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The Shell of the Cosmos

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Abstract

The Big Bang theory, widely accepted by cosmologists, explains the origin, expansion, and eventual fate of the universe. It was further developed by inflation theory, which solves issues like the horizon and flatness problems. This theory states that the Cosmic Microwave Background (CMB), a remnant of the Big Bang, permeates the entire universe. Cosmologists believe these photons were emitted during the recombination epoch, approximately 380,000 years after the Big Bang when the cosmos had a temperature of around 3,000 Kelvin. Additionally, the Lambda-Cold Dark Matter (ΛCDM) model addresses questions arising from observations of the cosmos, such as the existence of light elements like hydrogen, helium, lithium, and the anisotropy in the CMB, and eventually, the continuous expansion of space. In this model, dark energy, represented as the cosmological constant lambda (Λ), exerts negative pressure on empty space, counteracting the effects of gravity with a repulsive force. While the Standard Model of Particle Physics (SMPP) posits that the universe's matter originated from fundamental particles (quarks and leptons), it cannot explain the origin of these particles and how they came into existence, because general relativity and the SMPP cannot be integrated to explain matter production at the singularity point. T-Consciousness Cosmology introduces the 'Spherical Cosmos Model' (SCM) to answer questions about the cause of the explosion, expansion, and shape of the universe, the nature of ordinary matter and energy, dark matter and energy, the fate of the universe, the reason for the high density of objects in the depths of space, etc. In this model, the spherical cosmos has a shell called the 'Shell of the Cosmos,' made of Taheri Absolute Matter (TAM) that not only isolates it but also produces dark matter and dark energy, ordinary matter and ordinary energy, and finally space mesh from the inner surface to the inside of the cosmos since the birth of the universe. The Shell of this isolated sphere is currently expanding at a speed faster than the speed of light. In this perspective, dark matter and energy are the same space mesh that have been compressed to varying degrees. Dark energy, which is constantly being released from the Shell into the cosmos, unlike the standard model of cosmology, is one of the factors in the expansion of the isolated cosmos by creating positive pressure in it. Also in this model, the recombination epoch will always be located spherically at a certain distance from the Shell until the ultimate stage of Rebound. In other words, not only is the origin of the CMB not related to the past of the cosmos, but it also exists now, and given the vastness of the sphere and the position of the Earth within this sphere, we detect it in the microwave wavelength with a delay of several billion years. Therefore, the observed distant galaxies that have been attributed to the early epochs of the cosmos in the Big Bang model are currently being created by the Shell according to the Spherical Cosmos Model, and we are surrounded by particles and objects that are constantly being produced.

Keywords: Spherical Cosmos Model - Shell of the Cosmos - TAM Decomposition - Light Dark Matter - Dark Dark Matter - Solid-like Dark Matter - Liquid-like Dark Matter - Gas-like Dark Matter - Positive Pressure of Dark Energy - Space Rebound

The Shell of the Cosmos

The most widely supported theory today is the Big Bang theory, which states that approximately 13.84 billion years ago, the universe began to rapidly expand from matter and energy, with a special explosion from a very hot, dense, and infinitely small point. This theory by itself had some shortcomings such as the flatness problem and the horizon problem, which were theoretically addressed with the introduction of the inflation theory in 1980 by Alan Guth.[1] In the meantime, the standard model of cosmology, also known as the Lambda-CDM model, has been developed over the years based on a series of discoveries and theories such as Albert Einstein's general theory of relativity in 1951, the discovery of the Cosmic Microwave Background (CMB) in 1965, and the first recorded image of this radiation in 2013, which confirmed this model, adding puzzles such as dark matter and dark energy to the Big Bang theory. This model consists of three main components: 1- ordinary matter, 2- Cold Dark Matter (CDM), 3- a cosmological constant (Lambda, Λ) associated with dark energy. The continuous expansion of space, the distribution of light elements in the universe like hydrogen, helium, and lithium, and finally, the anisotropy in the CMB are explained in this model.[2]

In the Lambda-CDM model, as the universe continues to expand over time, the negative pressure associated with the cosmological constant (dark energy) increasingly dominates over opposing gravitational forces, and the expansion of the universe accelerates. Additionally, this model assumes that General Relativity is the corrected theory of gravity at cosmic scales.

On the other hand, the Standard Model of Particle Physics (SMPP) explains the origin of matter in the universe in terms of the particles that constitute its primary building blocks.[3] The issue that arises here is that if we consider the origin of the universe to be a singularity according to the Big Bang theory, integrating general relativity with the SMPP at the initial moment of the Big Bang, and explaining how matter and energy came into existence from the singularity will be impossible.

Despite these limitations, cosmologists believe the Big Bang theory is the only theory that has so far been able to provide a correct analysis of the observational data.

Conventional Cosmology

The Big Bang

From the perspective of cosmologists, the universe has gone through several stages of evolution after the Big Bang, some of which include (Figure 1):

Inflation Epoch: A brief period of exponential expansion that increased the volume of the universe by a factor of at least 10^{26} times in less than one-trillionth of a second. This process smoothed out any initial irregularities and created minor fluctuations in the density and temperature of matter and radiation. It should be noted that this theory also has its critics.[1]

2. Nucleosynthesis Epoch: A period that according to most cosmologists occurred from 10 seconds to 20 minutes after the Big Bang. During this epoch, the universe was hot enough for nuclear fusion to occur and the first light elements such as hydrogen, helium, and lithium were formed from protons and neutrons.[4]

3. Recombination Epoch: A period approximately 380,000 years after the Big Bang, during which the universe cooled down sufficiently for charged electrons and protons to combine and form neutral atoms. During this epoch, photons were able to escape freely. The CMB radiation was generated following the decoupling of these photons. According to the Big Bang theory, this radiation represents the oldest light that we can detect in the universe.[5]

4. Structure Formation: A period spanning billions of years during which gravity amplified slight fluctuations in the distribution of matter, causing gas clouds to collapse into themselves to form stars, galaxies, clusters, and superclusters. Most of the visible structures that we see in the universe today were formed during this epoch.[6]

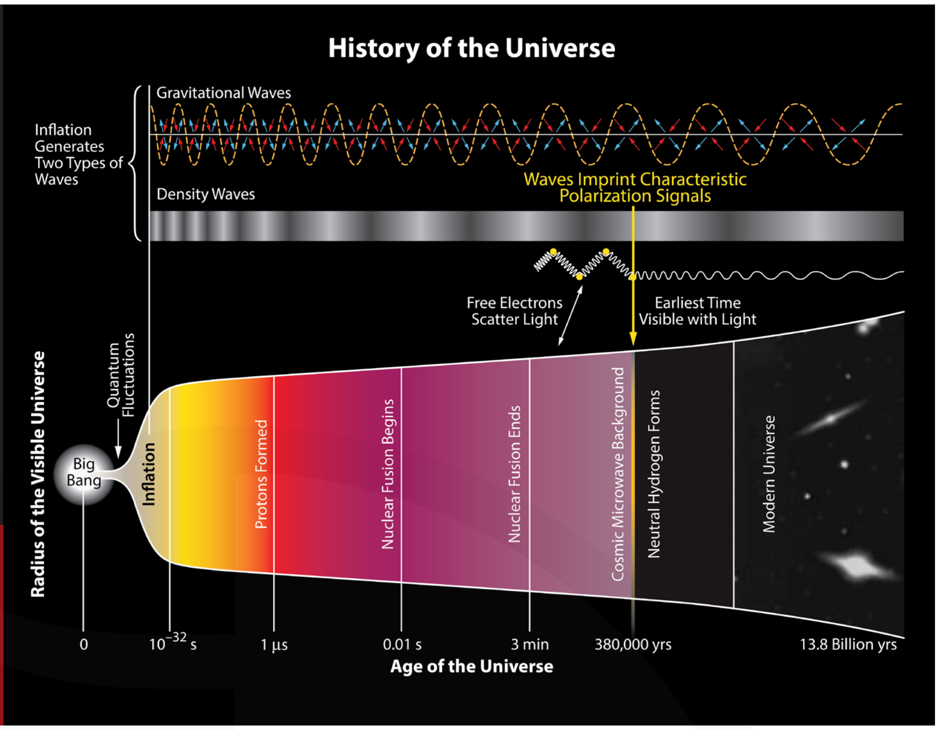

Figure 1: The Universe from the Big Bang to present. Credits: National Science Foundation-Funded BICEP2 Program, public domain

On the other hand, cosmologists contend that the Big Bang theory is supported by various observational evidence. Among this evidence, the following points can be mentioned:

1. The redshift of distant galaxies, which indicates that these objects are moving away from us and the universe is expanding (Figure 2).

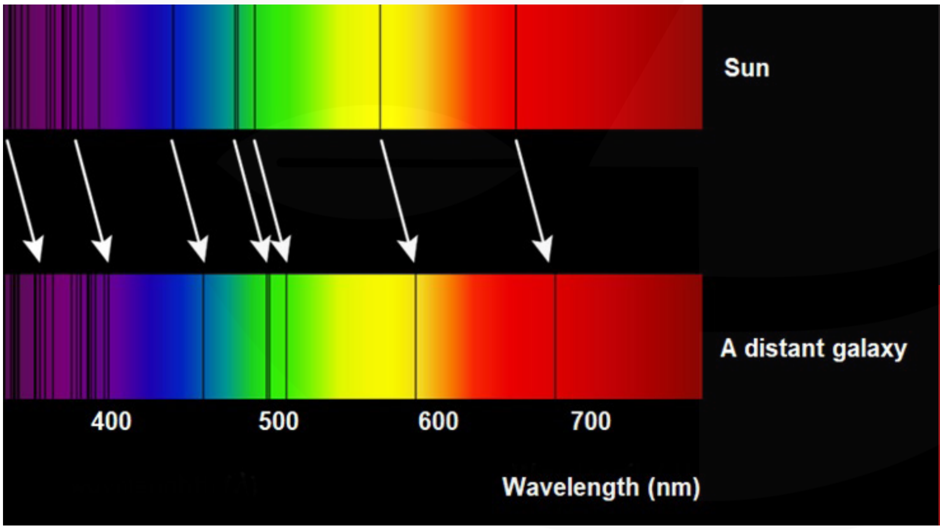

Figure 2: Galactic redshift at very large distances during the expansion of the universe relative to the solar optical spectrum. Adapted from: Georg Wiora (Dr. Schorsch), CC BY-SA 3.0

2. The CMB, which exhibits a nearly uniform temperature across the entire sky and matches the predicted spectrum of radiation from a hot, expanding universe (Figure 3).

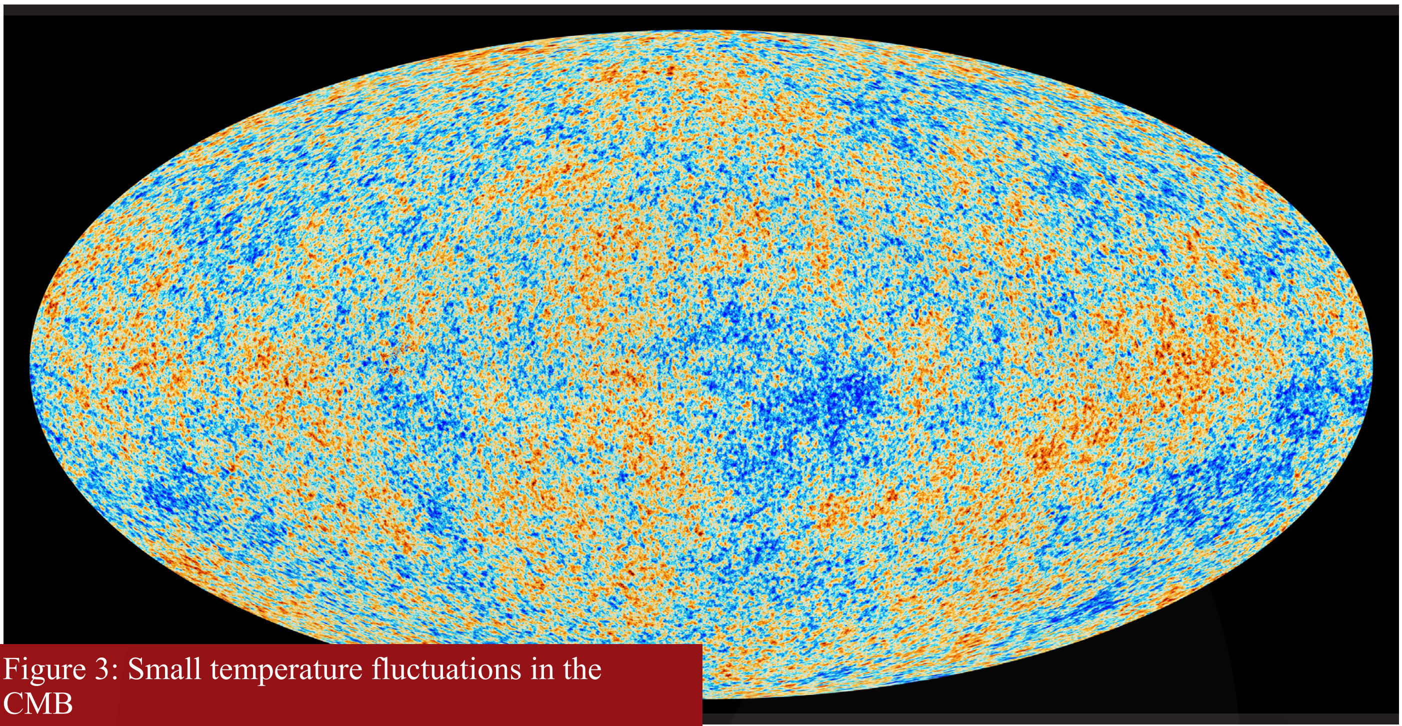

Figure 3: Small temperature fluctuations in the CMB
Credits: ESA and the Planck Collaboration

3. The abundance of light elements, which matches the calculated amount of nucleosynthesis that occurred in the early universe (Figure 4).[7]

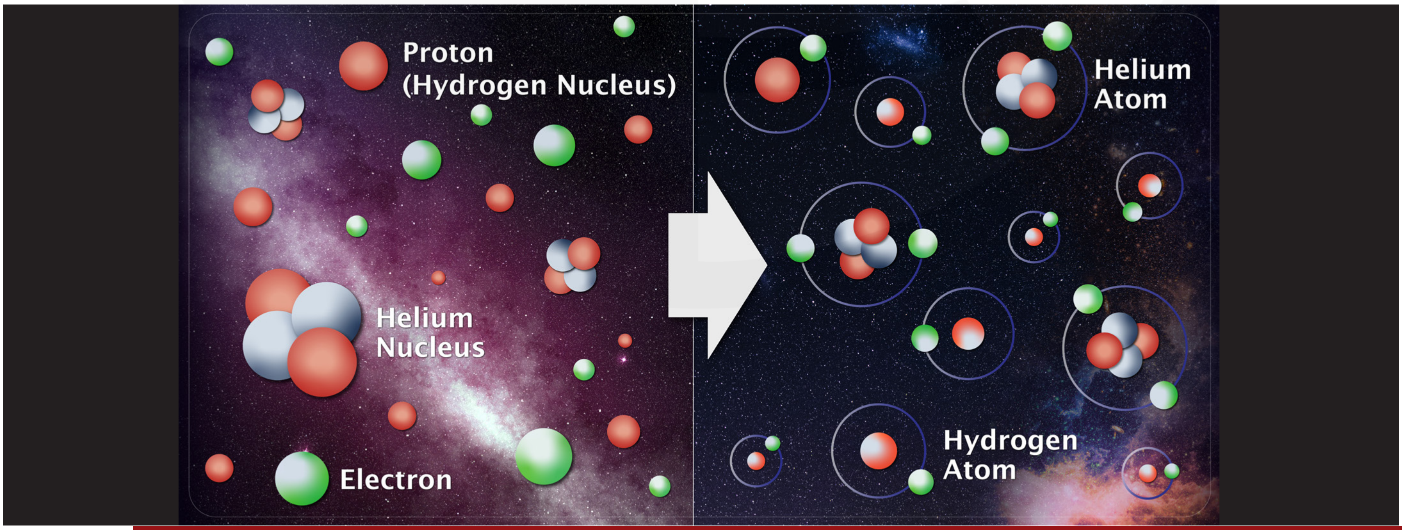

Figure 4: (Left image) In the early universe, which was very hot, electrons could not remain attached to atoms. (Right image) The first elements, hydrogen and helium, were formed about 380,000 years after the Big Bang, when the universe had cooled down enough for their nuclei to capture electrons.

Regardless, from the perspective of conventional cosmology, the Big Bang theory is not without flaws and has several issues. One of the problems is that the Big Bang theory does not explain what caused the initial explosion or what happened before the bang or within a fraction of the first second, nor does it explain the nature and origin of dark matter and dark energy, which constitute most of the mass and energy of the universe.[8] Additionally, there are conflicts between various observations or predictions that challenge this model.

Therefore, cosmologists are constantly experimenting with and revising the Big Bang theory with new data and experiments as well as investigating alternative or advanced models that may address some of these problems or questions. Some of the alternative theories proposed in this regard include:

1. The multiverse hypothesis, which suggests that our universe is one of the possible universes that could exist with different physical laws or constants (Figure 5).[9]

Figure 5: An artistic rendition of the Multiverse Theory

2. The oscillating universe theory, or cyclic model, which proposes that our universe undergoes repeated cycles of expansion and contraction, where each previous cycle ends with a Big Bang and the new cycle begins with a Big Crunch (Figure 6).[10]

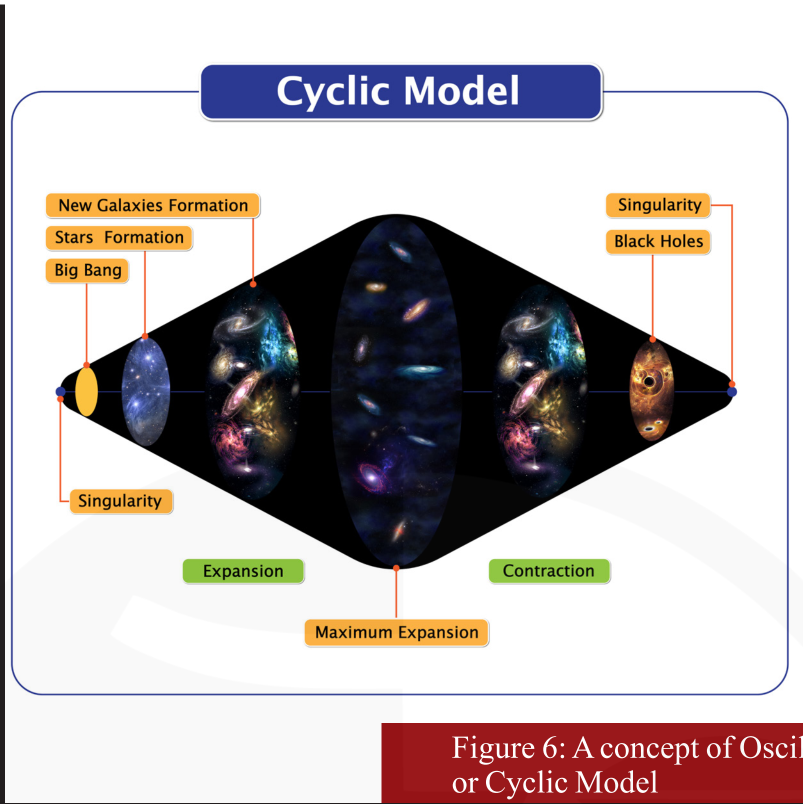

Figure 6: A concept of Oscillatory Universe Theory or Cyclic Model

3. Quantum Gravity/Loop Quantum Cosmology, which attempts to unify quantum mechanics and general relativity within a single framework. This union describes the behavior of matter and energy at very small scales and high energies, such as the Big Bang singularity (Figure 7).[11]

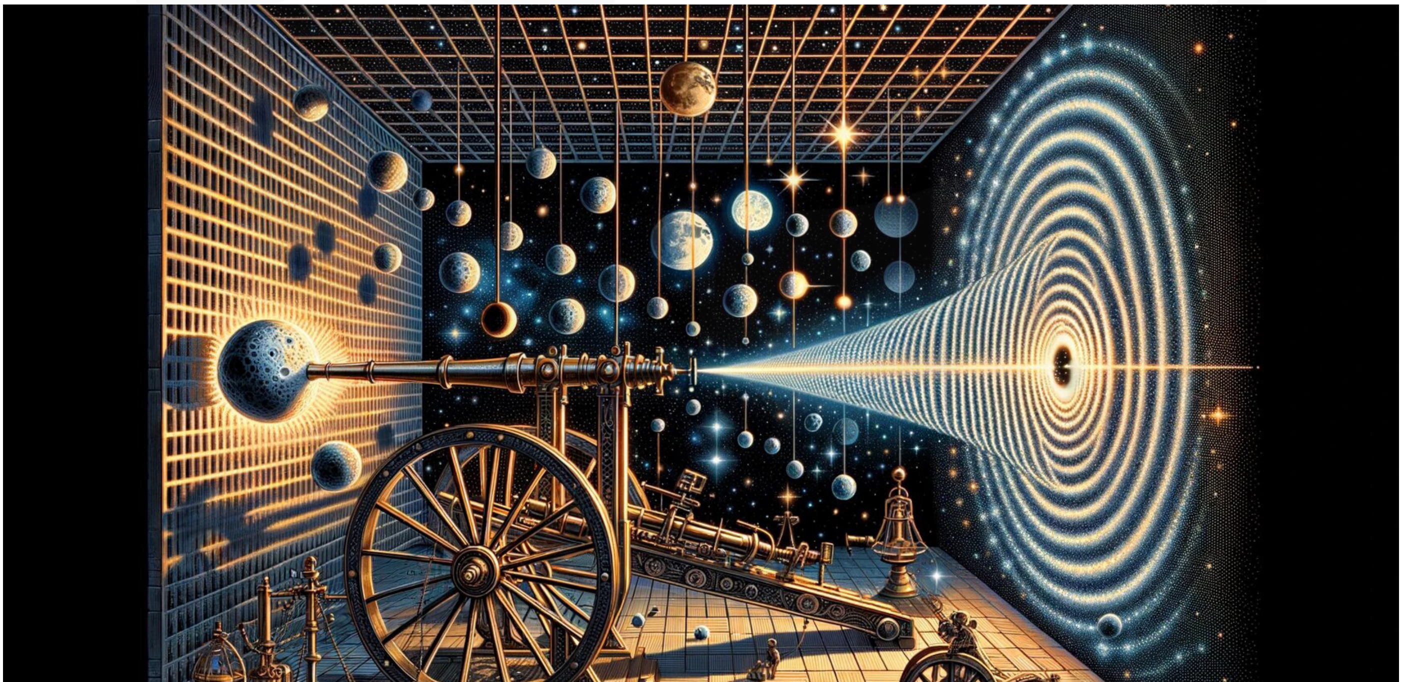

Figure 7: The image depicts an experiment in which heavy particles (illustrated as the moon) cause an interference pattern (a quantum effect), while also bending spacetime. The hanging pendulums depict the measurement of spacetime.
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The CMB from the Perspective of Conventional Cosmology

As previously mentioned, conventional cosmology states that the CMB, is the remnant radiation from the Big Bang that permeates the entire universe. According to this viewpoint, this radiation is a valuable source of information about the early stages and evolution of the cosmos. It was first identified in 1964 by Arno Penzias and Robert Wilson, who were awarded the Nobel Prize for their discovery (Figure 8).

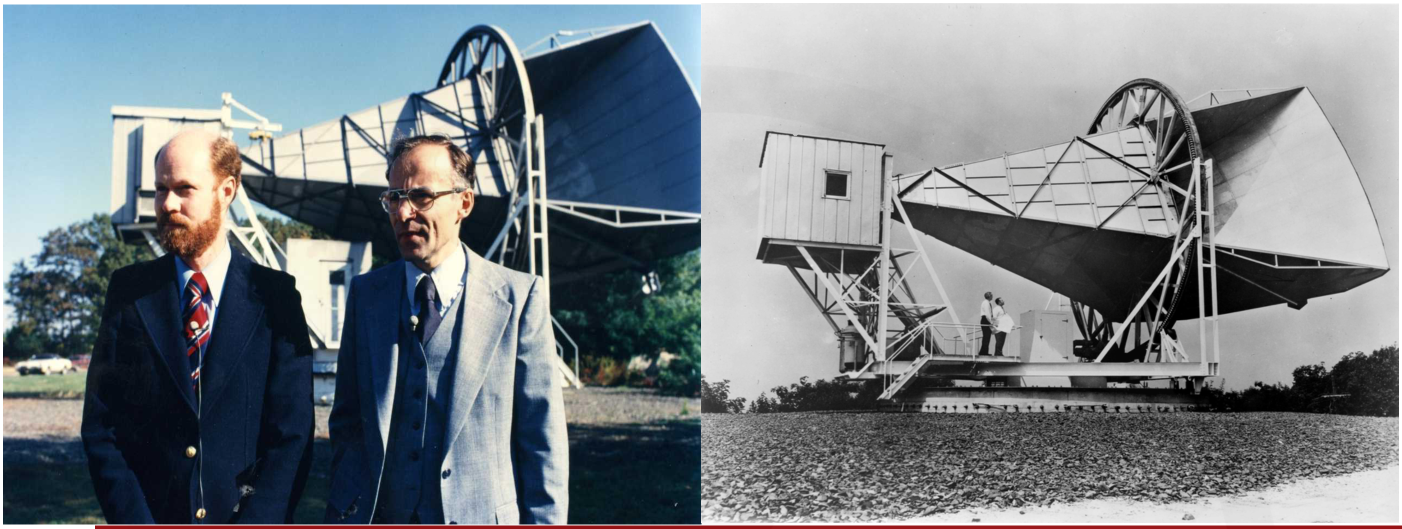


Figure 8: (Left image) Discovery of the CMB in 1965 by Penzias and Wilson. Reprinted with permission from: Nokia Corporation and AT&T Archives
(Right image) The 15-meter Holmdel Horn Antenna at the Bell Telephone Laboratories in Holmdel, New Jersey
Credits: NASA, restored by Bammesk, Public domain

Cosmologists theorize that in the early stages of the Big Bang, before stars, galaxies, and planets existed, the infant universe was much hotter, denser, and filled with a plasma of particles or opaque hydrogen. As the cosmos expanded, this plasma cooled. The compressed radiation within it shifted to longer wavelengths, and eventually, as temperatures fell, protons and electrons combined to form neutral hydrogen atoms. This transformative period marks the Recombination Epoch.

When the temperature of the universe reached 3000 Kelvin, photons were able to move freely in space, an event referred to as photon decoupling. Cosmologists believe CMB photons were emitted during the recombination epoch, roughly 380,000 years after the universe's birth, when its temperature was about 3000 Kelvin. Over their 13.8 billion-year journey, these photons can be detected in the microwave spectrum with an average temperature of 2.7 Kelvin. In other words, the expansion of space has stretched the wavelengths of these photons, shifting them from the visible light spectrum to the infrared spectrum and eventually to the microwave spectrum. (Figure 9).[12]

The CMB is therefore considered to be the leftover radiation from the Big Bang. It is the strongest evidence that cosmologists have for the Big Bang theory. This evidence has led cosmologists to accept the theory and to study it further from various angles in order to confirm it.

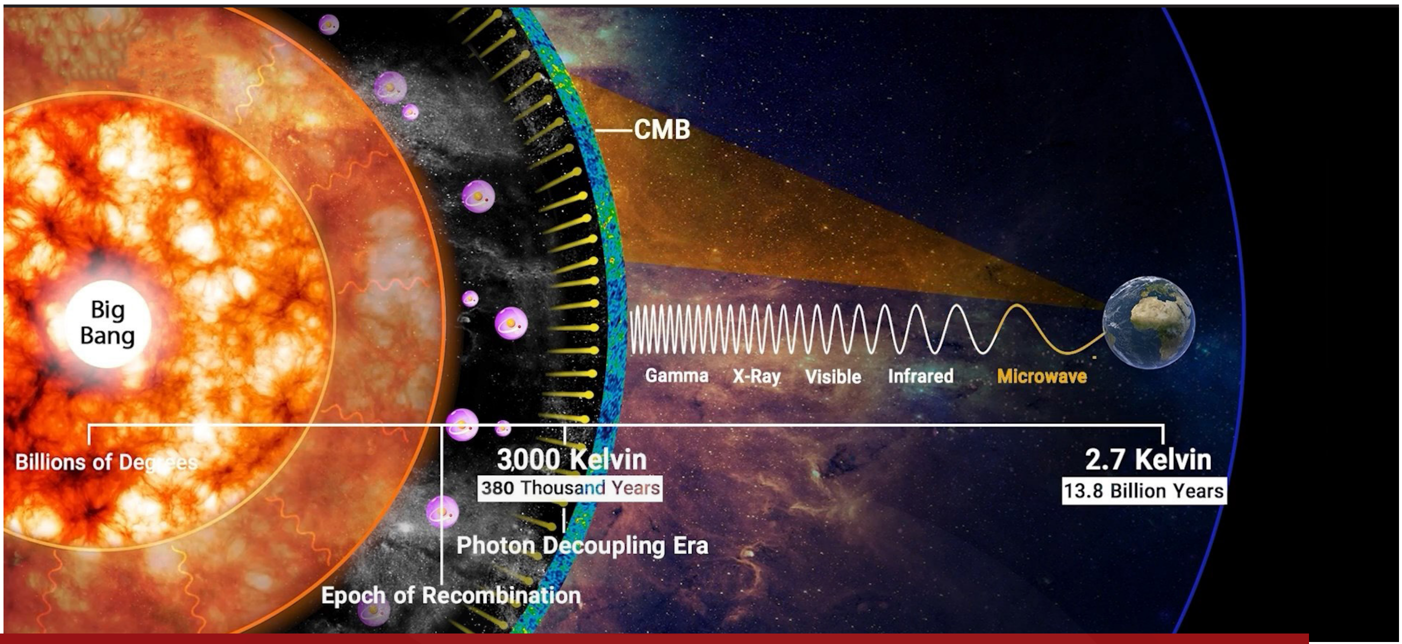


Figure 9: From the perspective of conventional cosmology, the CMB is a sign of the events of the early universe. (In this figure, the photon wavelengths is simply shown schematically)

The standard model of cosmology (SMC), which describes the origin, structure, and history of the cosmos, assumes that the universe is homogeneous and isotropic on large scales. This means that it appears the same in all directions and locations.[2] This theory predicts that the CMB should exhibit a black body spectrum with a temperature of approximately 2.7 Kelvin. This prediction has been confirmed by several space missions such as Cosmic Background Explorer (COBE), Wilkinson Microwave Anisotropy Probe (WMAP), and Planck. Moreover, the SMC predicts that this radiation should have small temperature fluctuations across the sky, reflecting density fluctuations in the early universe that would later evolve into galaxies and clusters. These fluctuations are measured by CMB experiments and provide extensive information about cosmic parameters, such as age, expansion rate, curvature, and composition of the universe (Figure 10).[13,14]

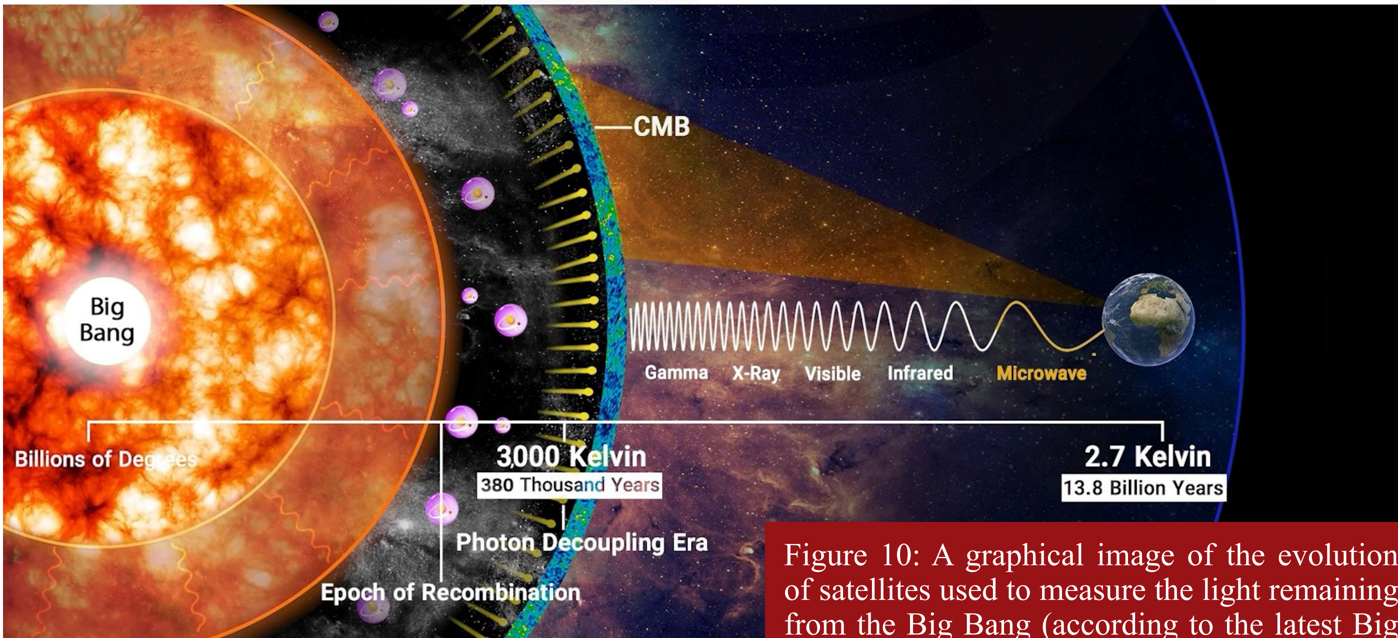


Figure 10: A graphical image of the evolution of satellites used to measure the light remaining from the Big Bang (according to the latest Big Bang model).
Credits: NASA/JPL-Caltech/ESA

However, SMC is not a complete or final theory and has its own problems and limitations that require further investigation and correction. For example, one of the main problems of this model is the "Cosmological Constant Problem." This issue refers to the discrepancy between the measured value of the cosmological constant, which is associated with dark energy, and its predicted value based on quantum field theory. There is currently no acceptable explanation for this discrepancy, which is apparently a very large one. Moreover, this theory does not explain what caused the Big Bang, what the nature of dark matter and dark energy is, or why there is more matter than antimatter in the universe. Another shortcoming of SMC is that it fails to unify quantum mechanics and gravity. All these issues are some of the unanswered questions that motivate current and future research in cosmology.[15]

T-Consciousness Cosmology

Alongside the current Big Bang theory, T-Consciousness Cosmology introduces the Spherical Cosmos Model (SCM) that addresses questions such as the cause of the explosion, the nature of dark matter, dark energy, ordinary matter and energy, the shape of the cosmos, the fate of the cosmos, the reason for the clustering of celestial bodies in the depths of space, and more. This model not only states that the shape of the cosmos is spherical, but it also has a shell called the 'Shell of the Cosmos.' This section examines the nature of this Shell and its function.

The Shell of the Cosmos

In the SCM, the universe is born from an infinitely small and highly condensed seed, which is the Cosmic Black Hole. This Black Hole is made of an absolute matter that T-Consciousness Cosmology refers to as "TAM" or Taheri Absolute Matter. It also mentions that TAM is a union of 'Light-Dark Matter' (LDM), 'Dark-Dark Matter' (DDM), and a new type of 'Thermal Matter' resulting from the intense compression of electromagnetic waves and all known fundamental forces, which, after merging, have no longer preserved their original nature (Figure 11).

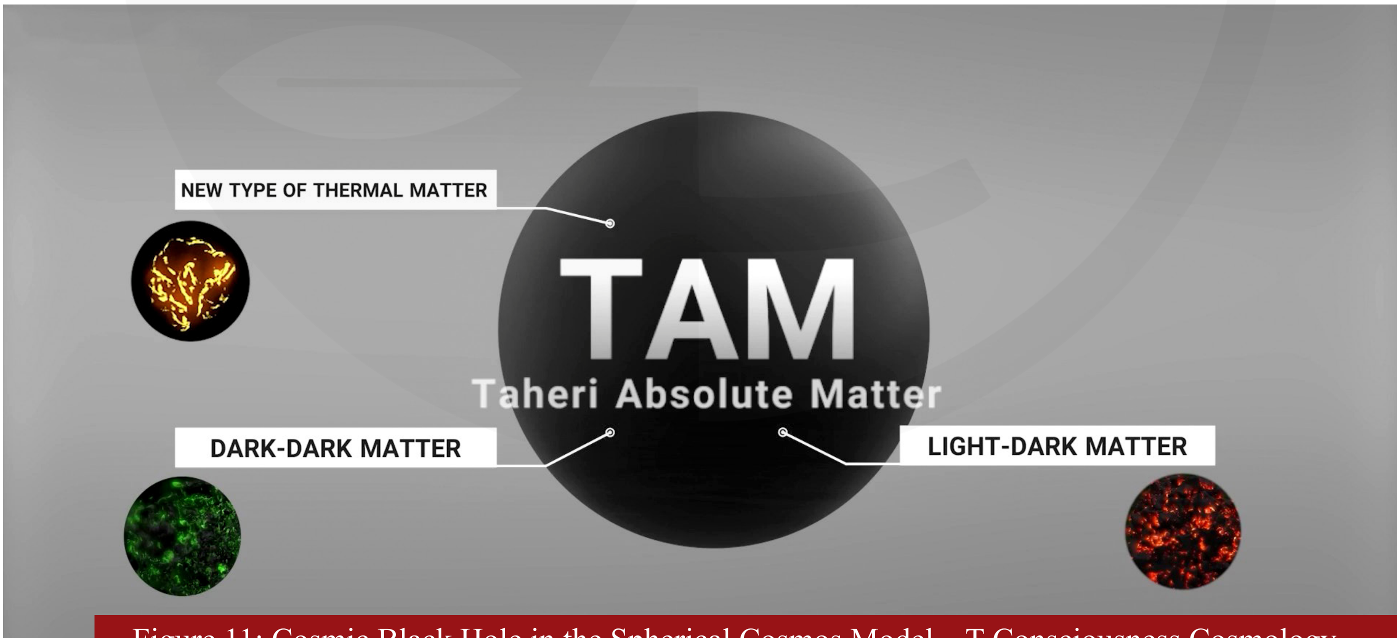


Figure 11: Cosmic Black Hole in the Spherical Cosmos Model – T-Consciousness Cosmology

According to this view, the cosmos needs to release itself from a compressed state for rebirth, and create the necessary conditions for the emergence of waves, space, and all types of matter and energy. In other words, the increase in volume, or cosmic expansion is explained by the 'Cosmic Rebound' mechanism. Rebound is the process whereby the Cosmos returns to its original, natural state, free from stress or contraction of space, and all objects are transformed into *'Absolute Waves.'*

According to this mechanism, the Cosmic Black Hole uses part of its TAM for the initial explosion and enters the decomposition phase. This leads to an increase in the volume of this black hole, transforming it into a universe with the characteristics we observe today, which is filled with CMB. In other words, the remaining part of TAM becomes a layer that encompasses the cosmic sphere and isolates it. How TAM acts as an agent for the initial explosion at the center of the Cosmic Black Hole, will be explained in a separate subject of the *'Big Shock'* hypothesis (Figure 12).

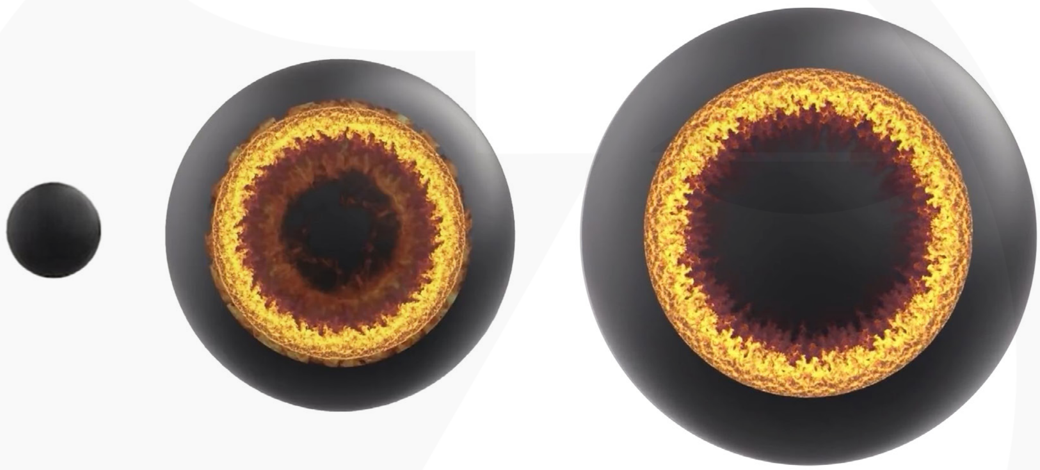


Figure 12: From left to right, a schematic representation of the transformation stages of the Cosmic Black Hole after the Big Shock in the process of decomposing into the Cosmic Shell.

The origin of the CMB based on the T-Consciousness Cosmology Viewpoint

While the Big Bang theory introduces the CMB as a remnant of the early universe, T-Consciousness Cosmology examines the origin of this radiation from a different perspective and assigns it a special role in the Spherical Cosmos Model. As previously mentioned, this radiation had raised questions that prompted scientists and theorists to find answers through various methods. Questions such as the origin of these waves, and how this radiation exists uniformly and isotropically in all directions of the cosmos?

To explain the cause of homogeneity and isotropy of the CMB, the dominant theory of inflation posits that the universe experienced incredibly rapid expansion (a minimum of 1026 times) in less than a trillionth of a second. This expansion, despite some objections, is theorized to be the reason for the uniformity observed in the present cosmos.[1] However, T-Consciousness Cosmology offers an alternative explanation through its Cosmic Shell hypothesis, and even states that as the cosmos expands, the isotropy of matter and energy will fade, and the CMB will undergo a specific fate.

This view argues that inflation theory isn't a correct explanation for the isotropy of radiation, or other lingering cosmological questions. T-Consciousness Cosmology proposes that the observed uniformity of the CMB is due to our unique location within the spherical cosmos. Since we're measuring from Earth and within the Milky Way galaxy, it appears isotropic from our perspective. However, as the cosmos continues to expand, the isotropy of both matter and radiation will eventually disappear. This concept challenges the prevailing view of an isotropic universe. Evidence like the faint twisting of the CMB's polarized light (B-Mode)[16] and the quadrupole power anisotropy in CMB[17] further support this idea. T-Consciousness Cosmology addresses these issues through its hypotheses of the *'Center of the Cosmos'* and *'Cosmic Rotation,'* which will be explored in future discussions.

T-Consciousness Cosmology also argues that accepting the latest Big Bang model's explanation for the origin of this radiation raises new questions. These questions can be tackled from a fresh perspective, and some of them include:

1- How can the cosmic microwave background radiation, a remnant of the Big Bang, be evenly distributed in all directions throughout space?

2- What is special about our location, if we are detecting a consistent wavelength of this radiation in all directions?

3- How can the source of this radiation no longer exist, according to the Big Bang theory?

4- Does the cosmos possess a special geometry? If we reside within this four-dimensional spacetime geometry, what lies beyond the cosmos? Or does an "outside" even exist?

5- If we were to travel billions of light-years away from Earth, would measurements of the CMB still indicate isotropy? And etc.

While adding inflation theory to the Big Bang model (standard cosmological model) offers partial explanations for the raised questions, T-Consciousness Cosmology presents a different view, emphasizing that the cosmos behaves in a manner not entirely accounted for in the interpretations and mathematical calculations derived from observations in conventional cosmology. The spherical cosmos model, states that the cosmic microwave background radiation isn't just a leftover echo from the decomposition of the Shell of the Cosmos, but rather a continuous emission from the Shell itself. In other words, this radiation isn't a relic of the cosmos's past, but is actively being generated by the decomposition process of Cosmic Shell in the present. Therefore, when we peer into the depths of space, we're witnessing the effects of this Shell's decomposition, rather than remnants of the Big Bang.

T-Consciousness Cosmology uses the analogy of a launched solid-fuel rocket to explain how the CMB is constantly produced: Solid fuel is a key design element in rocket propulsion, providing the essential energy for movement through combustion. This fuel is housed within a chamber that allows its burning to propel the rocket forward. Essentially, when you look at the bottom of this type of rocket after launch, you'll only see the flames from the burning fuel, not the rocket itself. The rate at which the rocket accelerates depends on the surface area of the fuel. A larger surface area allows for more fuel to burn at once, resulting in a greater thrust and a faster acceleration. Additionally, the length of the fuselage determines how long the rocket can maintain its thrust. A longer fuselage translates to a longer burn time and a greater total distance traveled (Figure 13).[18]

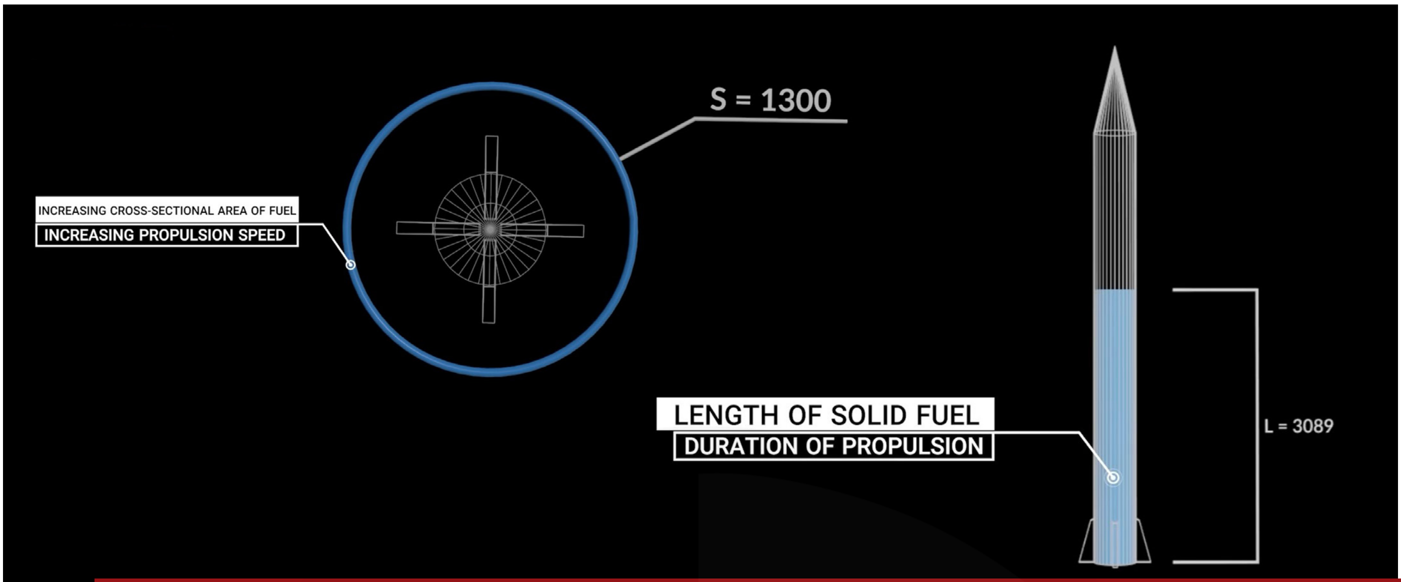


Figure 13: Solid Fuel Rocket Structure

T-Consciousness Cosmology uses the analogy of a solid-fuel rocket to explain TAM decomposition in the Cosmic Shell. This process, like the burning fuel propelling the rocket, not only fuels the Cosmic Shell's motion but is also one of the main factors that contributes to the volume expansion of the cosmos. The combustion mechanism and motion of the Shell is such that we can only observe the final stage of TAM decomposition, where photon decoupling happens at 3000 Kelvin, similar to seeing just the flames from a rocket and not the entire structure (Figure 14).

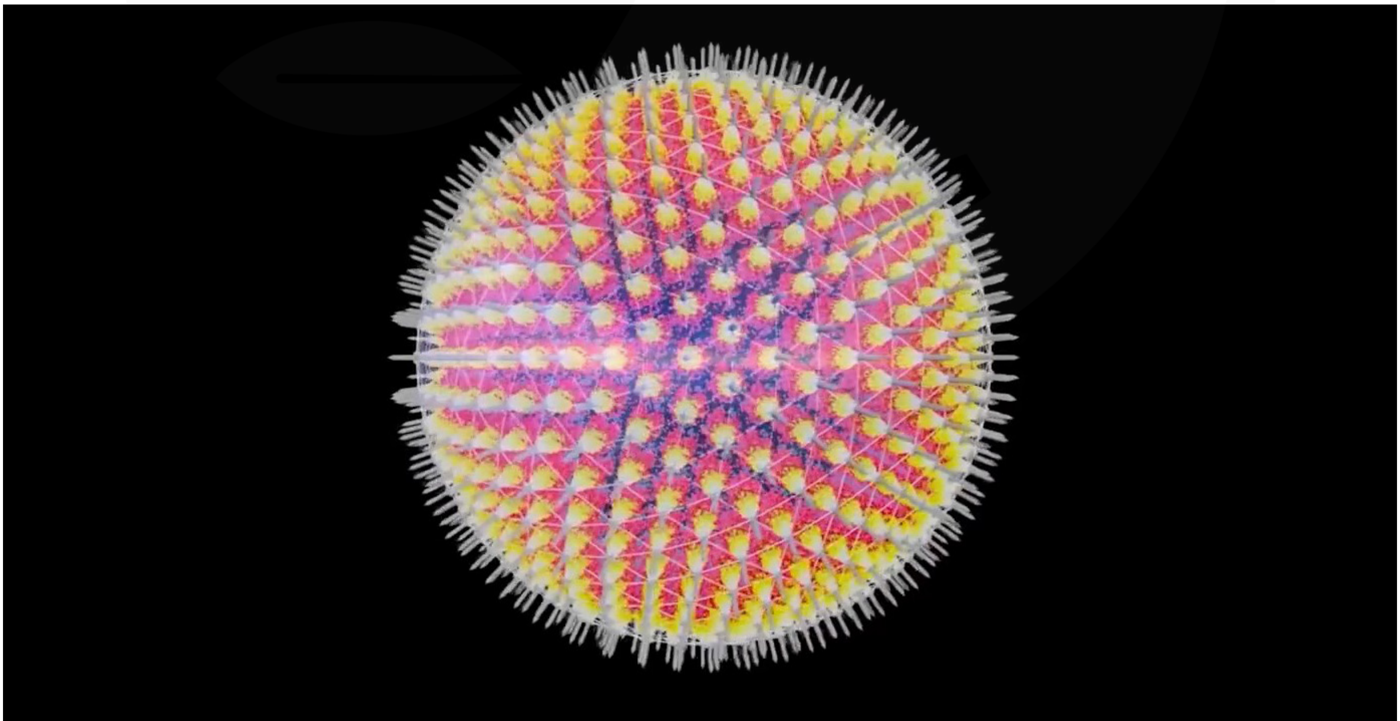


Figure 14: An artistic rendition of TAM decomposition. The combustion of fuel for rockets on the Sphere of the Cosmos is merely an analogy to explain the decomposition process of the Cosmic Shell.

Therefore, the CMB is the product of the combustion occurring at the innermost level of the Cosmic Shell due to the decomposition process. This shell, much like a rocket in motion, progresses in all directions (very similar to the inflation of a perfectly spherical balloon) and, while moving forward, also produces matter and releases it into the cosmos. In fact, this Shell has a thickness where the decomposition of TAM occurs at its innermost surface.

The production stages of various forms of matter and energy in the universe according to the Spherical Cosmos Model

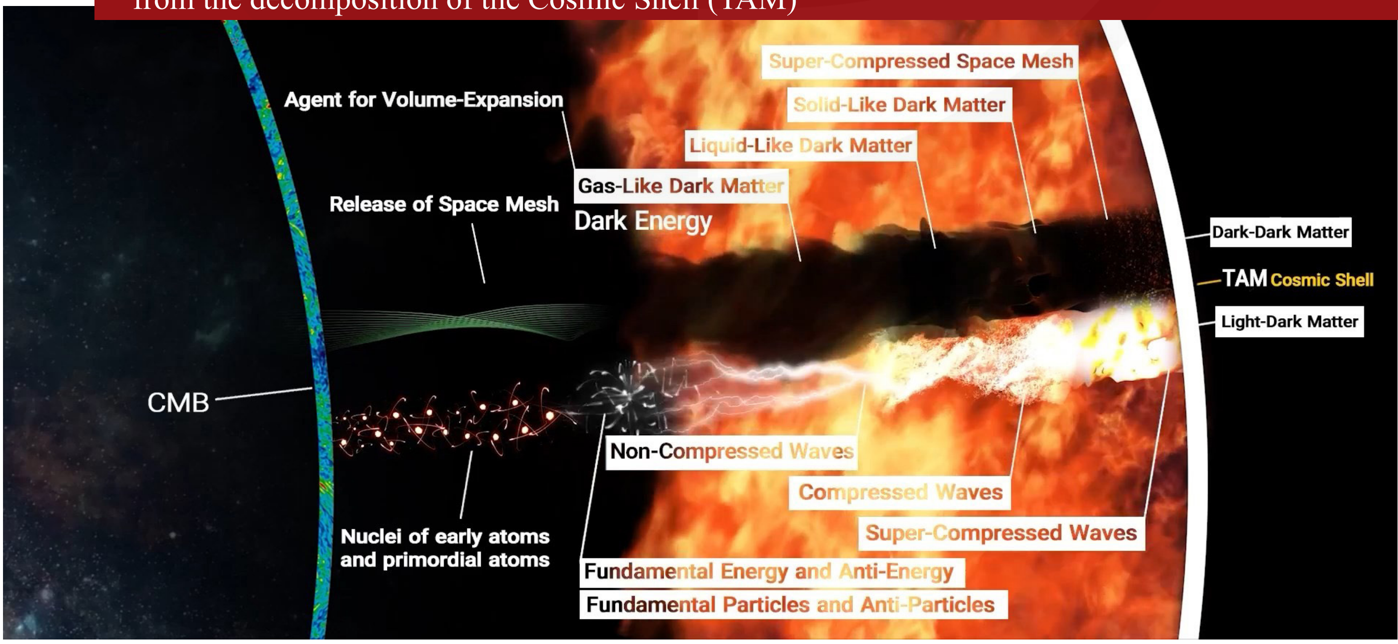
In the initial stages of TAM decomposition, the release of dark-dark matter, or the highly compressed space mesh occurs. As dark-dark matter is released from its hyper-compressed state during the Rebound process (cosmic expansion), it transforms into *'Solid-Like Dark Matter'* with temperatures in the billions of Kelvin. Following this stage, solid-like dark matter slightly loses its ultra-dense state and transforms into a *'Liquid-Like Dark Matter.'* Liquid-like dark matter is essentially the same "dark matter" known in conventional cosmology.

Further along, this type of matter sheds even more density and is released from its crumpled state, and transforms into dark energy or *'Gas-Like Dark Matter.'* The amount of dark energy, with significantly less density than the liquid state, is so immense that it not only provides the necessary force for the continued expansion of space mesh but will also be one of the factors in increasing the volume of the universe from the beginning of the Rebound process to its maximum extent. This is because dark energy creates positive pressure within the cosmos that is isolated by a shell, it becomes an agent for the increasing expansion of this sphere with increasing acceleration. After the formation of dark energy, its density completely disappears and transforms into space mesh. Therefore, dark matter and dark energy are essentially different degrees of space density.

Alongside the decomposition of dark-dark matter (DDM), the decomposition of light-dark matter (LDM) also plays a role to form what is today known as ordinary matter. Light-dark matter, released through TAM combustion, initially transforms into ultra-dense waves (the same type of ultra-dense waves that can be found in intra-cosmic black holes), then into dense waves, and subsequently into non-dense waves, which is the same type of energy known today.

As this process continues, these non-compressed, infinitesimal waves collide with each other, forming denser waves, or what we call fundamental particles. Eventually, these particles turn into the nuclei of primordial atoms (hydrogen atoms and others) (Figure 15).

Figure 15: The stages of release of various types of matter and energy and space mesh that result from the decomposition of the Cosmic Shell (TAM)



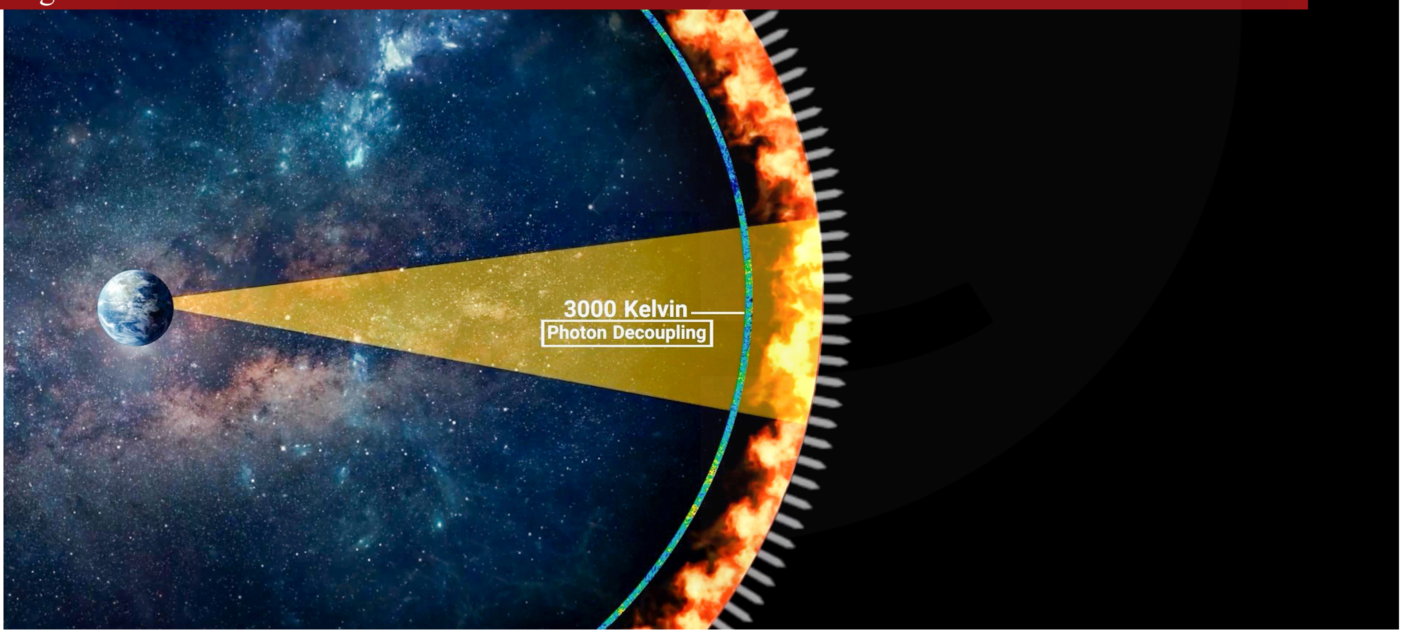
One of the important points that T-Consciousness Cosmology emphasizes in its hypotheses is that just as matter and energy have their counterparts, as commonly referenced in conventional science, space also has its counterpart, known as *'Anti-Space,'* leading to the creation of *'Dark Anti-Matter' or 'Dark Anti-Energy.'*

On one hand, the immense force of dark energy that is applied from within the cosmos, along with the force resulting from the decomposition of dark-light matter leading to TAM combustion, causes the Cosmic Shell to be propelled forward, and its thickness decreases as the surface of the sphere of cosmos increases.

As stated, at a certain distance from the Shell after the collision of non-dense waves with each other, fundamental particles are formed, followed by the formation of nuclei of atoms such as hydrogen, helium, lithium, and several other types of nuclei, as well as free electrons. This process results in the complete ionization of the particles in this region, creating a hot plasma. The hot plasma does not allow for the emission of any radiation from the electromagnetic spectrum, and the temperature in the Shell decomposition region is so high that the formation of neutral atoms is impossible.

As TAM continues to decompose, or in other words, as the matter generation of the Shell increases the volume of the cosmos, more space is created, which provides sufficient time for cooling. At a specific distance from the Shell, where temperatures reach 3000 Kelvin, hydrogen and helium begin to capture free electrons. This makes the particles visible, and photons can move freely. This region is the source of the CMB that surrounds the entire cosmos in 360 degrees from within. We observe the CMB as a microwave-wavelength radiation that permeates the entire cosmos (Figure 16).

Figure 16: The formation of CMB radiation near the Cosmic Shell, will continue until the ultimate stage of cosmic Rebound.



Explanation for the Accelerating Expansion of the Cosmos

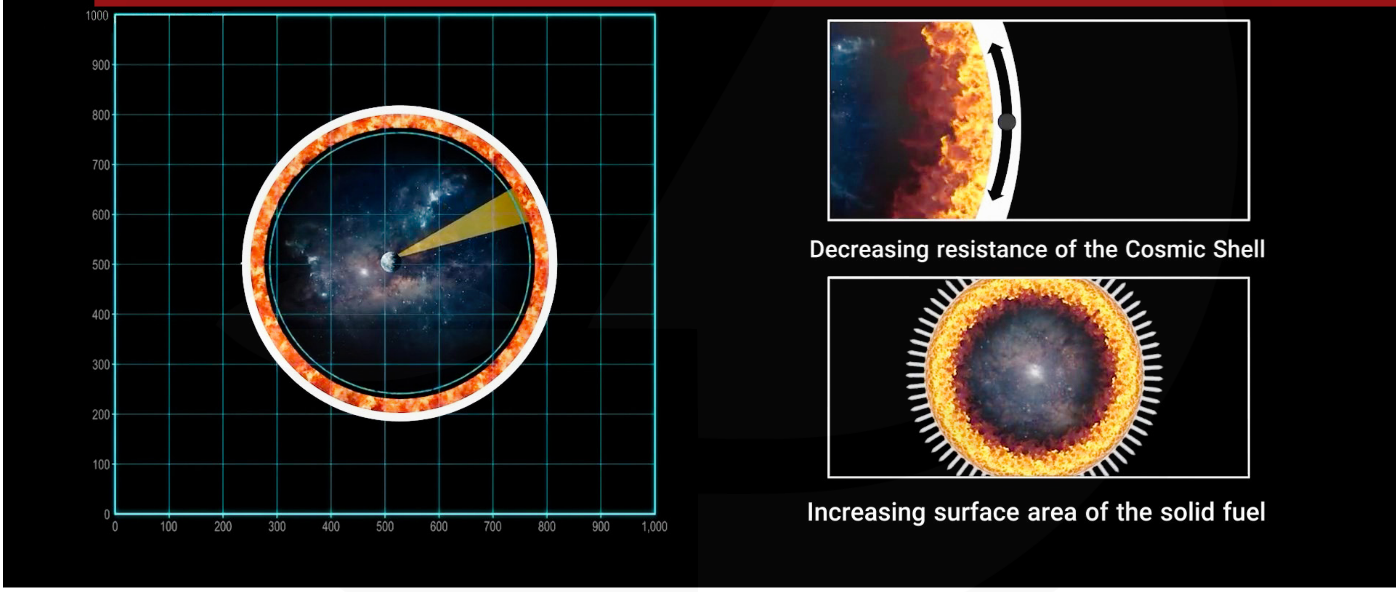
One of the key questions in cosmology is the rate of acceleration for the expansion of the cosmos. This is indicated by the Hubble constant, which shows that the cosmos is expanding at an ever-increasing rate. The Spherical Cosmos Model (SCM) offers its own explanation for this phenomenon.

In the rocket example, it was mentioned that the speed of the rocket in question depends on the cross-sectional area of its solid fuel. And if, hypothetically, we were able to observe the Shell from the outside, we would realize that space and time do not exist outside the cosmos. Therefore, there would be no inhibition to the speed at which the Shell could expand. The only factor that controls the expansion speed, which constantly increases due to TAM decomposition, is the thickness of the Shell. In other words, as the amount of TAM material in the Cosmic Shell decreases, the Shell gets thinner and thus faces less resistance to expansion. This is one of the reasons for the increasing speed of cosmic Rebound and the growing volume of the cosmos. Furthermore, as the radius of the Sphere of the Cosmos grows, the surface area of the Shell also increases. Essentially, the surface area of the Cosmic Shell determines the level of TAM combustion, and as this area grows due to increased combustion, the speed of the Shell's progression continuously accelerates (Figure 17).

In simpler terms, this mechanism suggests that this acceleration in expansion can be attributed to two factors:1. An increase in the cross-section surface area of the solid fuel: As the Shell expands, its surface area increases. This means that there is more fuel available to burn, which increases the rate of expansion. 2. A decrease in the resistance of the Shell: The Shell grows thinner the more it expands, which decreases resistance, further increasing the rate of expansion.

The combination of these two factors causes the Shell to expand at an ever-increasing rate. This expansion is observed in all directions from a hypothetical center, at which we are located.

Figure 17: (Top right image) Flexibility of the shell due to decomposition. (Bottom right image) Increase in the Shell's cross-sectional area due to the volumetric expansion of the cosmos. (Left image) The Cosmic Shell is moving away from the Earth in all directions.



Based on the given explanations, we can conclude that the main difference between conventional cosmology and T-Consciousness Cosmology lies in the interpretation of observations. Specifically, T-Consciousness Cosmology states that the microwave radiation we observe throughout the cosmos is currently being generated at a certain distance from the Shell of the cosmos. However, due to the variability of the speed of electromagnetic waves based on the density of space (a concept that will be explored under the topic of space viscosity), these waves take billions of years to reach us, carrying information from those regions of the cosmos. Therefore, as observers, we are always witnessing the past of events that are happening right now. These events, which are a narrative of the forward advancement of the cosmos, including the process of space rebound, the decomposition of the Shell of the cosmos, etc., are seen by us with a delay due to the vast expanse of the universe. In other words, the depths of the cosmos are a narrative of future events that reach us with a delay.

This perspective also explains that in the beginning, before the cosmos was born, the cosmic black hole or the initial seed of the universe held billions of Kelvins of heat within itself. This is because there was no possibility of heat exchange between the inside and the outside of its Shell since there is no space outside the cosmos to exchange heat with. Therefore, the Cosmic Shell always provides an isolated environment for the cosmos.

Why has the temperature dropped from billions of Kelvin at the beginning of the Rebound to 2.7 Kelvin now? Or in other words, how has this amount of heat reached the temperature we know from the CMB, without any heat exchange beyond the Shell of the cosmos? The answer, as explained by T-Consciousness Cosmology, is like thinking about a closed, insulated container filled with gas and isolated from its environment, meaning it can't exchange energy or heat with anything outside. If we compress the gas by shrinking the container, we are doing work on it. Since the gas cannot escape the container, the energy from this work turns into heat, stored in the compressed gas, raising its temperature without any external energy being applied. This process is somewhat similar to what's called an adiabatic process. Now, if we remove the pressure by allowing the container to expand, the compressed gas in this isolated container will lose its heat and cool down. An adiabatic process is one where heat does not exchange between the system and its environment during the reaction. In this process, none of the parameters stay constant[20,21] (Figure 18).

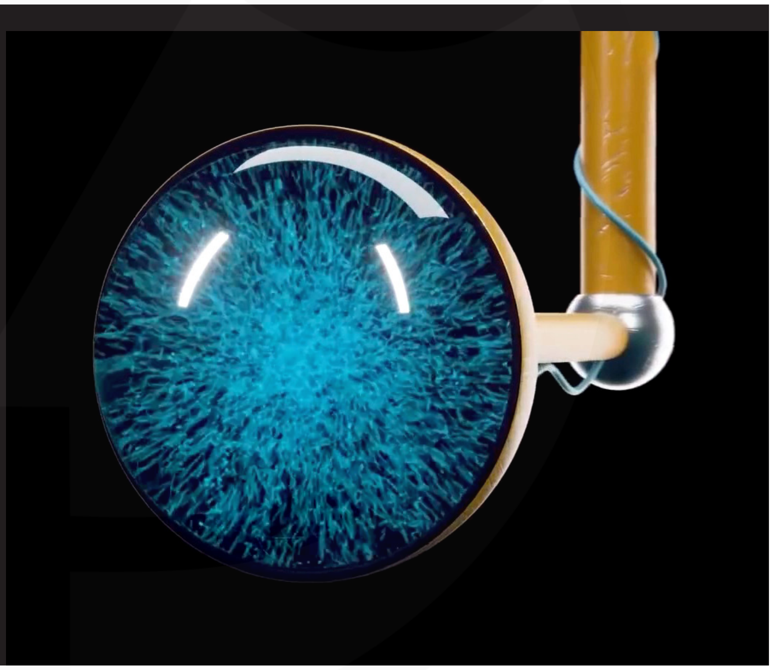


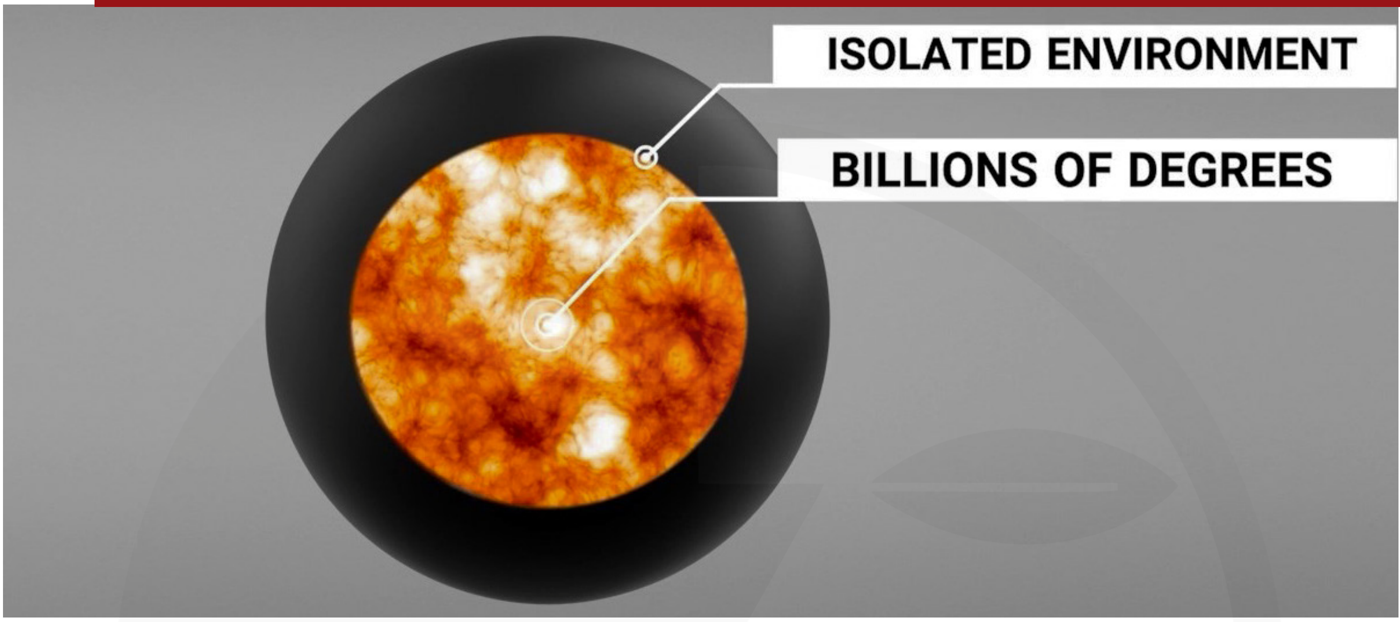
Figure 18: When the volume of an isolated chamber decreases, the pressure inside it increases, which in turn causes the temperature of the gas inside to rise. Conversely, when the volume of the isolated chamber is increased, the pressure inside decreases, which leads to a drop in the gas's temperature.

By using this example, it's like saying that the Cosmic Black Hole acts like a completely sealed and isolated container. This means that the Cosmic Shell does not allow any heat, matter, or energy to escape throughout the Rebound and Reversion process of the cosmos, with nothing to exchange with outside of this container.

During the Reversion process, the compression continues to a point where all the components within the cosmos completely lose their original nature and transform into a new unified substance known as TAM, which holds a potential temperature of billions of degrees. The cosmic black hole is essentially an infinitely small point made up of TAM, outside of which the concepts of space and time do not exist (Figure 19).

This black hole, through a process called the 'Big Shock' (a T-Consciousness Cosmology hypothesis), gradually transformed into a cosmos of this immense size starting from its innermost surface (very close to the center) through a process called TAM decomposition. Additionally, it continues to grow in volume until it eventually reaches the ultimate stage of its Rebound.

Figure 19: Due to the presence of a shell, the cosmos was at a very high temperature in its early stages and faces a decrease in temperature as its volume expands.v



Decreasing temperature in the Spherical Cosmos Model

The Shell of the Cosmos is decomposing from its innermost surface and its temperature drops from millions of Kelvin to 3000 Kelvin at the point of photon decoupling. In this case, we would expect the temperature of the cosmos to be rising. However, the rate of expansion for the surface area of the combustion of the Shell is so insignificant compared to the volume expansion of the cosmos, that we are currently experiencing an average temperature of 2.7 Kelvin. The cosmic temperature will eventually reach absolute zero at the final stage of the Rebound. In other words, after going through the recombination epoch, which is around 3000 Kelvin, the universe's temperature follows a decreasing trend in its inner space and reaches 2.726 Kelvin at its center. This negative temperature slope, according to the spherical cosmos model, will continue until the temperature throughout the entire universe reaches absolute zero (Figure 20).

Therefore, we conclude that a temperature of 2.7 Kelvin cannot be a constant number for the entire cosmos. This temperature is not homogenous and varies between us, in the Milky Way, to the Shell. Put simply, the cooling process of the cosmos from 3000 to 2.7 Kelvin is due to the progression of the Shell and the continual release of vast amounts of space.

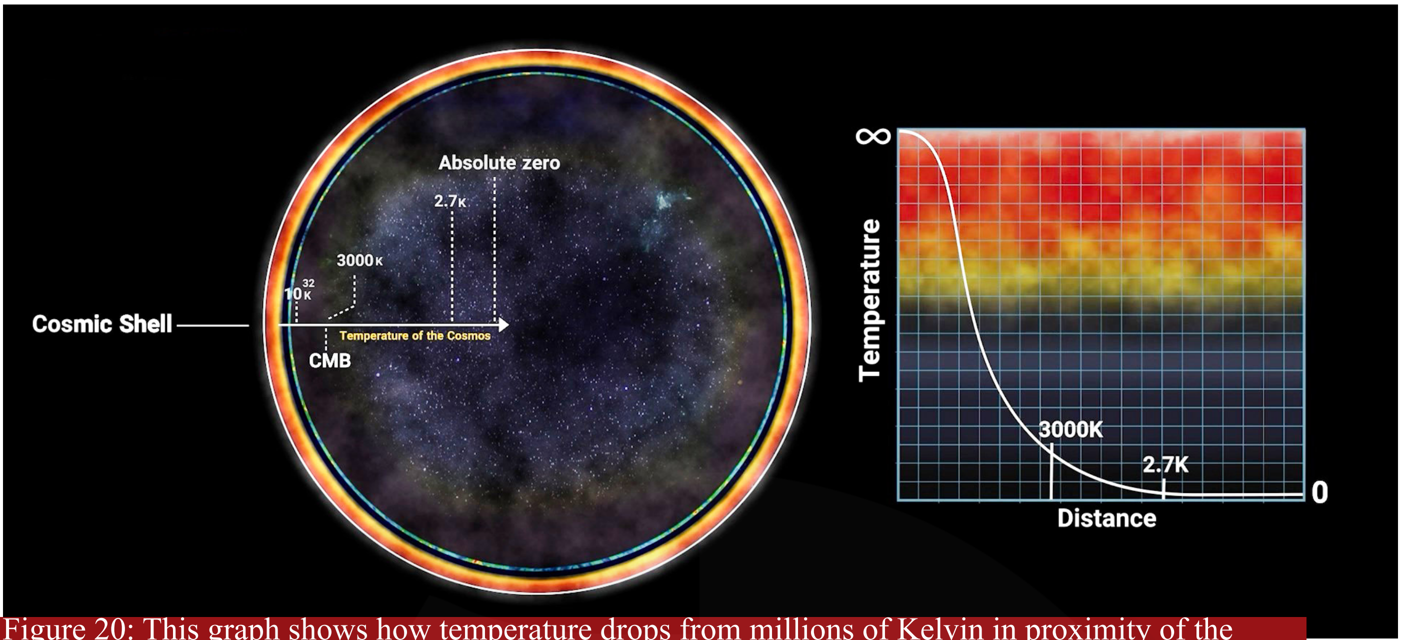


Figure 20: This graph shows how temperature drops from millions of Kelvin in proximity of the Shell, to 2.7 Kelvin at the inner regions of the cosmos, and zero at the terminal edge (final stage of rebound).

In conclusion, from the perspective of T-Consciousness Cosmology, evidence such as: 1. the redshift of distant galaxies, 2. the cosmic microwave background radiation, which shows a nearly uniform temperature across the sky, and 3. the abundance of light elements, matching the predicted amounts from nucleosynthesis that occurred in the early universe, all point to the decomposition of TAM (Cosmic Shell) and the matter generation that comes from it. The above-mentioned pieces of evidence can be re-visited by cosmologists in accordance with the Spherical Cosmos Model.

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