [12,14]. (Figure 9)

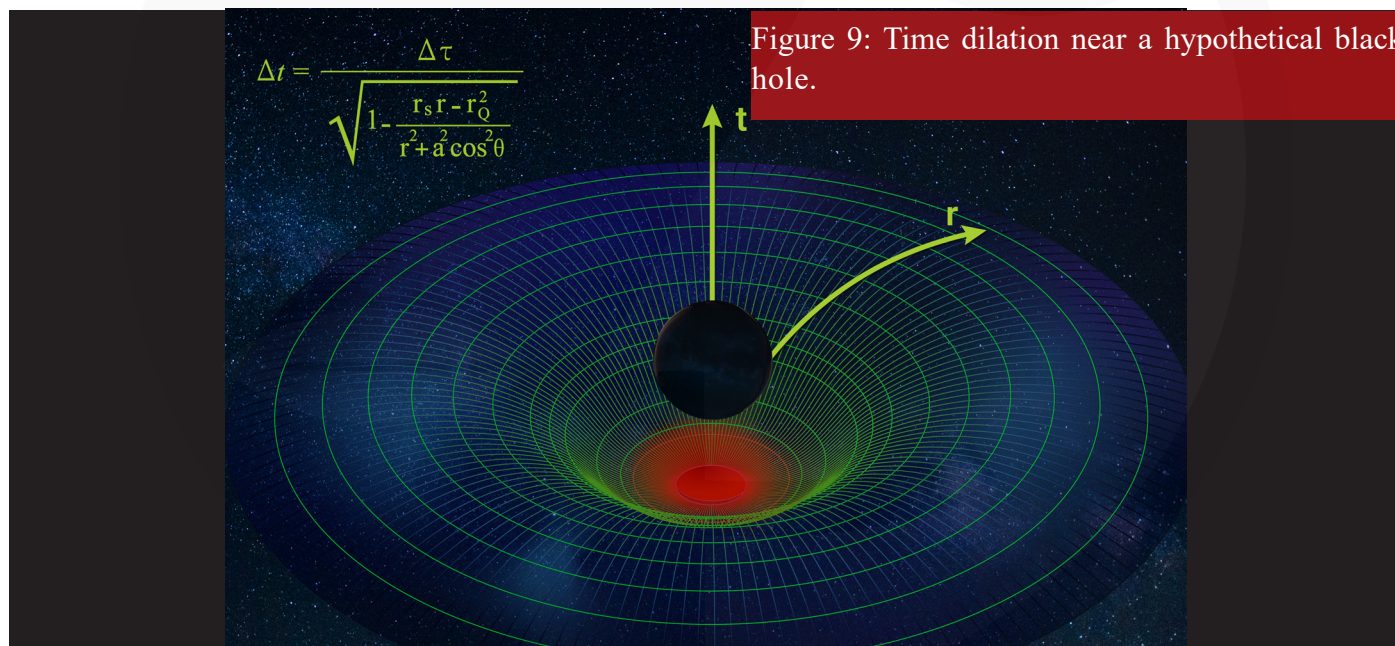


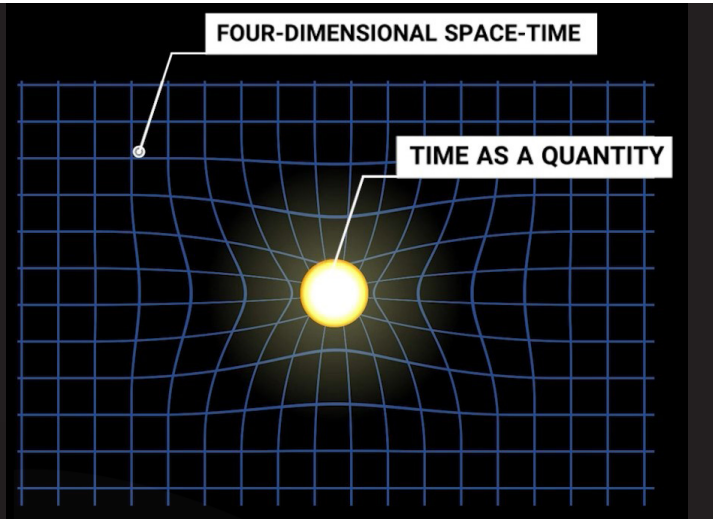
Figure 9: Time dilation near a hypothetical black hole.

Proper time is also the time that depends on the state of an object relative to its reference frame. To put it simply, imagine carrying a clock everywhere you go. The time displayed by your clock in different positions represents your own proper time. [14]

In particle physics, time is expressed as the inverse of energy; in the theory of relativity, a dimensionless quantity can be used as a time dilation factor for comparing the time experienced by different observers in a gravitational field. T-Consciousness

Cosmology raises this question: If we consider a particle at the quantum scale or large-scale objects like a black hole, each regarded as a system within the four-dimensional framework of space-time, and given that time is calculated as a quantity for each of them, does this ultimately lead us to the paradox of whether to consider time as a dimension or a quantity for these entities? (Figure 10)

Figure 10: Paradox: How can the general concept of time, which is considered as the fourth dimension interwoven in space, be considered the same form of time calculated in each particle, while time for the entire system is interpreted as a dimension?



This interpretation of time, traditionally considered the fourth dimension in physics, reveals an apparent paradox. Time is seen as a result of mass and the gravitational force it generates, rather than as an inherent dimension of space formed during the initial moments of the Big Bang. In the Spherical Cosmos Model, time existed as an entropic force due to the unimaginably large gravity of TAM in the cosmic black hole or the initial point of the cosmos, before the explosion or Big Shock, where its value tended toward infinity.

This perspective also defines the governing time for bodies at any scale as an entropic force that acts as a vector. It asserts that this force exists in every particle and large-scale cosmic body, having both direction and magnitude. In other words, the force of time acts in the opposite direction of the gravitational force exerted on each mass, working towards its disintegration. From the viewpoint of T-Consciousness Cosmology, the entropic force of time for all bodies is proportional to their mass and gravitational force. It is worth noting that this force is zero for any electromagnetic wave of any frequency due to their lack of mass, and it cannot be defined for stress-free space either. (Figure 11)

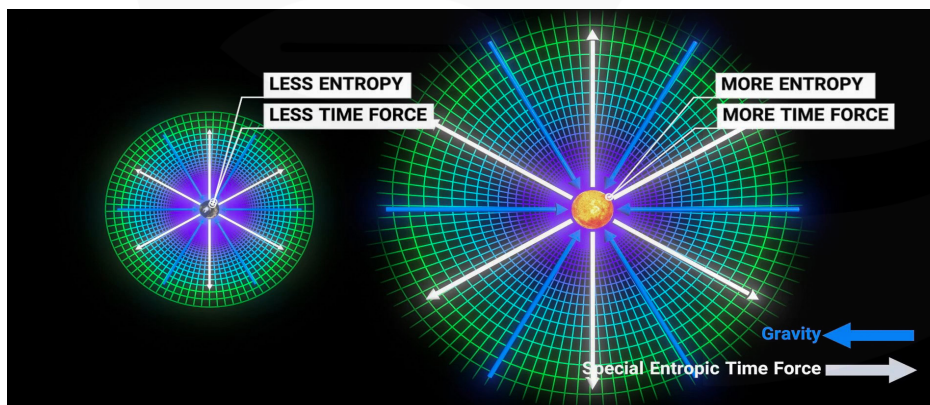


Figure 11: In T-Consciousness Cosmology, considering the formation of mass, the entropic force of time is introduced, which varies in proportion to the gravitational force and acts in the direction opposite to the gravitational force exerted on the object.

The Role of the Observer in Quantum Physics and T-Consciousness Cosmology

Observer in Quantum Physics

In quantum physics, the observer plays a fundamental role due to a phenomenon known as the observer effect. According to this effect, the act of observation changes the behavior of the observed particles. This

means that when an observer measures a particular property of a particle, it essentially collapses the particle's wave function, causing the particle to assume a definite state. This happens because of the wave-like nature of matter, implying that particles can exist in several states simultaneously [15,16]. The term "observable" in quantum physics has gained a specific meaning, referring to a Hermitian operator that signifies a measurement. A Hermitian

operator can be defined as a mathematical tool used in quantum physics, ensuring that the results of measurements are real numbers, just as they appear in the real world. It's crucial to understand that the

observer and the measurement process itself are merely a physical process, meaning it does not matter whether the observer is a device or human [17] (Figure 12)

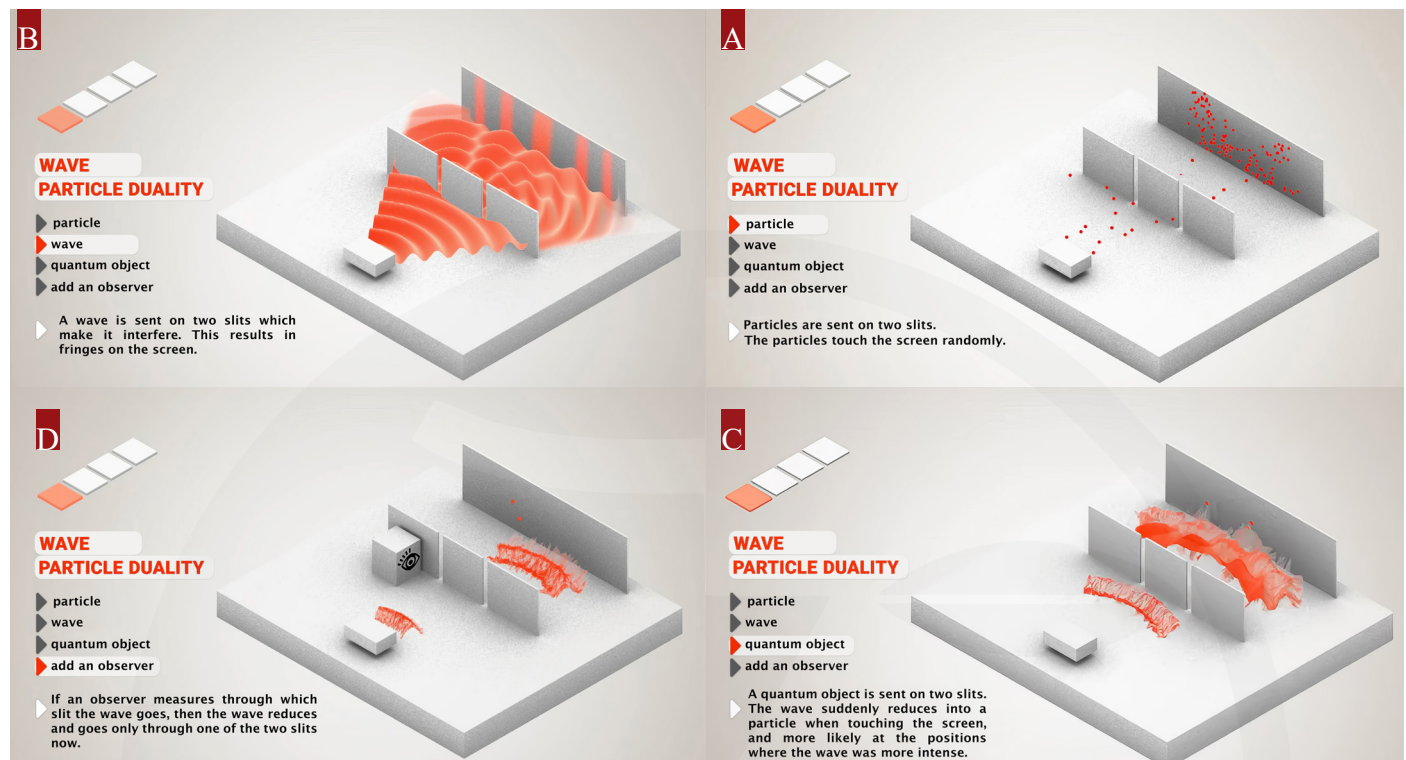


Figure 12: The observer effect phenomenon in Young's double-slit experiment

Unknown. [@Runswithscissors111]. (2013, February 17). Quantum Physics Made Simple - Wave-Particle Duality Animation [Video]. YouTube. Retrieved from https://www.youtube.com/watch?v=Xmq_FJd1oUQ&t=10s [Wave-particle duality]. Source: <http://www.toutestquantique.fr>

It is essential to note that the observer effect can be found in many fields of physics, and it is generally possible to minimize its influence by using various tools or observation techniques. A notable example of the observer effect in quantum mechanics, as illustrated in Figure 12, is the famous double-slit experiment by Young [18].

The Observer in T-Consciousness Cosmology

From the perspective of T-Consciousness Cosmology, the concept and definition of an observer extends beyond the quantum world and its associated framework. In the cosmos, two types of observers can be defined: 1) The General Observer and 2) The Special Observer. (Figure 13)

The term "General Observer" applies to all constituent parts of the universe, encompassing both ordinary matter and energy (from the most fundamental particles to the largest structures) as well as dark matter and energy. This type of observer includes all living and non-living beings that constantly interact with their surrounding environment according to the governing physical laws.



Figure 13: Right image: The concept of the general observer, encompassing all components of the universe.

Left image: A special observer, or the human being, who has the cognitive capacity to interpret any phenomenon.

Credits: Pablo Carlos Budassi, CC BY-SA 4.0

The term "Special Observer" refers exclusively to the human being. In addition to meeting the conditions of a general observer, special observers possess a high level of cognitive ability and can analyze all the events around them at any level. They investigate the nature of the universe from the parts to the whole and draw various conclusions from their observations.

Taheri Uncertainty Principle

In T-Consciousness Cosmology, uncertainty is considered a fundamental principle that governs the entire universe. This concept implies a lack of certainty about the inevitability of events or the existence of things. In other words, according to this principle, no phenomenon can be predicted with absolute certainty, nor can its existence or non-existence be assertively determined. Thus, the definition of uncertainty in this context is different and is referred to as the Taheri Uncertainty Principle. This principle covers a wide range of aspects, but in this discussion, it is specifically examined from the perspective of time.

In the Taheri Uncertainty Principle, the role of the human observer is crucial. It posits that at any given moment, only one particle has certainty in relation to all other particles in the universe. When an observer isolates a particle in the present moment, all other particles become uncertain relative to it, making

the isolated particle the only definite one. This is because all particles, or components of the universe, are considered to be in the past relative to the isolated particle, leaving only this particle to exist in the present.

As a result, the isolated particle becomes both the center and the sole particle of the universe through the observer's act of isolating it. Because from the observer's perspective, the entire universe can be defined solely in the concept of this particle, and time is isolated for all components of existence except this particle. Additionally, without transitioning from one specific moment to the next, there is no movement from a starting point, rendering space around the isolated particle meaningless.

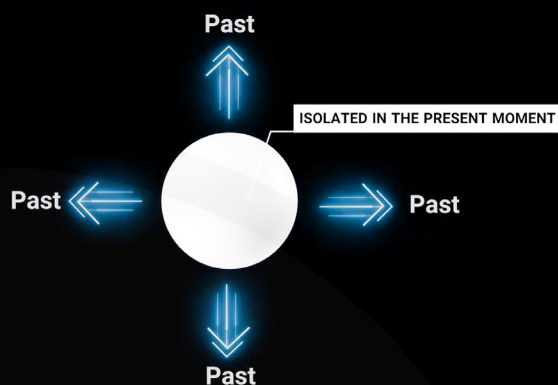
The role of the observer as the isolator of the particle is an integral part of this theory. The observer can isolate any particle, including itself, quantum particles, or even the largest cosmic bodies and systems, in the present moment. Therefore, it can be concluded that the human observer determines the certainty or uncertainty of cosmic components or even the cosmos itself. On the other hand, from the perspective of T-Consciousness Cosmology, the present time is equivalent to an infinite unit of time (e.g., an infinitesimal second), which is considered the point of transition from the past to the future. In other words, if we consider any particle in the present

moment by eliminating the past around it, we will lose the other particles. (Figure 14)

This is referred to as the Taheri Uncertainty Principle. According to this principle, it is not possible to position two particles simultaneously in

the present moment with certainty, because if one of these particles is considered in the present, the other particle will be positioned in the past relative to it and will be subject to uncertainty.

Figure 14: Elimination of location and other particles due to the isolation of a particle at the present moment by an observer.



This principle also holds true within every atom. This means if we consider an electron of an atom with certainty, the other electrons or even the nucleus of that atom will encounter uncertainty. Similarly, if we consider a quark within a proton or neutron with certainty, the other quarks will encounter uncertainty, and this matter continues to negative infinity within the particles, even if it takes several billionths of a second to traverse the distance between them. (Figure 15)

If this principle is established, at any given moment, the entire universe will have certainty only to the extent of the single isolated particle, which itself is the smallest possible existing particle. The rest of the universe will be in a state of uncertainty. In a sense, the rest of the universe will be considered virtual, and its existence or non-existence will be subject to the Principle of Uncertainty.

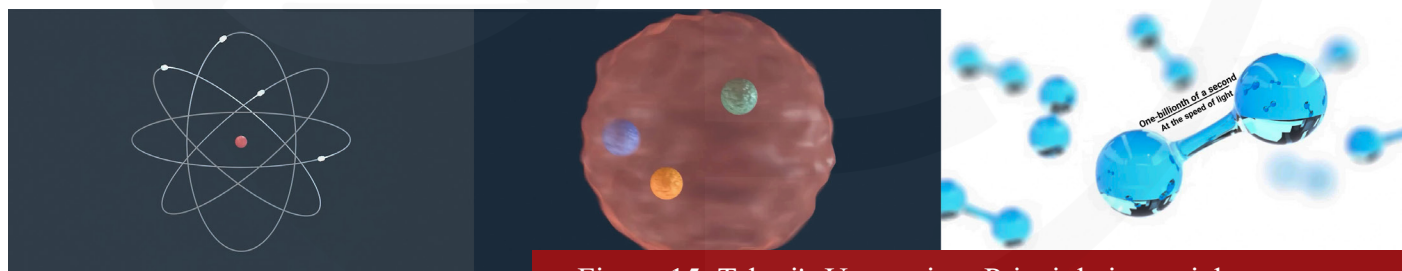


Figure 15: Taheri's Uncertainty Principle in particles.

Overall, T-Consciousness Cosmology posits that the Taheri Uncertainty Principle is not only extended to each of the elements of the universe, from the subatomic world to cosmic scales, but it also includes the entire cosmos as a system. This means that at any given moment, the universe is a single particle that possesses certainty.

seconds away and at its furthest, 507 light-seconds away. In fact, we are always observing the changes that occurred between 490 and 507 seconds ago, which pertain to its past. In other words, we would become aware of any change on the Sun eight minutes after it occurred. Therefore, it can be concluded that the Sun remains in a state of uncertainty until it is observed. This is because, as previously mentioned, any mass considered at any scale as a unit, is certainly surrounded by the past.

To simplify this concept, one can also use the example of the Sun's position relative to the Earth. At its closest position to the Earth, the Sun is 490 light-

T-Uncertainty can also be interpreted from another angle: Suppose an observer considers hypothetical particle (A) with certainty in relation to hypothetical particles (B to Z). While particle (A) is situated in the present moment for the observer, it is considered to be in the future relative to particles (B to Z); or in other words, particles (B to Z) are considered to be in the past, relative to particle (A). And inversely, if particles (B to Z) are to be considered with certainty

relative to particle (A), those particles will be situated in the present moment according to the observer while being situated in the future, according to particle (A). (Figure 16)

Therefore it can be said, as a general principle of the universe, that any particle from the vantage point of an observer in various states, can be situated in the past, present, or future.

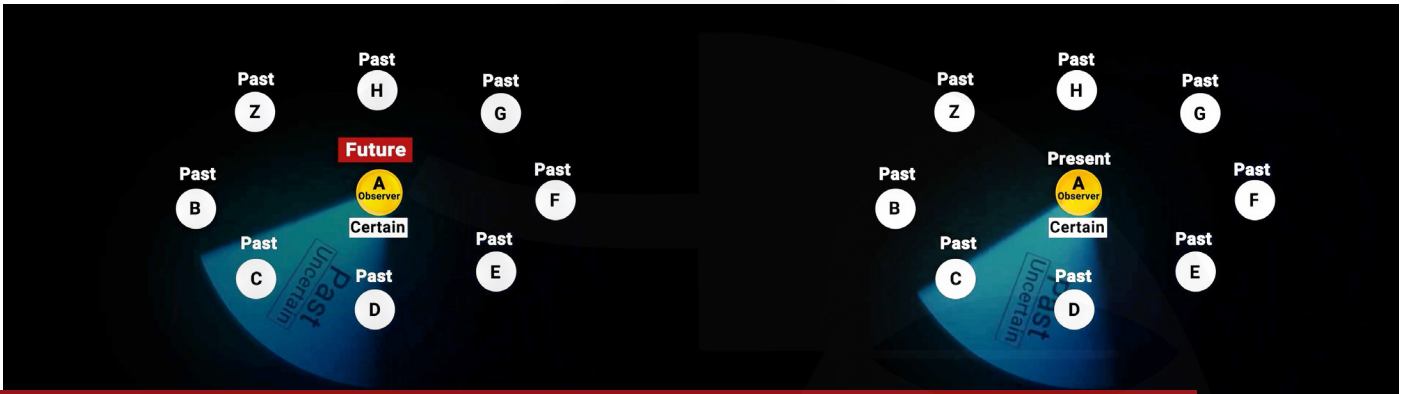


Figure 16: Right image: Particles B to Z are considered in the past relative to the isolated particle A. Left image: Particle A is considered in the future relative to particles B to Z.

The Difference Between the Taheri Uncertainty Principle and Heisenberg's Uncertainty Principle

The Taheri Uncertainty Principle differs from Heisenberg's Uncertainty. Heisenberg's Uncertainty was first introduced by the German physicist Werner Karl Heisenberg in 1927 and stemmed from the wave-particle duality of matter, related to the subatomic world. That is, it is not possible to simultaneously determine the position and velocity of particles

that possess both particle and wave characteristics. Simply put, the more accurately the position of certain particles is determined, their momentum can be predicted with less precision, relative to the initial conditions, and vice versa [19,20]. (Figure 17)

However, the Taheri Uncertainty Principle not only encompasses the subatomic world but also the entire universe. Therefore, T-Consciousness Cosmology calls it Taheri's General Uncertainty Principle.

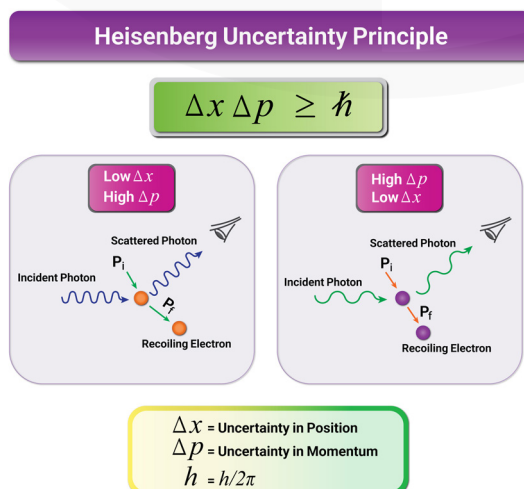


Figure 17: Heisenberg Uncertainty Principle

The Principle of Temporal Continuity

Continuous and Discontinuous Time

In light of the T-Uncertainty Principle, another principle can be defined. As mentioned before, depending on the observer's position, every particle in the universe can be perceived as existing in the past, present, or future. Now, if an observer isolates a particle at the present moment according to the T-Uncertainty Principle, time for that particle will be discontinuous. This is because this isolated particle will not be considered in a past or future state relative to other particles, and other particles will not be present for it to fall into a temporal sequence with. The key point here is that we can define a continuity of time for each individual particle. That is, the transition from past to present and from present to future. According to this concept, every particle is a product of its past, a

property referred to by T-Consciousness Cosmology as the continuity of time, which points to this general behavior in the universe and the dynamism of time in its components. (Figure 18)

Therefore, this perspective, contrary to some physicists' hypotheses that consider the past, present, and future in the universe as fixed and unchangeable, states that time in the universe is not frozen but flows dynamically. The only condition for time discontinuity for particles or components of the universe is their isolation in the present moment by an observer. On the other hand, each particle inherently possesses this temporal continuity. In other words, according to this perspective, every particle, every living being, and every human, due to the dynamic nature of time, which is considered a general behavioral property in the universe, is a product of its past.

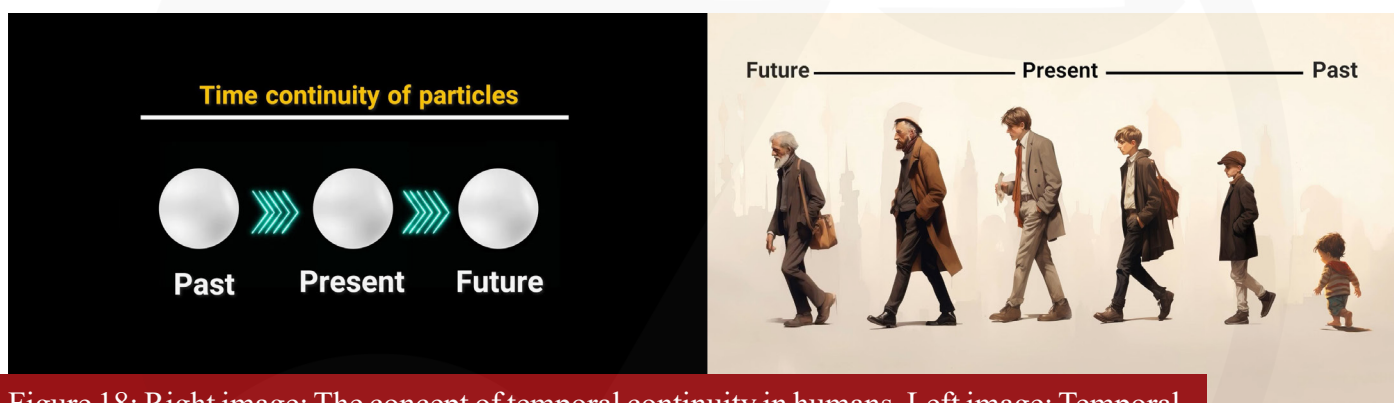


Figure 18: Right image: The concept of temporal continuity in humans. Left image: Temporal continuity for a particle from creation to decay

Temporal Continuity of Particles: A Challenge for the Standard Model of Cosmology

T-Consciousness Cosmology employs an example to articulate the concept of the continuity of time, which also poses a challenge to the standard model of cosmology. In this example, consider an observer situated in a galaxy among millions of discovered galaxies. This galaxy is younger than the Milky Way, which is one of the oldest galaxies in the universe, and is spatially located between the Milky Way and the younger galaxies that lie in the depths of the cosmos.

Now, if this observer, while situated on the same aforementioned galaxy, were to look to both sides around them, they would see older galaxies on one side and younger galaxies on the other. In fact, the position of this observer and the nature of observation lead to the consideration of a timeline from the past to the future, which represents the evolution of the cosmos (Figure 19). Moreover, the wavelength of the cosmic microwave background radiation for this galaxy, from which the observer is surveying the depths of space, will differ from one side to the other. This concept refutes the principle of isotropy in the universe, while recent observations have challenged this principle.

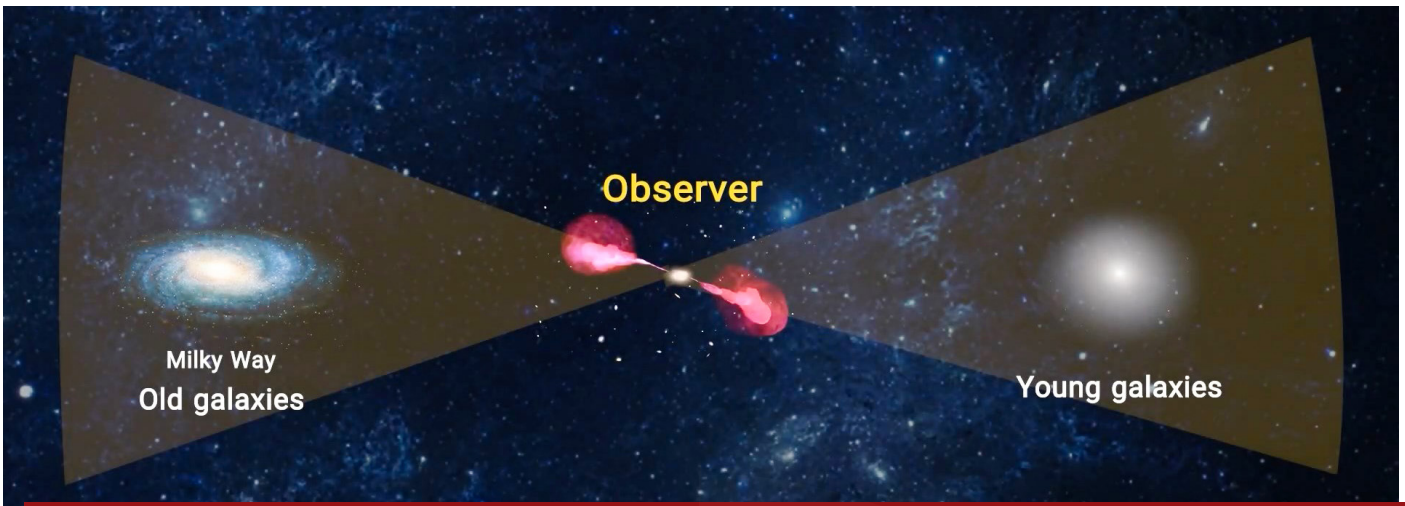


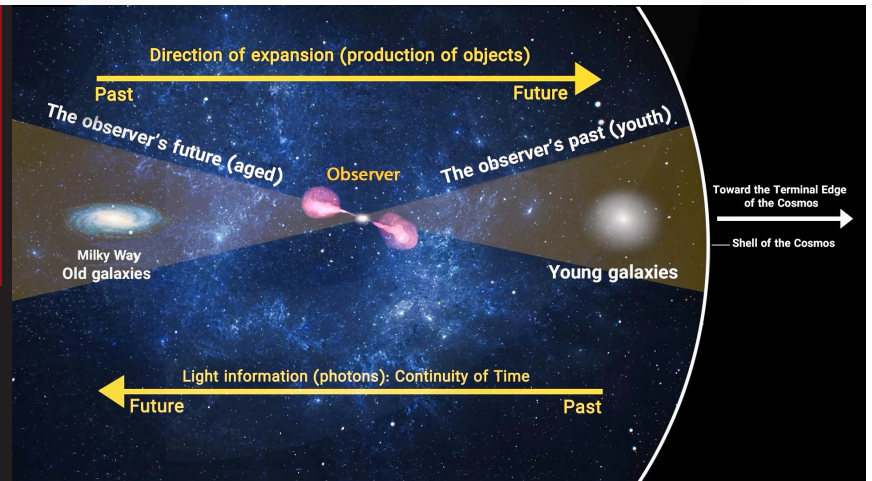
Figure 19: An observer viewing younger galaxies on one side and older galaxies on the other. This observation challenges the principle of isotropy in the standard cosmological model.

Delayed Information of the Future

T-Consciousness Cosmology asserts that the mentioned example is cited as a challenge to the latest Big Bang model, as it indicates the spherical geometry of the cosmos and the temporal continuity in the distribution of objects within it. This tells us that observing the depths of space and viewing the past does not necessarily represent the younger

periods of the cosmos. Overall, the vector pointed toward the future of a galaxy from youth, to middle-age and eventually an older galaxy, demonstrates that within the cosmic sphere, we are undergoing a transformation from the past (the regions associated with the Milky Way, which are the central areas of this sphere) towards the future (the depths of space, which are regions nearer to the cosmic shell). (Figure 20)

Figure 20: According to the Spherical Cosmos Model, observing the depths of space and seeing the past does not necessarily indicate the youth or adolescence of the cosmos.



In other words, according to the Spherical Cosmos Model, it is the cosmic shell that is moving away from us, and new objects are formed as space and matter are projected in its wake as it progresses outwards. In this model, the position of the Milky Way galaxy is near the central region of this vast sphere, moving towards the cosmic shell. Therefore, observing deep-space objects including the CMB which is evidence for the recombination epoch, shows us current events

happening near the shell of the cosmos. The immense size of the cosmos and their distance from us are the reasons we are witnessing them as past events -in other words, a future that arrives with a delay. (Figure 21).

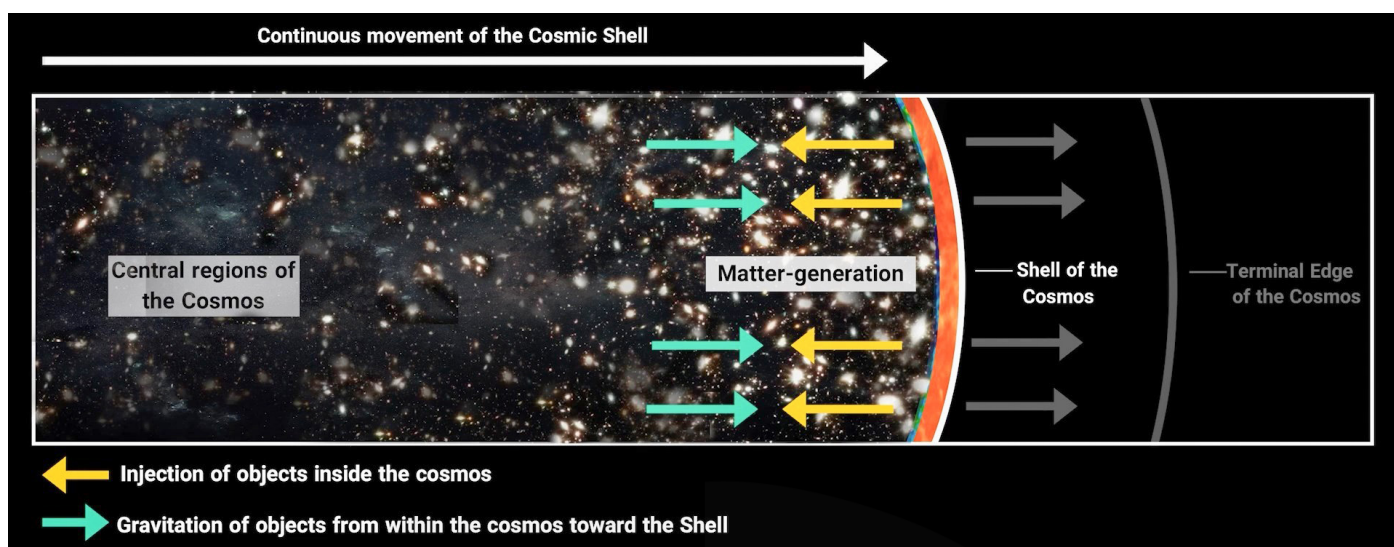


Figure 21: Formation of new bodies in regions close to the shell in the Spherical Cosmos Model.

As stated, with the outward movement or the expansion of the cosmic shell, all celestial bodies are simultaneously being stretched and moving towards the terminal edge of the cosmos. This process is akin to the movement of a person walking towards the end of a moving train. Since the train's speed exceeds the person's speed, the overall direction and speed of the person's movement will be in the forward-moving direction of the train, even though they are

moving against the forward movement of the train. This same phenomenon is constantly occurring for newly formed bodies by the shell or objects within the cosmos. (Figure 22) In the standard model of cosmology, we are moving away from the universe/cosmos' past, which is the Big Bang. According to T-Consciousness Cosmology, this past currently does not exist and the cosmic events from the Big Bang to the present are considered a mere timeline.

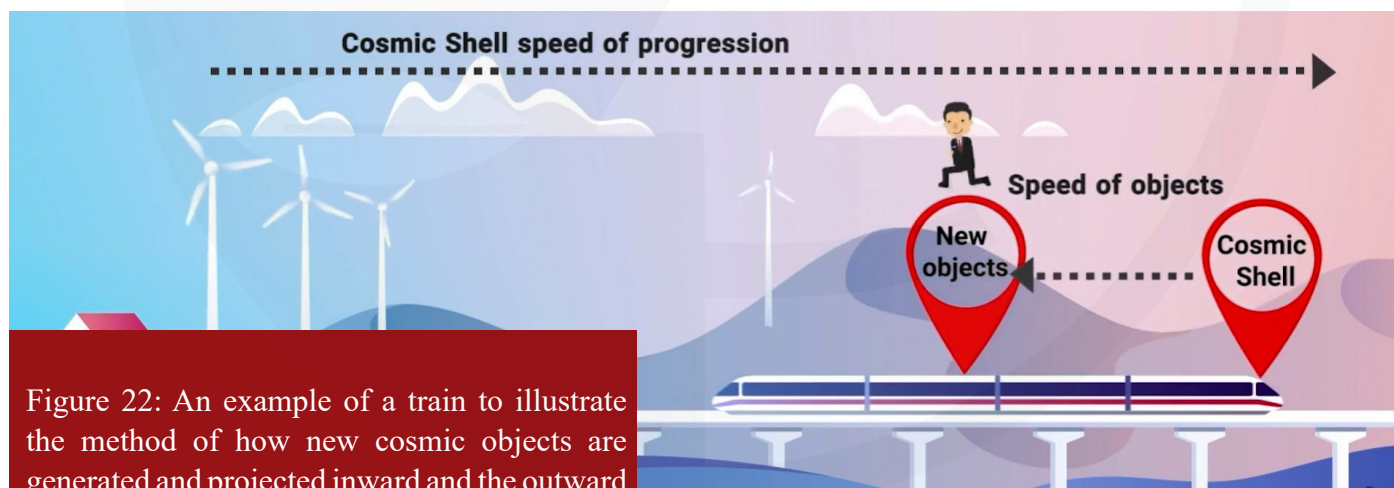


Figure 22: An example of a train to illustrate the method of how new cosmic objects are generated and projected inward and the outward progression of the shell of the cosmos in the Spherical Cosmos Model.

In the Spherical Cosmos Model, T-Consciousness Cosmology suggests that the universe has a center and identifies a specific region for it, placing the Milky Way galaxy near this central region. This concept, along with supporting reasons and observational evidence, will be further explored in the Center of

the Cosmos theory. (Figure 23)

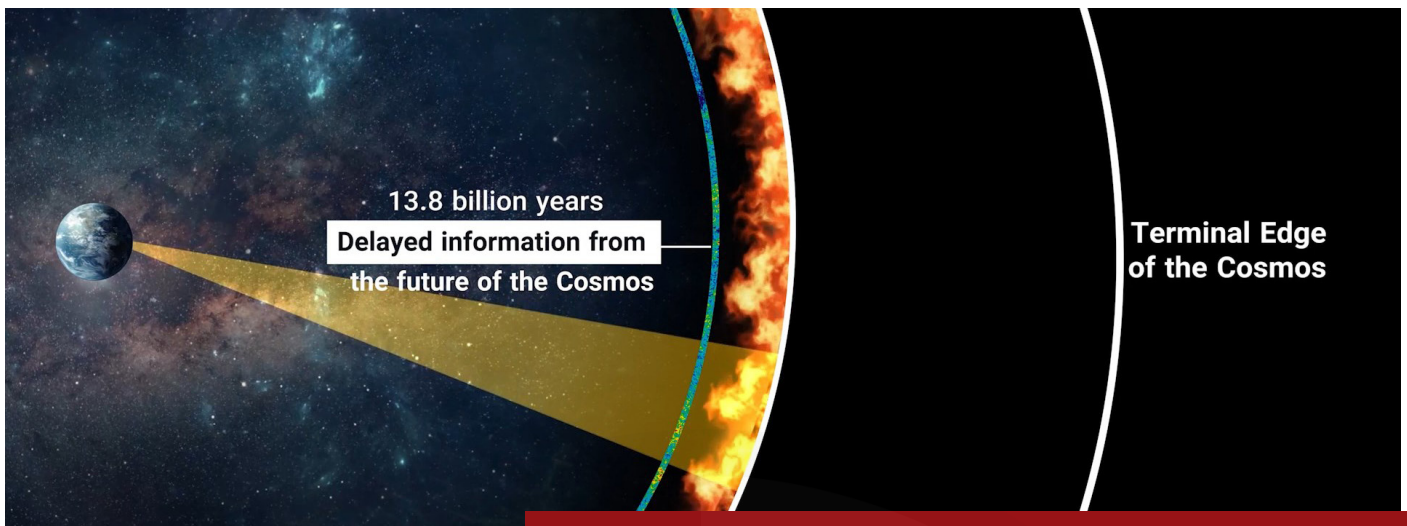


Figure 23: According to the Spherical Cosmos Model, the Earth is located near the central region of the cosmos.

Uncertainty of Time

Considering the previous discussion regarding T-Uncertainty, T-Consciousness Cosmology concludes that the concept of time itself is also relative. This means time can be both continuous and discontinuous depending on the observer. In such a way, that the continuity of time both exists and does not exist. In other words, the continuity of time itself is uncertain because if we are always in pursuit of capturing every moment in the real world,

we immediately lose the moment we are in pursuit of. This is because, according to T-Consciousness Cosmology, while every moment is composed of an infinitesimal unit of time, we as observers in the real world can never access that infinitesimal moment that represents the actual present time in transition. Consequently, time itself will be relative. Therefore, we face the Principle of the Uncertainty of Time. (Figure 24)

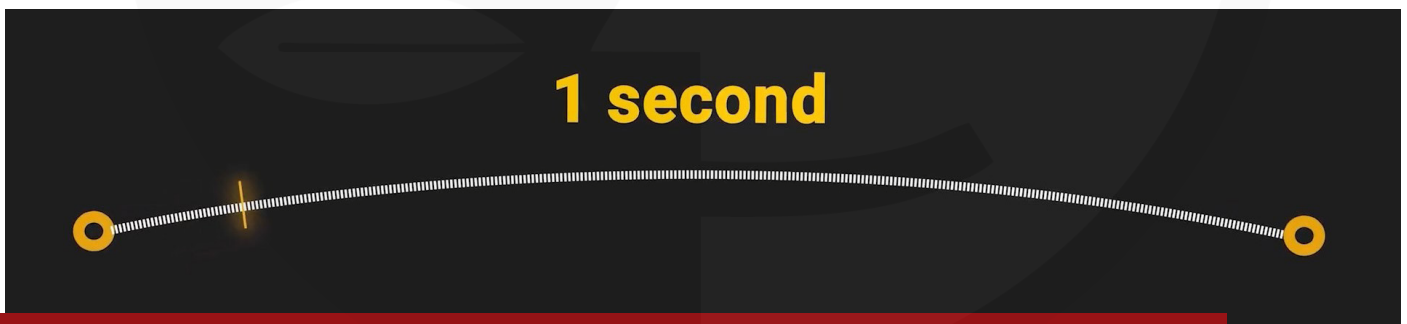


Figure 24: Isolating the actual present moment in the actual sense is impossible, considering that a second consists of an infinite number of moments.

Conclusion

The reason for attributing cosmic centrality from a temporal perspective for a particle is that, considering the T-Uncertainty Principle, both space and time can be considered virtual for particles relative to the observer's position. An example to express this theory in simpler terms is if we isolate and define

Earth in its current position within a system like the solar system, the other components of this system would then be subject to the T-Uncertainty Principle. In such conditions, we cannot be certain of the Sun's existence because it is possible that the Sun disappeared moments ago, and we would only become aware of this about eight minutes later. Therefore, the existence of the Sun at this moment

does not have certainty for us as observers. This principle can be extrapolated to the entire cosmos as a system, indicating the relativity of the universe. In fact, the entire cosmos is subject to the Taheri Uncertainty Principle. (Figure 25)



Figure 25: From the perspective of T-consciousness Cosmology, the entire universe, including both observable and unobservable components, is virtual and governed by the Taheri Uncertainty Principle.

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The Observer and the General Centrality of Particles

In the standard model of cosmology, according to the principle of homogeneity, the universe does not have a special center, and every point can be considered the center of the universe. In this model, the Big Bang is examined as a temporal event. However, T-Consciousness Cosmology, by introducing the Spherical Cosmos Model (SCM), considers a special spatial center for the universe. This novel approach introduces various observers and also a new type of centrality for particles, taking into account the 'Taheri Uncertainty Principle,' which applies to each component and even the entire cosmos as a system. This new type of centrality is analyzed from a temporal perspective.



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