

Creation and Cosmos: A Comparative Study of Science, *Rig Veda* and other Ancient Theories

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Abstract

Scientific evidence is often viewed as infallible and reliable, providing clear and undisputed truths. However, when it comes to understanding the origins of the universe and the distant past, the certainty of scientific knowledge becomes uncertain. While science has revealed many astonishing truths, there are still countless mysteries waiting to be unravelled. Just as we have explored the depths of the oceans, there is a yearning to delve into the secrets of the sky. Unfortunately, our current scientific capabilities do not allow us to reach every corner of the vast universe. Consequently, where human exploration ends, imagination and speculation begin. It's important to note that imagination isn't merely a fabrication of the mind; rather, it's a cognitive process that allows us to comprehend that which is unseen and immeasurable. In fact, according to Nyaya philosophy, perception and imagination serve as essential means to verify the authenticity of truth. This article will delve into several important questions: What constitutes a theory? Which holds greater significance, perception or scientific evidence? What theories did ancient Indian scientists adhere to in their search for truth? And how many theories of creation and the cosmos are mentioned in the *Rig Veda*?

Keywords:

Brhamand, cosmos, religion, truth and supposition.

Different books, different cultures, different ideologies, different religions and different science branches have divergent views about the supposition¹ how this cosmos² was created in space³. *Bible* says the universe was created by the word of God, *Quran* states that the universe was created in six days⁴ but there is some complexity in India to choose one source to put the weight of belief on that. There are thousands of ancient texts and thousands of variations in works written on the theory of creation in Hinduism: is it Brahma, Vishnu, Shiva, Shakti or any other who is the true creator of the Universe. If one goes back to the most ancient document of the present time on earth and explore *Rig Veda* there he/she can find different theories about cosmic creation. But it is also a proven fact that *Rig Veda* does not belong to a specific person, race, region or time. It is the combination of thousand minds, ideas and eras. So it is obvious to find variation in the thoughts of *shloka*. “Mandala 02” to “Mandala 07” are the oldest parts of *Rig Veda* and discuss the multiple aspects of life, society, culture, science, geography, geology, biology, astronomy, cosmology etc. but “Mandala 10” is mostly dedicated to the cosmology and astronomy. It can also be said that “Mandala 01” and “Mandala 10” are the preface and conclusion of *Rig Veda* that were appended later.

The references of *Rig Veda* can be denied because of these theories are not proven by scientific evidences. But, are all theories of science based on direct perception or with proof? The answer will be ‘no’ because most of the conclusions of science are based on supposition. If it is like this, then it would have happened. Nobody can give a record of an un-experienced thing or event. It will not be wrong to say that ancient texts are more honest to explain theories and supposition without any greed of authorship or credit.

Ancient sages were more concentrated on knowing reality and knowledge. They had tendency that everything was there already before their existence, they just find it and understand it. Law of nature and process of cosmic power will be kept continue after

¹ Word ‘Supposition’ is used because there is no proof yet how cosmos was created.

² Where time, stars, planets, galaxies, black holes, dark matter and other objects exist.

³ Dark empty place.

⁴ According to verse 70:4, one day in Quran is equal to 50,000 years on Earth.

them also. Nothing will change. Science theories just explain supposition with more confidence. Ancient texts provide more possibilities to the human mind to know about universe and unknown realities but science tries to frame everything in a limited shape of its rules and definitions. The rejection of Pluto as a planet is a fresh example of it. Pluto was rounding Sun with an egg-shaped orbit and was not attracting other small objects as its satellite. So, what does science do? It changed the definition of ‘planet’: and also rejected Pluto as a planet. But the universe is wide; wider than human’s logic and consciousness. Pluto is still rotating Sun and will be in future: because natural objects are not obliged to follow science rules. As Neil de Grasse Tyson says, “the Universe is under no obligation to make sense to you.”⁽¹⁾ It can be understood with a more wide range of suppositions because there are so much to understand and so much different from about limitations. It cannot be concluded with some principles of science or limited definitions of the human mind. Muriel Rukeyser rightly said, “the universe is made of stories, not of atoms.”(Kaufman 465-68)

There is not a single scientific theory about creation of universe at present time but has a large series of them. Some of them are: A cyclic or oscillating model⁵, Primordial Universe⁶, Atomism⁷, Aristotelian Universe⁸, Stoic Universe⁹, Heliocentric Concept¹⁰, Ptolemaic Universe¹¹, Abrahamic Universe¹², The Partially Heliocentric Universe¹³, Copernican Universe¹⁴, Cartesian Vortex Universe¹⁵, Static Universe¹⁶, Hierarchical Universe Nebular Hypothesis¹⁷, Einstein Universe¹⁸, Big Bang Theory of the Universe¹⁹,

⁵ Albert Einstein in 1930 theorized a universe following an eternal series of oscillations, each beginning with a Big Bang and ending with a Big Crunch.

⁶ The 5th Century B.C. Greek philosopher Anaxagoras founded it.

⁷ Greek philosophers Democritus and Leucippus proposed that all matter was composed of small indivisible particles called atoms.

⁸ Aristotle, who lived from 384 to 322 BC, believed the Earth was round. He thought Earth was the centre of the universe and that the Sun, Moon, planets, and all the fixed stars revolved around it.

⁹ According to Stoic philosophers the universe is like a divine giant living body.

¹⁰ Greek astronomer and Mathematician Aristarchus of Samos was the first person who presented a heliocentric concept model that sun is the centre of the universe, not the earth.

¹¹ Roman Egyptian Mathematician Claudius Ptolemaeus’s geocentric model.

¹² God created earth and heaven.

¹³ Somayaji Nilakantha developed a computational system for a partially heliocentric planetary model in which Mercury, Venus, Mars, Jupiter and Saturn orbit the Sun, which in turn orbits the Earth.

¹⁴ Polish Astronomer Nicolaus Copernicus, “It is not the earth, but the sun which is the centre of the universe”, sun is motionless.

¹⁵ Rene Descartes proposed, the entire universe was filled with elements of different sizes which shifted around each other.

¹⁶ In 1687, Newton published his “Principia”, which described, among other things, a static, steady state, infinite universe that is neither expanding nor contracting.

¹⁷ Emmanuel Sweden Borg gave a hypothesis to explain the formation and evolution of the Solar System that later developed by Thomas Wright.

¹⁸ In 1919, he devised a model for the entire universe: a static, spherical, perfectly symmetric cosmos.

Steady State Theory²⁰, Inflationary Universe²¹, and Multiverse²². Ethnologists and anthropologists who study the myths and cultural folk tales of specific regions play a crucial role in contributing to the scientific theories concerning the creation of the universe. For instance, the myth of the creation of the cosmos, where the universe originated from a small egg, is a recurring theme found in the Finnish epic poem *Kalevala*, the Chinese story of “Pangu,” and the Indian *Brahmanda Purana*.

In the present era, the most widely accepted theory is the Big Bang, which posits that space and time emerged simultaneously approximately 13 to 20 billion years ago. The actual spatial extent of the entire universe remains unknown. It is generally assumed that the size of the observable universe is approximately 93 billion light-years in diameter at the current time. This theory was originally proposed by a Belgian priest named Georges Lemaître in the 1920s. Subsequently, Edwin Hubble’s observations revealed that galaxies are moving away from us in all directions.

The Vedic and Greek civilizations were among the first to propose theories about an impersonal universe governed by physical laws. Within Hindu religious texts, the *Rig Veda* contains numerous assumptions about the creation of the universe, which have been extensively analysed by scholars. In particular, in “Mandala 10” of the *Rig Veda*, there is a *sukta* (hymn) numbered 129 and *rik* 01, known as the “Nasadiya Sukta” (the Creation Hymn of Brahmanda):

nāsadāsīṇno sadāsītadānīm nāsīdrajo no vyomā paro yat |

kimāvarīvaḥ kuha kasya śarmannambhaḥ kimāsīdgahanam gabhīram ||1||

(In the beginning, before there was anything, there was neither existence nor non-existence. At that time, there was neither sky nor atmosphere above. What then

¹⁹ Georges Lemaître said, the universe began as just a single point, then expanded and stretched to grow as large as it is right now and it is still stretching.

²⁰ A view that the universe is always expanding but maintaining a constant average density.

²¹ Paul Steinhardt and Neil Turok said, a period of extremely rapid (exponential) expansion of the universe during its first few moments.

²² Physicist Hugh Everett in the late 1950s proposed, this envisions our Universe as just one of numerous parallel worlds that branch off from each other, nanosecond by nanosecond, without intersecting or communicating.

enshrouded this entire universe? In the receptacle, what contained it? Then there was neither death nor immortality. Then there was neither day, nor night, nor light, nor darkness. Only the Existent One breathed calmly, self-contained.)

This profound hymn, despite its simple language, holds deep and complex interpretations that continue to mystify theologians and scholars. It evokes intense curiosity about the origins of the cosmos and has been a subject of extensive research.

The ancient understanding of astronomy was rooted in careful observations, logical inference, and deeply-held beliefs. One key concept in ancient astronomy was the notion of the “axis mundi,” a term first used by the Greek astronomer Geminus in his work *Elementa* and later adopted into Latin. This concept refers to the axis of the Earth located between the celestial poles. In a geocentric coordinate system, this axis represents the rotation axis of the celestial spheres. The axis mundi was conceived as an imaginary point at the centre of the world, serving as a symbolic and sacred space. It was believed to facilitate travel and communication between higher and lower realms. This concept persisted in modern astronomical works well into the 18th century and holds significance in various cultures and religious traditions. As noted by Mircea Eliade, a prominent historian of religion, “Every Microcosm, every inhabited region, has a Centre; that is to say, a place that is sacred above all.” (Wikipedia Contributors) In Hinduism, Mount Kailash is regarded as the axis mundi of the world, emphasizing the widespread cultural and religious significance of this concept.

In 1930, Albert Einstein proposed a theory of an oscillating universe, envisioning a cosmic cycle of expansion from a Big Bang followed by contraction into a Big Crunch, leading to a new cycle. This concept, known as the oscillating theory of the universe, suggests a recurring pattern of creation and destruction. Interestingly, similar cyclic theories can also be found in ancient Vedic texts, reflecting an intriguing parallel between modern scientific thought and ancient philosophical ideas. In “Mandala 10” of *Rig Veda*, sukta no. 121 and rik 01 is known as “Hiranyagarbha Sukta”

hīraṇyagarbha-ssamāvartatāgrē bhūtasya jātaḥ patirēka' āsīt ।

sa dādhāra pṛthivī-ndyāmuṭtēmā-ṅkasmai dēvāya haṁṣā' vidhēma ॥ 1

(Once the golden womb (centre) yielded to the Creation process, an immense amount of heat and energy was generated. This intense energy caused the formation of molecules, and they began to interact with atoms and elements, leading to the creation of self-luminous vapour which further increased the heat within the system.)

But sometimes interpretation of western thinkers likes Doniger looks like cultural appreciation especially when they interpret words with the help of a written dictionary. The Sanskrit language is not just a system of writing, but its origins are rooted in oral and vocal expressions. When spoken, the words become more comprehensible, and their vibrations can be felt. For instance, the word 'garbha' doesn't always just refer to an 'embryo,' but can also denote the inner part of an object, such as a temple or a house. In simpler terms, it can be used to represent the secret or central part of a structure. While initially, Wendy Doniger's interpretation seems fitting, a deeper exploration reveals potential misinterpretations and misunderstandings. Similar issues arise with other foreign scholars who are intrigued by Sanskrit. It can be challenging for an outsider to fully grasp and accurately interpret a culture that they are not a part of.

In the 4th century BC, ancient Greek philosophers such as Aristotle and Ptolemy proposed the geocentric model, suggesting that the Earth was at the centre of a stationary universe, with the Sun, Moon, planets, and stars revolving around it. This view prevailed for centuries as the predominant cosmological model. However, amidst this prevailing belief, the Greek astronomer Aristarchus of Samos was a notable pioneer who proposed a heliocentric model of the universe, with the Sun at the centre and the Earth and other planets revolving around it. Unfortunately, his revolutionary idea did not gain support from other astronomers of his time. The concept of a heliocentric universe was also highlighted in Archimedes' book, *The Sand Reckoner*. Despite the lack of immediate acceptance, Aristarchus's work laid the groundwork for future astronomers and eventually contributed to the development of the heliocentric model, which was famously championed by Nicolas Copernicus in the 16th century.

However, it's important to note that even before Copernicus, other astronomers from different regions, such as Indian astronomer Aryabhatta, Persian astronomer Albumasar, and Al-Sijzi, also believed in a heliocentric universe. This demonstrates that the understanding of the cosmos has evolved and transcended cultural boundaries throughout history.

In 1610, the Italian astronomer Galileo Galilei aimed his newly crafted telescope towards the night sky and, to his amazement, made a ground-breaking discovery: he observed four large moons orbiting the planet Jupiter. This revolutionary observation directly challenged the prevailing Aristotelian cosmological model, which posited that all celestial bodies revolved around the Earth. Galileo's findings faced significant scepticism and opposition at the time, a pattern that echoed the challenges encountered by earlier proponents of heliocentric such as Aristarchus and Copernicus.

However, the tide turned when Sir Isaac Newton later provided further support for the heliocentric model. Through his ground-breaking work in physics and astronomy, Newton demonstrated that the planets orbit the Sun due to gravitational forces, establishing a solid scientific foundation for the heliocentric model and fundamentally reshaping our understanding of the cosmos.

The ancient Vedic texts, dating back thousands of years, contain intriguing references to cosmological concepts that remarkably align with modern scientific understanding. In these texts, there are explicit mentions of the Earth's rotation around the Sun, the moon's orbit around the Earth, and the description of a solar system comprising nine planets. Additionally, the Vedic texts make references to celestial phenomena such as meteors, asteroids, and intriguingly, even allude to the existence of black holes. What's particularly fascinating is that unlike the fate of Galileo and Copernicus, who faced punishment for their cosmological beliefs, the scientists and scholars in the ancient Vedic society did not encounter such opposition. This stark contrast highlights a significant divergence in historical attitudes towards scientific inquiry and dissenting perspectives across various cultural and temporal contexts.

The Stoic physicists of ancient Greece and Rome proposed a pantheistic belief system, positing that the cosmos is synonymous with divinity. They conceived of a single,

living and rational god, not in physical form, who is the creator and generator of everything. According to the Stoics, the world emanates from this singular principle. They also expounded on the cyclical nature of the cosmos, explaining that its development and destruction form an unending cycle. In this process, the cosmos reabsorbs its primary substance and undergoes a period of conflagration, leading to the initiation of a new cycle—a concept akin to the universe experiencing both an ending and a rebirth. In “Mandala 10” sukta no. 90 containing 16 lines is known as “Purusha Suktam”. It also occurs in *Yajurveda* and *Atharvaveda*.

sahasraśīrṣā puruṣaḥ | sahasrākṣa-ssahasrapāt |

sa bhūmim viśvatō vṛtvā | atyaṭiṣṭhaddaśāṅgulam ||

The sacred text describes the Perfect Being, also known as the cosmos, as a divine entity with a thousand heads, eyes, and feet, surpassing the boundaries of the entire universe. This cosmic being is depicted as transcending the earth and the universe by ten fingers' length, symbolizing its existence in ten dimensions. The text emphasizes that all past, present, and future manifestations are unified within the *Purusha*. Furthermore, it is proclaimed that the *Purusha* surpasses its own creation, highlighting its immanence in the universe and yet its transcendence beyond it, akin to the beliefs of pantheists or stoic physicists. Upon closer examination, the text also suggests interpretations where the orators are addressing a man prepared for offerings in the *Yajna*, a Vedic ritual. This man, after his sacrifice, attains the state of a great cosmic form. Alternatively, it can be interpreted as a hymn to honor a great man who sacrificed himself in the *Yajna* to create animals, humans, and other living beings on earth, reflecting the Stoic physicists' explanation of the cyclical nature of the cosmic giant or god's ending and rebirth.

The idea of a 'Cosmic Giant' or a living cosmic entity may seem fantastical at first glance, but there are scientific and philosophical theories, such as the Stoic Universe, that provide a framework for understanding the profound concepts within the “Purusha Suktam.” As we delve into the interpretation of *suktas*, fundamental

questions arise about the nature of reality. We ponder, What truly defines reality? If one entity emerges from another, then what constitutes the essence of the real, and where does true reality reside? Within the context of the Vedas and Upanishads, the concept of reality, or *Satya*, is regarded as ‘absolute reality.’ The functioning of the universe hinges upon this reality, which permeates the soul, mind, and action. The physical body, in turn, is merely a reflection of this absolute reality. Therefore, ‘Purusha’ represents the absolute reality, with the sacrificing individual serving as a reflection of that essence.

The Greek philosopher Plato introduced the concept of the ‘theory of Forms’ or ‘theory of Ideas,’ which posited that the physical world is not as real or true as timeless, absolute, unchangeable ideas. According to this theory, ideas are the non-physical essences of all things, and physical objects and matter in the physical world are merely imitations of those real ideas. It’s as if the physical world is a mere reflection of another, more real world. In scientific terms, this concept has parallels in the idea that all possible outcomes of quantum measurements are physically realized in some other “world” or universe. In 1957, Hugh Everett put forth this notion as “the relative state formulation” or “Everett interpretation.” Building on this, Bryce DeWitt further developed the theory and coined it “many-worlds” in the 1970s.

The Greek philosopher Plato proposed a ‘theory of Forms’ or ‘theory of Ideas’ that attributed that the physical world is not as real or true as timeless, absolute, unchangeable ideas. According to this theory, ideas are the non-physical essences of all things and physical objects and matter in the physical world are merely imitations of those real ideas. It is like the physical world is a replica of another real world. In the language of science, all possible outcomes of quantum measurements are physically realized in some another “world” or universe. In 1957 Hugh Everett proposed this idea as “the relative state formulation” or “Everett interpretation”. Bryce DeWitt developed this theory ahead and named it “many-worlds” in the 1970s.

The many-worlds interpretation of quantum mechanics describes time as a branching tree, where every possible quantum outcome is realized in separate, non-communicating parallel universes or quantum worlds. This theory suggests that the

universe is composed of a quantum superposition of an infinite or indefinable number of increasingly divergent realities. Renowned physicist Stephen Hawking was a prominent supporter of this interpretation. The theory proposes that the differentiation between these separate worlds should be made at the level of the mind of an individual observer. This concept was first introduced in 1970 by H. Dieter Zeh and has also been referred to as a “multi-consciousness” interpretation. The idea is that different observers may experience different branches of the quantum reality.

These theories suggest that the universe is not just a single, static entity, but rather a complex and dynamic system with multiple potential realities. This view of the cosmos opens up the possibility of a multitude of diverse and distinct cosmic universes, each with its own unique characteristics and inhabitants. These interpretations challenge our traditional understanding of reality and offer intriguing possibilities for the nature of existence. So, cosmic giant is not just a random assumption of some ancient people but also many scientific theories are based upon it. Prof. Satya Prakash saw no contradiction between Science and Theism. He said,

More you study God’s creation you are nearer to God. More you know nature, then more you know God and more you love him. More you know God and his eternal laws (Rta-Term from Vedic Philosophy), the more you increase your potentialities. There is no secrecy in his realm. It is given to a scientist to unfold the truths through which God has manifested himself in his creation. And hence, to me to study science is to worship him. (Swami Satya Prakash)

In the seventh book of the *Republic*, Plato presents the famous “myth of the cave,” in which he describes a scenario where people have spent their entire lives observing shadows of reality cast by a fire, with their backs to the true light of the sun. Plato clarifies that the cave symbolizes the physical world, and the journey toward the light represents the “soul’s ascension” to the world of Forms. It’s worth noting that in his later dialogues, Plato himself raised significant questions about the theory of Forms. According to Stephen Hawking,

For millions of years, mankind lived just like the animals. Then something happened which unleashed the power of our imagination. We learned to talk and we learned to listen. Speech has allowed the communication of ideas, enabling human beings to work together to build the impossible. Mankind's greatest achievements have come about by talking, and its greatest failures by not talking. It doesn't have to be like this. Our greatest hopes could become reality in the future. With the technology at our disposal, the possibilities are unbounded. All we need to do is make sure we keep talking. (All we need...)

The *Rig Veda* contains substantial evidence suggesting that the birth of the Cosmos or Universe was alluded to in its verses. While these references may seem more philosophical than scientific, they provide a basis for exploring new hypotheses. It is intriguing to note that what science is currently uncovering, the Vedic people seemed to have known in advance. A deeper analysis of Vedic hymns and astronomical references not only enhances our understanding of Vedic concepts but also offers insights into the evolution of scientific thought and cosmology. The ancient contemplations on the origins of the Universe continue to resonate with contemporary scientific inquiries.

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Sumitra Dahiya is a PhD Scholar in the Department of English & Foreign Languages at Chaudhary Devi Lal University, Sirsa. Her doctoral research focuses on the intersection of Indian mythology and ancient scriptures within English literature, exploring how these timeless narratives continue to influence contemporary literary discourse. As an accomplished poet, Dahiya has published two collections of poetry: “Aman” and “Single Again,” demonstrating her creative engagement with literary expression alongside her scholarly pursuits. Her research interests encompass a diverse range of disciplines including mythology, folklore, cultural studies, and film studies, reflecting her interdisciplinary approach to understanding narrative traditions and their cultural significance. Through her academic work, Dahiya contributes to the growing field of postcolonial literary studies by examining how ancient Indian texts and mythological frameworks are reimagined and represented in English literary works, bridging traditional cultural knowledge with contemporary literary analysis.
