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A Comparative Study of Fundamental Properties of Nature and its Co-Relation with Fundamental Particles w.r.t Electron Proton and Neutron: A Review

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Abstract: ***This article presents a comparative and interpretative review that brings together concepts from Sankhya Darshan[2] in Ayurveda and contemporary scientific models of the universe, particularly particle physics, the Big Bang theory[4], chemical evolution of life[9], and elements of string theory. It examines the conceptual parallels between the three gunas, rajas, tamas, and sattva, and the fundamental particles, electrons[5], protons, and neutrons, with emphasis on the role of charge, instability, and energy in cosmic and biological evolution. By drawing on classical Ayurvedic texts and modern scientific literature, the discussion highlights how free charge particles enable atomic interactions, stellar processes, chemical complexity, and ultimately the emergence of life. The review further explores hypothetical implications of a universe composed only of stable, uncharged atoms, outlining how such a condition would disrupt nucleosynthesis, energy production, and biological processes. Through this interdisciplinary lens, the article argues for a meaningful convergence between ancient philosophical frameworks and modern scientific explanations of the origin and continuity of the universe and life.***

Keywords: Sankhya darshan[7], big bang theory[4], rajas & tamas, electrons[5] & protons, string theory of universe and theory of chemical evolution of life[9].

1. Introduction

Both Ayurveda and modern science explains the origin of universe and and its formation in its own way but both shares a similar way of explaining universe formation According to (sankhya darshan[2]) Ayurveda, the nature is made up of three entities rajas tamas and satvaj. Similarly according to modern scientists' universe is made up of three fundamental particles i.e electron[5] proton and neutron. Here in this research article we are going to do a comparative study on fundamental particle of universe from modern as well as ancient perspectives. That simply emplies Life on earth would not have existed without free charge particle l.e rajas and tamas.

Features of electron[5] proton and neutron are like rajas tamas and satvaj respectively. As we all must have heard the famous quote of **Nobel Prize-winning Albert Szent Gyorgyi[8]** (A Hungarian biochemist)– ***"life is nothing but an electrons looking for a place to rest***"[8] Life on earth would not have existed without electrons[5].

2. Materials and Methods

With the help of modern research available on origin of universe (Big bang theory[4]), theory of chemical evolution of life[9], string theory of universe and ancient ayurvedic hypothesis of origin of universe.

3. Discussion

Co relation with big bang theory[4] of origin of universe.
Key Points of Sankhya Darshan [2] which Resembles Big-Bang Theory[4]

According to Sankhya Darshan [2]
Prakriti[2] + purush[2] ----> mahat ----> Ahankar (अहंकार)
- Rajsik ahankar, Satwik ahankar, tamsik ahankar.
- Panch mahabhoot
- Akash, vayu, agni, jala, prithwi
- Panch tan-matra, (पंच तन्मात्रा)
- Shabd, sparsh, rup, ras, gandhb (शब्द, स्पशर्, रूप, रस, गंध)

According to Big-Bang Theory[3]
- Initial stage of explosion
- Expansion of universe
- Nucleosynthesis
- Formation of Atoms
- Various Structure formation
- Series of Chemical reaction
- Cosmic waves and radiation decay
- Formation of sun stars and planets

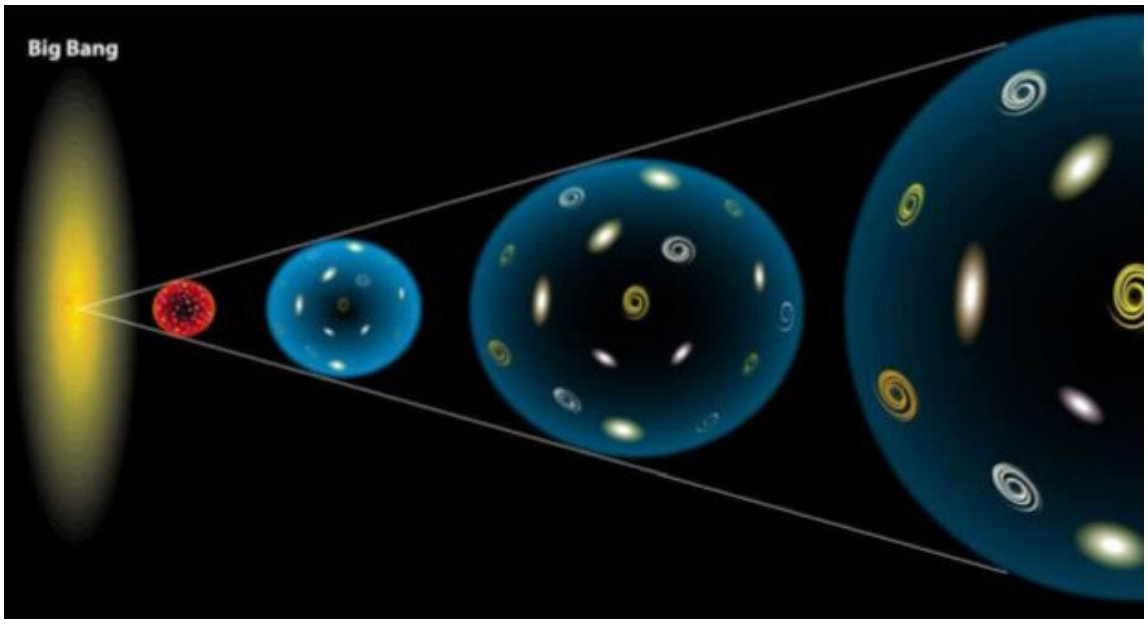
All organisms require a source of electrons[5] to make and store energy.

They must also be able to shed electrons[5] once their job is done.

Big Bang theory[4] explains formation of universe from an explosion and that explosion is nothing but a Prakriti[6] + purusha[6] sanyog and thus forming further multiple galaxies and solar system. This Prakrutipurusha sanyog brings disturbance (radioactivity decay or free charge particle in nature) which act as source of energy which later initiate formation of lives or living being on planets.

a) Key Points of Big Bang[4] Theory which resembles to Sankhya Darshan[7]

1) **Initial State:** The universe started from a tiny, dense, and incredibly hot state known as a singularity.
2) **Expansion:** This singularity underwent rapid expansion, a period called inflation, in the first fractions of a second.
3) **Formation of Particles:** As the universe expanded and cooled, subatomic particles (like quarks) and then protons and neutrons formed.



4) **Nucleosynthesis:** Within a few minutes, protons and neutrons fused to create the first atomic nuclei, primarily hydrogen and helium.
5) **Formation of Atoms:** After about 380,000 years, the universe cooled enough for electrons5 to combine with nuclei, forming the first neutral atoms5.
6) **Structure Formation:** Gravity caused these early elements to clump together, eventually forming stars and galaxies.
7) **Expansion of the Universe:** Observations show that galaxies are moving away from each other, supporting the idea of an expanding universe.
8) **Cosmic Microwave Background Radiation (CMB):** This faint afterglow of the Big Bang4 provides evidence of the early, hot universe.

Abundance of Light Elements:
The relative amounts of hydrogen and helium in the universe match with predictions made by big bang[4].

b) Co- relation with theory of chemical evolution of life[9].
Theory of chemical evolution of life[9] (Oparin-Haldane theory[9]) also agrees to the fact that origin of life would not have existed in the absence of free charge Particle (electron[5] and proton[5]) I.e rajas[3] and tamas[3].

As we know if an atom is neutral there is no charge on it and it is stable, but as soon as we charge them with either positive or negative charge it becomes unstable, and that is the point where journey begins, that is the point where possibilities of life started after Big Bang[4]. Becouse Big Bang[4] brought free charge in existence and also possibilities of life in existence.

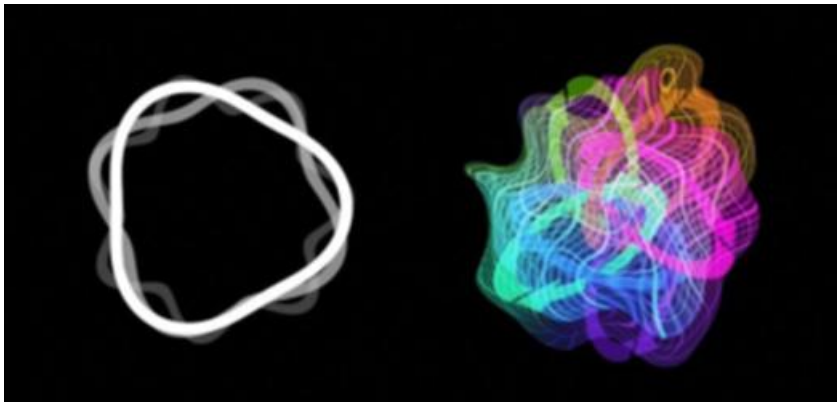
On the contrary ***let's suppose if there would have been no charge in existence (I.e no rajas and tamas) from beginning of Big Bang[4], so there would have been no unstable atoms resulting in absence of existence of life in the universe. If every atom in the universe were to become stable, several profound implications would arise, fundamentally altering the nature of matter and the universe as a whole.***

c) Consequences if we imagine life without a charge particle (i.e. rajas and tamas)

1) **Definition of Stability:** Stability in atomic terms usually refers to the balance of protons, neutrons, and electrons[5] such that an atom does not undergo radioactive decay. This means all isotopes would need to be stable, which is not currently the case for many elements.
2) **Loss of Radioactivity:** Elements that are currently radioactive (like uranium or radon) would no longer emit radiation. This would eliminate the processes of radioactive decay, which are crucial for various natural processes, including heat production in the Earth and the formation of elements in stars.
3) **Changes in Element Distribution:** Many heavy elements are unstable and decay into lighter elements. Exist in their current forms, potentially leading to a universe dominated by lighter, stable elements.
4) **Impact on Stellar Processes:** The processes that drive stellar evolution, such as nuclear fusion and supernova explosions, depend on the instability of certain elements. If all atoms were stable, the life cycles of stars would be drastically altered. Stars might not be able to burn through their fuel efficiently, leading to fewer supernovae and changes in the formation of heavier elements.
5) **Implications for Life:** Life as we know it is built on the chemistry of unstable elements (like carbon, nitrogen, and oxygen). While these elements are stable in their most common forms, the absence of certain isotopes could impact biological processes, including those that rely on radioactive isotopes for dating (like carbon-14) or for medical applications.
6) **Cosmological Effects:** The structure of the universe might be altered as well. The processes of nucleosynthesis in stars and during the Big Bang[4] contribute to the elemental makeup of the universe. If every atom were stable, the initial conditions of the universe and the formation of galaxies and structures could be significantly different.
7) **Energy Production:** Many forms of energy production rely on the decay of radioactive materials (like nuclear power). A universe where all atoms are stable would require entirely new methods for energy generation.

d) Co relation with string theory of universe.

String theory is states that fundamental constituents of the universe are not point-like particles, but rather one-dimensional objects called strings. That simply means all the objects in this universe is nothing but vibrating strings. Similarly in Ayurveda we can say that everything is made up of purush and this coincidence of purusha[6] with Prakriti[6] produces different possibilities leading to formation of different objects in this universe.



4. Conclusion

In summary, if every atom in the universe were to become stable, it would lead to a fundamentally different universe or universe will collapse, impacting everything from the formation of elements and stars to the very nature of life itself. The implications would be profound and would likely challenge our understanding of physics and chemistry. So life would not have existed without free charge particle i.e electron[5] (-ve charge), protons (+ve charge). So sanyog of prakriti[2] and purush[2] (Big Bang[4] explosion) is necessary for the universe to exist. Or we can say, Life on earth would not have existed without charge particle i.e electrons[5] and proton (rajas and tamas).

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