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Universe hypothesis of the quantum eleven-dimensional space-time

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Abstract. In order to enhance the understanding of dark matter, dark energy and the 11-dimensional space-time in M theory, this paper proposes a new 11-dimensional space-time universe hypothesis based on the balance of Yin and Yang and the axiom of universal conservation. This new hypothesis of the universe holds that Yang quantum, Yin quantum and etheric are the three basic elements that constitute the universe. There is gravity between the Yang quanta, while repulsion force exists between the Yin quanta. Matter is made of a high density of the Yang quantum, with gravitational interactions, while the Yin matter evenly distribute in the universe in a quantum form, as a result of the repulsion force. The repulsion force of Yin matter and the gravitation of matter determine the motion state of the universe. The Yin quantum and Yang quantum meet in the ether and form a high energy state of mutual pregnancy and integration, which has huge energy and forms the dark energy in the universe. Matter, Yin matter and etheric each have three-dimensional space coordinates, matter and Yin matter share a one-dimensional time coordinate, and etheric has an independent one-dimensional time coordinate, which constitutes the 11-dimensional space-time of the universe. This universe hypothesis provides a new way to understand the universe and study the phenomena of matter, dark matter and dark energy.

1. Introduction

Physicists have found that there are both matter and antimatter[1] in the universe. However, matter and antimatter are not equal: matter prevails in the universe, while antimatter is hard to find! How can we explain this phenomenon?

Modern cosmologists believe that only about 5% of the universe is visible. In addition, there are a lot of dark matter in the universe that does not emit light[2]. What is the dark matter made of?

Also, modern cosmologists believe that there are a lot of unknown energy in the form of anti-gravity in the universe, which is called dark energy [3-4]. Where is the dark energy coming from?

In the history of modern science, the "decomposition method" is used to study matter, and whether matter is "divisible" or "indivisible" have been a puzzling problem. From the revolutionary picture that atoms can be divided, to the emergence of quantum science, nowadays the concept is that quantum is the most basic unit of matter that cannot be divided anymore. So, how does quantum constitute matter? How did our universe come into being?

In order to unify the four basic forces in the universe, physicists have proposed string theory and M Theory[5-6] for nearly half a century. The rudiment of string theory was discovered by Gabriele Veneziano in 1968. Scientists studying string theory are convinced that it takes at least ten dimensions to build a theoretical framework to make gravity compatible with quantum mechanics. From 1994 to 1995, another revolution took place. As the "ultimate theory of physics", M theory hopes to explain the nature and interaction of all matter and energy in a single theory. It combines five kinds of



superstring theory and 11-dimensional super gravity theory. Unfortunately, string theory and M theory have not yet been experimentally proved, and the concept of parallel universe deduced from this theory may not be proved at all [7].

Hawking, a famous physicist, proposed a theory of quantum cosmology without boundary conditions in 1982. In his theory [8], the birth of the universe is a quantum transformation from a Euclidean space to a Rockwell space-time, which realizes the idea that the universe is made out of nothing.

Modern science has made great achievements in the research of matter on the macro scale and micro scale (nano scale), but little has been known about the super micro scale (quantum scale) and super macro scale (cosmic scale).

The research of antimatter in modern science is just at the beginning, which is limited to the discovery of a variety of basic particles under special experimental conditions. The formation of the simplest atom of the anti atom is just in its infancy, and the long-term maintenance of these anti particles and anti atom state has not been realized. There is no clue to the study of dark matter. This has forced physicists to search for new theories [9].

Oriental philosophy holds that "the best road is the simplest". In this paper, based on the balance of Yin and Yang and the axiom of conservation, a new quantum universe hypothesis of Yin and Yang is proposed, which is expected to provide a new idea for people to understand the universe, study the phenomena of matter, dark matter and dark energy.

2. Universe hypothesis of the quantum eleven-dimensional space-time

This Universe hypothesis is based on the following:

(1) The law of the balance of Yin and Yang, which is the basic condition for the harmonious development of the universe.

(2) The axiom of universal conservation, that is, all phenomena in the universe conform to various conservation relations.

2.1. The most basic structure of the Universe

(1) There are two types of quantum that constitute the universe, one is Yang quantum and the other is Yin quantum. These two kinds of quantum always appear or annihilate in pairs. They have a conjugate relation, with a geometric scale of 10^{-35} m.

(2) The Yang quantum and the Yin quantum in the universe are immersed in an "ether absolute vacuum" environment, which completely separates the Yang quantum from the Yin quantum. In the ether environment of absolute vacuum, there is not only no matter, but also no electromagnetic wave.

(3) When Yin and Yang quanta, which are conjugated with each other, meet in the absolute vacuum environment of ether, they will form a high-energy state of mutual pregnancy. The resulting Yin-Yang quantum primitives (referred to as "mutual pregnant quantum pairs") exist stably in the absolute vacuum environment of ether for a long time.

Fig.1 is the schematic diagram the of mutual pregnant quantum pairs. The quantum of Yin and Yang in the state of mutual pregnancy is conjugated.

(4) The universe is composed of the three basic elements, namely, Yang quantum, Yin quantum and etheric absolute vacuum (etheric).

$$m+m^*=0 \quad (1)$$

Eq.1 shows the mass change relation of the Yin-Yang quanta in the Universe. Here, m is the mass of Yang quantum and m^* is the mass of Yin quantum. It is clear that the mass change is in accordance with the Yin-Yang balance, and is also consistent with the mass conservation relation.

(5) The etheric vacuum is holographic. In etheric, any point is equal to the whole area. Even the electromagnetic wave energy transfer cannot exist in etheric.

(6) The initial structure of the universe is composed of "mutual pregnancy quantum pair" and "etheric" environment. The universe in its initial structure is a universe with a complete balance of Yin and Yang.

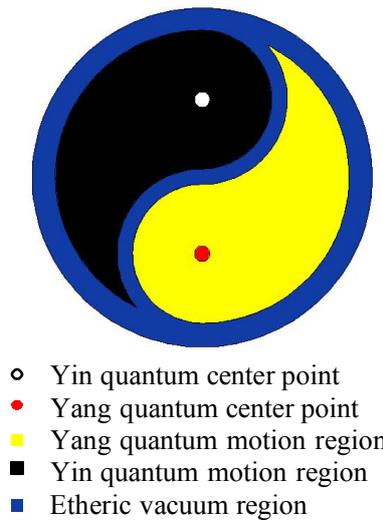


Figure 1. Schematic diagram of mutual pregnant quantum pairs
(the magnification is about 10^{31})

2.2. The most basic forces between the quanta of the universe

(1) There is mutual attraction between the Yang quanta, which is the most basic unit of gravity. The gravitational interaction determines that the Yang quantum tends to converge and concentrate.

(2) There is mutual repulsive force between the Yin quanta, which is the most basic repulsive force unit. The repulsive force determines that there is a tendency of dispersion and uniform distribution of all the Yin quanta in the universe.

(3) There is a "neutralizing force" between the conjugated Yang and Yin quanta. The quantum conjugation of Yin and Yang can form the interaction of Yin and Yang.

2.3. The quantum state inside the cosmic matter

(1) The universe in its initial structure is in complete balance of Yin and Yang. When there is some disturbance, the mutual pregnant state of some mutual pregnant quantum pairs is destroyed. Due to the mutual attraction between the Yang quanta, the Yang quantum appears in some aggregated forms. In this way, all kinds of relatively stable basic particles in our universe, such as quarks, electrons, protons, neutrons and so on, are formed.

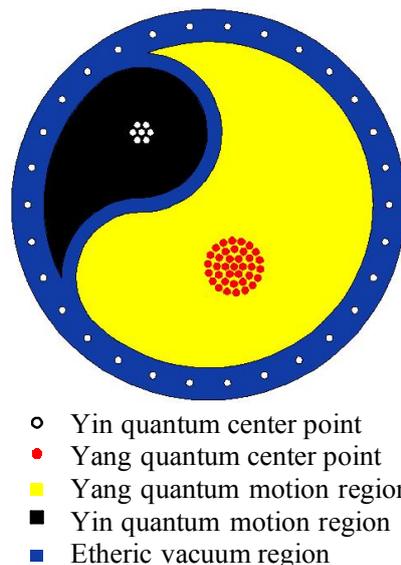


Figure 2. Schematic diagram of the aggregation state of multiple Yang quantum

Fig 2 shows one of the aggregation state of multiple Yang quantum. In this multicomponent system, the mutual attraction of the Yang quantum, the mutual repulsion of the Yin quanta and the conjugation of Yin-Yang quanta balance each other.

(2) Under some special environmental conditions, different combinations of these basic particles form different atoms.

(3) Under some special chemical reaction conditions, different combinations of these elements form molecules and inorganic substances.

(4) Under some special environmental conditions, the different combinations of these inorganic substances form a variety of organic substances, and after undergoing an evolution process, life emerges.

2.4. *The quantum state inside the cosmic Yin matter*

(1) Because of repulsive force between the Yin quantum, it is impossible for the Yin quantum to aggregate together to form the Yin particles.

(2) The main state of Yin quantum is independent and discrete; the stacking density of Yin quantum in different positions in the universe is determined by the interaction of repulsion force between Yin quantum, neutralization force between conjugate Yang quantum and Yin quantum, and mutual attraction between Yang quantum; therefore, the phenomenon of Yin matter and material phenomenon in the universe is totally different.

(3) The repulsion force between the Yin quanta makes a large number of Yin quanta exist independently in the etheric environment. In a sense, it is the repulsion force between the Yin quantum that makes the whole universe have a certain volume.

2.5. *The space-time phenomena in the universe -- 11 dimensional space-time*

As mentioned above, the existence and movement of the three components, which constitute the Universe, are completely different. For this reason, when we systematically study the phenomena of the Universe, we must consider the simultaneous existence of the three components at the same time.

(1) Four dimensional space-time of the matter. The space-time of matter formed by the matter can be described and studied by three-dimensional space coordinate and one-dimensional time coordinate.

(2) Four dimensional space-time of Yin matter. The space-time of Yin matter formed by the Yin quantum in the universe can also be described and studied by using three-dimensional space coordinate and one-dimensional time coordinate.

(3) Four dimensional space-time of etheric. The motion and change of "mutual pregnancy quantum pairs" in the absolute vacuum environment of the ether can be described and studied by using three-dimensional space coordinates and one-dimensional time coordinates.

We need to point out that the one-dimensional time coordinate of matter is the same as the one-dimensional time coordinate of Yin matter.

In summary, the whole universe consists of three mutually integrated and parallel four-dimensional space-time, namely, material four-dimensional space-time, Yin matter four-dimensional space-time and etheric four-dimensional space-time. The whole universe has 11-dimensional space-time, of which 9-dimensional is spatial coordinate and 2-dimensional is time coordinate.

3. Applications of the quantum eleven-dimensional space-time

3.1. *Antimatter phenomenon*

(1) The anti electron (positron electron), anti hydrogen atom and other anti particles produced by human are all Yin matter composed of Yin quantum as the main component.

(2) Because of repulsion force between the Yin quantum in the universe, most of the Yin quantum exists in the form of single independent and discrete. As the geometric scale of the Yin quantum is 10^{-35}m , so small geometric scale, the existing science can not measure at all.

(3) All kinds of existing scientific instruments are made of material materials, and it is impossible to directly detect antimatter. Therefore, the modern science, which takes matter as the object of scientific research, naturally feels that there is so little antimatter around it.

It can be seen that the discovery and research of antimatter phenomena in modern science have verified the existence of Yin quantum in this hypothesis.

3.2. Dark matter phenomenon

(1) The dark matter is a kind of special material structure, which is mainly composed of "mutual pregnant quantum pairs", supplemented by Yin quantum and Yang quantum.

(2) When a large number of "mutual pregnant quantum pairs" gather together, the gravitational effect of internal Yang quantum on matter will appear.

(3) Because the Yang quantum and the Yin quantum in the "mutual pregnant quantum pairs" are perfectly combined, the interaction between dark matter particles is much smaller than that between matter due to the gravitational effect.

(4) The so-called "large weakly interacting mass particles (WIMP)" in the current dark matter theory proposed by scientists is a kind of special particles formed by the aggregation of "mutual pregnant quantum pairs".

(5) Because the Yang quantum and the Yin quantum in the "mutual pregnant quantum pairs" are perfectly combined, the dark matter composed of the "mutual pregnant quantum pair" does not participate in the electromagnetic force.

(6) Modern physicists have proposed that large weakly interacting mass particles (WIMP) have their own "antiparticles", and this feature of dark matter is completely consistent with the feature of "mutual pregnant quantum pairs".

It can be seen that the discovery and research of dark matter in modern science have verified the hypothesis of "mutual pregnant quantum pairs" in the universe.

3.3. Dark energy phenomenon

This quantum universe hypothesis holds that the dark energy described by modern science is the "mutual pregnant quantum pair" of non aggregated distribution hidden in the absolute vacuum of ether.

(1) When the conditions are ripe, these energies will be released and the universe will expand.

(2) Dark energy will not absorb, reflect or radiate light, because "mutual pregnant quantum pair" is not ordinary matter (Yang matter), so it will not absorb, reflect or radiate light.

(3) "The dark energy in the universe has negative pressure and almost evenly distributed in the universe" is due to the fact that the dark energy exists in the ether environment of absolute vacuum, so it is always in a negative pressure state;

(4) Since dark energy is a "mutual pregnant quantum pair" distributed in ether, and ether vacuum is almost uniformly distributed in the universe, dark energy is also almost uniformly distributed in the universe.

It can be seen that the discovery and research of dark energy in modern science have verified the hypothesis that there is an absolute vacuum in the ether, and also verified the hypothesis that there are a large number of "mutual pregnant quantum pairs" in the ether.

4. Conclusions

Based on the balance of Yin and Yang and the axiom of conservation, this paper puts forward the hypothesis of Yin and Yang quantum universe.

(1) Yang quantum, Yin quantum and ether are the most basic units of the universe.

(2) There is gravitation among the Yang quanta. It is this gravitation that produces the basic particles of matter, and then forms elements, produces inorganic matter, evolves into organic matter, and evolves into advanced life.

(3) There is repulsive force between the Yin quanta, so the existence form of Yin matter in the universe is completely different from that of matter. The Yin quantum mainly exists in the form of discrete and uniform distribution.

(4) When Yin and Yang quantum meet in the ether, they will form a high-energy state of mutual pregnancy, forming the Yin-Yang primitives, which exist stably in the ether environment for a long time. It is a large number of Yin-Yang primitives contained in the ether, which contain huge energy, forming the dark energy in the universe.

(5) Matter, Yin matter and ether each have three-dimensional space coordinates. Matter and Yin matter share one-dimensional time coordinates. Ether has an independent one-dimensional time coordinate. The whole universe has 11-dimensional space-time.

References

- [1] Ahmadi M, Alves B X R, Baker, C J, et. al. 2017 Observation of the hyperfine spectrum of antihydrogen, *J. Nature*, **548** 66-69.
- [2] Genzel R, Schreiber N M F, Ubler H, et. al. 2017 Strongly baryon-dominated disk galaxies at the peak of galaxy formation ten billion years ago *J. Nature*, **543**: 397-401.
- [3] Clery D 2017 Survey finds galaxy clumps stirred up by dark energy *J. Science*, **357**: 537-538.
- [4] DeMille D, Doyle J M and Sushkov A O 2017 Probing the frontiers of particle physics with tabletop-scale experiments *J. Science*, **357**: 990-994.
- [5] Edward 2005 Unravelling string theory *J. Nature*, **438**: 587.
- [6] Kane G 2005 Optimism About String Theory *J. Science*, **307**: 845.
- [7] Lee S 2006 The trouble with physics :The rise of string theory, the fall of a science, and what comes next (New York: Houghton Mifflin Company)
- [8] Hartle J B, Hawking S W and Hertog T 2014 Quantum probabilities for inflation from holography *J. J Cosmol Astropart P*, (1): 1-10.
- [9] Gibney E 2017 Dark-matter hunt fails to find the elusive particles *J. Nature*, **551**: 153-154.