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Space itself is Matter

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Abstract

'The form is empty, and emptiness is form' is a famous Buddhism teaching. The Chinese character overwriting the word 'form' here is 'Se' (Chinese pronunciation) which indicates the color of nature, the coquettishness of women among others in modern Chinese. 'Form' expresses Buddhists' understanding of 'Se', i.e., all sensible matter. Many people believe that the teaching implies the philosophical idealism of Buddhists; however, it may be the ultimate understanding and the underlying logic of the universe in my opinion, i.e., the space itself is the matter in essence. Unfortunately, I am unable to express such logic with mathematical language.

Keywords: Space; Matter; Universal origin

Introduction

As our current understandings, a vacuum is full of so-called zero-point energy rather than empty absolutely and completely. The differential density of space may relate to the accelerating expansion of the universe [1]. The vacuum is permeated by the Higgs field interacting with all basic particles [2]. The ultra-intense laser beams can even stir up the vacuum with fleeting electron-positron pairs [3]. Against the space background, pairs of basic particles, such as electron and its mirror positron, frequently generate and integrate again to annihilate. Gravity can curve time and space; however, the founder of the general relativity, Albert Einstein, did not tell is how [4]. The origin of the universe may be beautifully simple; however, it is excessively complicated by colorful hypotheses, having been evolving as a metaphysics [5]. Only revolutionary thought may guide us out of the impasse of modern physics. Actually, we just have to acknowledge the space itself is matter to understand the origin of the universe and its running. A Buddhism teaching, the form is empty, and emptiness is form [6], may have seen the essence of the matter.

Conclusion

The pre(cosmo)historic universe is nothingness, and there is not even the space itself. The universe may come into being by splitting the nothingness into the positive and infinite space and the negative and infinitesimal one first, and then evolving into the universe we are feeling today. The nothingness is a state where neither the positive nor the negative spaces exist. Space itself characterizes density and energy. The space itself is the matter, and the space density differential is the energy. The enantiomer of this sensible universe is the black hole(s) (negative space).

We assume that space generates matter, and the matter stabilizes against the space background with a fixing density. At the beginning of the universe genesis, a nothing dot was split into the positive space and its mirror, the negative black hole. The black hole is the negative and infinitesimal space symmetrical to the positive and infinite one we are feeling today. A widely accepted understanding is that the cosmos starts to inflate at its very beginning of genesis. I prefer to complement that the rotation of the universe in total and partial may initiate synchronically due to space convection, creating a myriad of rotating bodies various in size, as large as the whole universe and as small as the basic particles, and nested each other. Enormous numbers of paired particles will generate naturally inside the rotating bodies, and the negative partner of a particle pair may merge with the space background while the positive one may be entrapped as we may see when the rotating bodies are broken, for example, those we observed in a collider. The biggest rotating body may be a galaxy and even the whole universe while the smallest may be the widely existing basic particles, protons, neutrons, electrons among other. The basic particles can survive the space background inside proton and neutron while only electron can survive the

space background outside them. During beta-decaying, a neutron decays into a proton, releasing an antineutrino and an electron, and leaving possibly a neutrino (space with low density) inside the proton. The black hole is not the highly dense star body but truly a negative space. If a black hole is not divisible, then our sensible universe is multiversal. A galaxy like the Milk Way is an independent universe. (Figure 1)

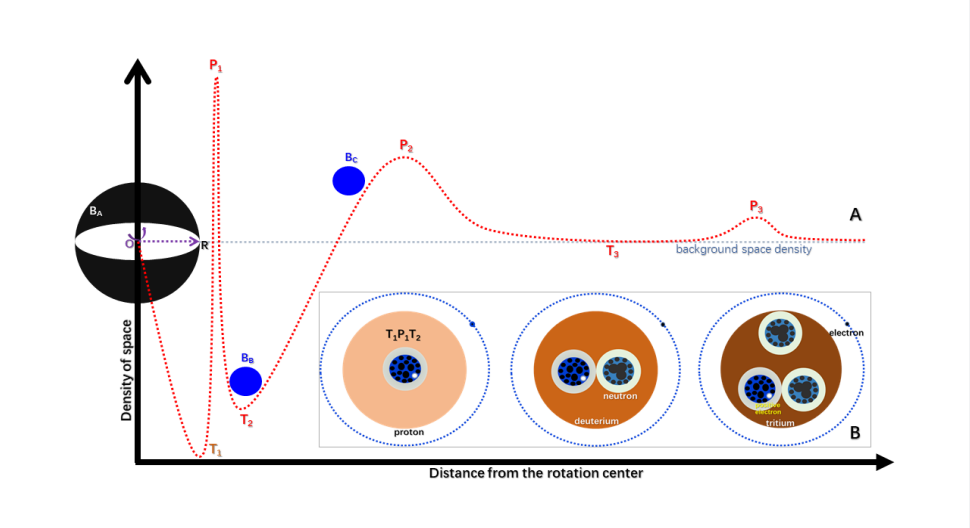

Figure 1: The hypothetical ideas of the essence of gravity and the structures of three stable isotopes of hydrogen, protium (^{1}H), deuterium (^{2}H) and tritium (^{3}H). Along the radius OR of rotating ball A (B_A), the space density inside the ball reduces fast, touching down at the end of OR and maximizing fast due to the spatial headwind outside. The condensed space frees up, forming a space density wave with troughs $T_{1, 2, 3}$, … and peaks $P_{1, 2, 3}$, …, which becomes weaker and weaker outward. Marginalizing the space inside BA along the radius OR, around the circle with OR as the radius and throughout BA layer by layer, up and down, generates spatiospheres around it with different densities. The first spatiosphere ($T_1P_1T_2$) is densest, restricting BA and maintaining its structure, while the out ones, the second mainly ($T_2P_2T_3$), mediates forming hydrogen nucleus (A). When a neutron (B_B) sneaks into the second spatiosphere of protium, it loses its rotation and attenuate its spatiospheres to some extent, intensifying the second spatiosphere of protium and releasing energy. The third neutron (BC) may stay outer in the second spatiosphere of the newly formed deuterium, less stable but never able to escape. The additional addition of neutrons follows the same principle (B). Rotating B_A excludes the space, bequeathing the inner space cavity at low densities, which can be refilled again by continuously infiltrating space outside (not shown).

Many people believe that the black holes are the collapsed stars with extremely large masses and densities. They are black but not hollow. We exclusively define the black holes the negative spaces symmetrical to the positive space we are living in, which may also have the density but their volume approaches to infinitesimal. The center of the galaxy may locate such a black hole small and mass free, being infinitesimal and space negative. Gravity in essence is the potential energy between the negative or extremely low-density space of the galaxy center and the positive one outside the black hole, identical to that between electron and the low-density neutrino inside proton. The four fundamental forces, strong nuclear force, electromagnetism, weak nuclear force and gravity, can be unified with the assumption, the space itself is the matter in essence. When an object falls into the second spatiosphere (Fig. 1), it may lose more movement and its own out spatiospheres (energy), becoming extremely stable. We call such state maintained by the space density differential the strong nuclear force. It may also lose less movement and out spatiospheres, retaining active and being easily escape the spatiosphere. We call such state maintained by space density differential the weak nuclear force. So-called electrical force is the potential of movement from high space density to the low space density while the magnetic force, we prefer to believe, is the force imposed by moving space to the particle like electrons, which maximizes when the movement of particles is vertical to the moving space. It is obvious that the space with different densities and moving states can be considered as diverse 'fields' proposed by scientists previously. The aether was once believed to mediate the transmission of light while its detection consistently failed. It is unknowable whether aether does not exist or it is not measurable. If aether is space in essence, the questions that aether tried to answer will become answerable with space. When two non-rotating bodies move parallelly, they may attract each other just like two trains in air and ships in water.

The universe may not have mass. The mass is only the density-differential condensing states of space. The universe always has the space with different densities, and the space always will move from high density towards low density, the movement of

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condensed forms of space (objects) always will be impeded by space. Innate frequency characterizes all objects. Any object can't be divided equally. The differential densities of space (mass) of two parts along the moving direction always will change their directions upon acceleration, causing wavy and even directionless movement. The less the mass, the more irregular the movement. Such movement can be described with the possibility of their appearance. Such randomness exists also among objects with large masses; however, the randomness is negligible.

The sensible universe is multiversal. The space can involve into basic particles with three dimensions, length, width and height, which can involve further into stars and galaxies step by step with the three dimensions. Among these objects with three dimensions, other mechanisms like electron sharing, a widely believed mechanism underlining force transmission, may cause the structural forms like diverse molecules and crystals. Light wave itself is the source of light wave simultaneously. A beam of light and a single photon even always will diverge gradually into the whole space, forming a light wave sphere. Interfering such light wave sphere at any site will collapse immediately the whole light wave spheres, and no light wave may interfere with it any more. Such understanding may aid to explain the double slot light interference observation. A pair of particles entangled each other prime and memorize the modification of their inner structure, and simultaneously carve the whole universe background in their own manner. When separated each other, the interaction between one particle and the space triggers concerted and immediate response of the other. Such response is different from light transmission; it is overall, similar to that the windows respond door opening, immediate and transient.

References

1. Perlmutter S, Schmidt BP (2003) Measuring cosmology with supernovae. Lecture Notes in Physics 598: 195-217.
2. Carroll S (2012) The particle at the end of the universe: How the hunt for the Higgs boson leads us to the edge of a new world. Dutton, USA.
3. Gelis F, Tanji N (2016) Schwinger mechanism revisited. Progress in Particle and Nuclear Physics 87: 1-49.
4. Zhao Z (2015) Albert Einstein and general relativity. Physics 44(10): 646-655. (in Chinese with English abstract)
5. Turner MS (2013) Origin of the Universe. Scientific American 22(2s): 37-43.
6. Nattier J (1992) The Heart Sūtra: A Chinese apocryphal text? Journal of the International Association of Buddhist Studies 15(2): 153-223.