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Research Article

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The 3-Cosmic Framework of the Universe Can Hold Dark Matter and Dark Energy

Hsien-Jung Ho

Host / Newidea Research Center
Address: 10 Floor, No. 110-6, Jie-Shou N. Road, Changhua City, Taiwan.
email: newidea.ufoho@msa.hinet.net; newidea@newidea.org.tw

Abstract To solve the problems of dark matter and dark energy, some cosmologists accept the type of multiverse today. Based on the String theory, the Universe's constitution is 10-dimensional spacetime and apply "Anthropic Principle" and "Causality" to deal with space and time. Taking 4-dimensional spacetime as one cosmos, there is a 3-cosmic framework of the Universe in the whole space. Between any two cosmoses, except gravitational force, there is no other fundament force that implying dark matter is in the other cosmoses than ours. Exploring dark matter from the interior of the Earth, a dark planet is found, which is about 1.33 times of Mars inside the Earth but in the other cosmos. Based on the data of cosmological parameters from 1-year WMAP results to Planck 2018 results, dark energy gradual decreasing, but the matter gradual increasing at the same value. This phenomenon accords with the narration of the Big Bang Theory, so, we should take the current dark energy as the residual energy of the Universe after the Big Ban. According to the data, dark matter density increases gradually about 4.3%, which implies to be in the high-energy-density cosmoses, comparing to baryon density of our low-energy-density cosmos increasing gradually about only 0.5%. Because the high-energy-density cosmoses rapidly expands, its dark matter should subject to a "drag" on the stars of our cosmos that causes the effect of pulling our cosmos accelerating expansion. From this study, the problems of dark matter and dark energy can be solved.

Keywords String theory, Triple cosmoses, Dark matter, Dark energy, Chandler wobble

1. Introduction

In 1922, Jacobus Kapteyn the first astronomer addressed the possible existence of invisible matter in the Milky Way Galaxy by using stellar velocities [1]. Then some scientists [2-5] found unobservable matter, called dark matter, amounted to more than 90 % mass of the entire Universe.

In 2006, astronomers used Chandra X-ray Observatory to observe the Bullet Cluster of galaxies and found a recent big collision of two galaxy clusters, by separating dark matter from normal matter, which is direct evidence of the existence of dark matter [6]. The dark matter is real that can only be detected by its gravitational influence on visible matter. While astronomers agree on the existence of the dark matter; however, after one hundred years of search, there is nothing gained.

The High-Z Supernova Search Team published observations of type 1a supernova as standard candles [7], and the Supernova Cosmology Project followed immediately [8], then the two independent projects obtained results suggesting a totally unexpected acceleration in the expansion of the Universe. To explain the phenomenon of the Universe is expanding at an accelerating rate, "dark energy" is the most accepted hypothesis to the observations.

Dark energy acts as a sort of an anti-gravity and is responsible for the present-day acceleration of the Universal expansion.

From 2003 to 2018, the Wilkinson Microwave Anisotropy Probe (WMAP), and the Planck Satellite have released their measurements with the content of the present-day Universe, there are dark energy about 68%, dark matter about 27%, and the rests ─ everything ever observed with all our instruments and all normal matter ─ add up to about 5%.

Dark energy is a current scientific hypothesis, being neither matter nor radiation, its physical properties have no clue, and we do not know how it works, and dark matter is also no solution, so, now all astrophysicists take them as the major problem. As the names of dark matter and dark energy are all come from astrophysics, we try String theory of theoretical physics to solve the major problems of science.

2. Multiverse Research Review

2.1. Based on String theory dark matter could exist in extra dimensions.

String theory describes all fundamental forces and forms of matter and potentially provides a unified description of gravity and particle physics. Based on String theory, the Universe's constitution are nine-dimensional space and one-dimensional time, which is interpreted as the product of ordinary 4-dimensional spacetime, and 6-extra-dimensional space, but 6-extra-dimensional spaces is yet unobserved [9]. Physicists have attempted to compactify the ten-dimensional spacetime model through spontaneous symmetry breaking down to a four-dimensional one as our known world and the other 6-extra-dimensional space, which is compacted to be tiny space. Because of no exact boundary condition to fit the real Universe and works out a theoretically solid basic geometry, therefore no proposed method meets perfection.

Without considering compaction, nine-dimensional space should be symmetrical, i.e., symmetrical with the same weight for each dimension of space. Therefore, the Universe should still exist in equal weight of nine-dimensional space, plus one-dimensional time, so it can be argued that String theory of the cosmic framework should still be able to maintain a complete ten-dimensional spacetime.

In the multidimensional theories of String theory, the force of gravity is the only fundamental force with effect across all dimensions. This explains the relative weakness of gravity compared to the other fundamental forces (as electromagnetic force), which cannot cross into extra dimensions. In that case, dark matter could exist in extra dimensions that only interact with the matter in our space through gravity. That dark matter could potentially aggregate in the same way as ordinary matter, forming extra-dimensional galaxies [10].

Georgi Dvali and his colleagues have proposed that the extra dimensions of space do not curl up become minimum, but infinite in size and uncurved, just like our ordinary three-dimensional view. In character of String theory, they rethink the "extra dimensions" problem, that is, gravity can roam to any additional dimension of space. They think that the accelerated expansion of the Universe is not caused by dark energy, but because gravity leaks out of our world. In particular, the theory predicts that the Universe has extra dimensions into which gravity, unlike ordinary matter, may be able to escape. This leakage would warp the spacetime continuum and cause cosmic expansion to accelerate. Thus, the extra dimensions need not be small and compactify, but may be large extra dimensions [11], i.e., outside our ordinary three-dimensional space, there are the same six extra dimensions of other space usually in the Universe.

2.2. Some cosmologists accept this type of multiverse today.

In 1950s, Hugh Everett devised "the many-worlds interpretation (MWI)" of quantum mechanics. The core of the idea was to interpret in the quantum world, an elementary particle, or a collection of such particles, can exist in a superposition of two or more states of being [12].

In the 1980s, Leonard Susskind said that it was the result of string theory, which was used as a tool or framework to describe cosmic phenomena [13]. MWI is a theory of multiple Universes. In this case, scientists can produce the only explanation: these elementary particles do not exist only in our cosmos; it may also fly around the other cosmoses that are not ours. This means that there may be multiple cosmoses, called multiverse, in space, but there are only subtle differences between them, so there are still the cosmoses about which we do not know.

An important aspect needs to extend our physical theories within a multiverse framework. The dominant expectation so far for the theory of quantum gravity (QG) has been the 'reductionist' hope that relies on QG producing one unique solution that resembles the general features of our Universe, but scientists have failed. The three different and important theories: quantum mechanics, String theory and inflation, all predict the existence of the multiverse is, scientists believe, hardly coincidental. The existence of the multiverse must be expected from the underlying fundamental theory.

David Deutsch is one of the leading figures in theoretical physics in the multiverse. He believes that this multiverse theory is the only explanation for the strange phenomenon in quantum mechanics, because it is based on rigorous mathematical equations and many experimental results [14]. Although more than 50 years have elapsed since the first discussion of MWI by Hugh Everett, there is not any new step to set the foundations and the ontology of the multiverse and of this new field in physics.

2.3. The temperature fluctuation map of CMBR showed the hard evidence of another cosmos.

in fluctuations in form of maps

In June 2001, NASA launched WMAP, which is designed to detect the residual cosmic radiation heat in the Universe after the Big Bang and drew the temperature fluctuation map of the cosmic microwave background radiation (CMBR) throughout the Universe. In 2009, European Space Agency's partnership with NASA launched Plank Satellite, which can detect tiny temperature fluctuations in this radiation, then a full map of CMBR was drawn more accuracy.

In general, scientists tend to think that the radiation is evenly distributed, but the full map shows a different fact ─ there is a powerful center in the sky in the southern half of the map and a hole-like "cold spot" that cannot be explained with existing physics knowledge, where galaxies are accelerating away [15].

From the anomaly some scientists propose perspectives of the multiverse to explain the cold spot. The scientist predicted String theory does not predict a unique Universe, on the contrary, it predicts a multiverse [16]. In 2005, scientists predicted that anomalies in radiation existed that can only have been caused by the gravitational pulling on our cosmos from others as it formed during the Big Bang [17]. The "cold spot" in the southern half the map of the Universe may be the first "hard evidence" of another cosmos than ours that exist has been found by scientists [18].

3. Materials and Methods

3.1. The Universe should be a 3-cosmic framework from Causality and Anthropic Principle

Without compactifying the nine-dimensional space of the Universe, bases on ten-dimensional spacetime of String theory that is considered to universally exist. According to "Causality," an effect cannot occur before its cause, which means time has one direction and cannot be divided into some distinct parts. So one-dimensional time is taken as a common standard in order of event in the Universe.

According to "Anthropic Principle," which is the simple fact that we live in a Universe set up to allow our existence. It means that 3-dimensional space and 1-dimensional time, called 4-dimensional spacetime, are taken as one cosmos as our living world. Therefore, the 9-dimensional space can be divided into three portions, and each portion has a common standard time. It means there is a 3-cosmic framework in the Universe, called triple cosmoses, i.e., the Universe contains three cosmoses, which locate in the same nine-dimensional space of the Universe.

According to String theory, a 3-cosmic framework of the Universes has characteristics in which our cosmos describes the world of general matter as we know, but the others describe another world, which we know nothing. Among any other cosmoses, there is no fundamental forces except gravity, i.e., the graviton in the field of gravity can penetrate all three cosmoses; however, the light (electromagnetic wave) cannot that means among the cosmoses cannot be observed directly with each other.

According to this 3-cosmic framework of the Universe, there are triple cosmoses in the whole space, namely 1st cosmos, 2nd cosmos and 3rd cosmos, used U1, U2, and U3 instead. In the 3-cosmic framework of the Universe, there is no fundament force of nature exists between any two cosmoses, except gravitational force, i.e., cosmoses cannot observe directly with each other that is the characteristic of dark matter. So, the dark matter, which will be found through the gravity, should be in invisible cosmoses other than ours.

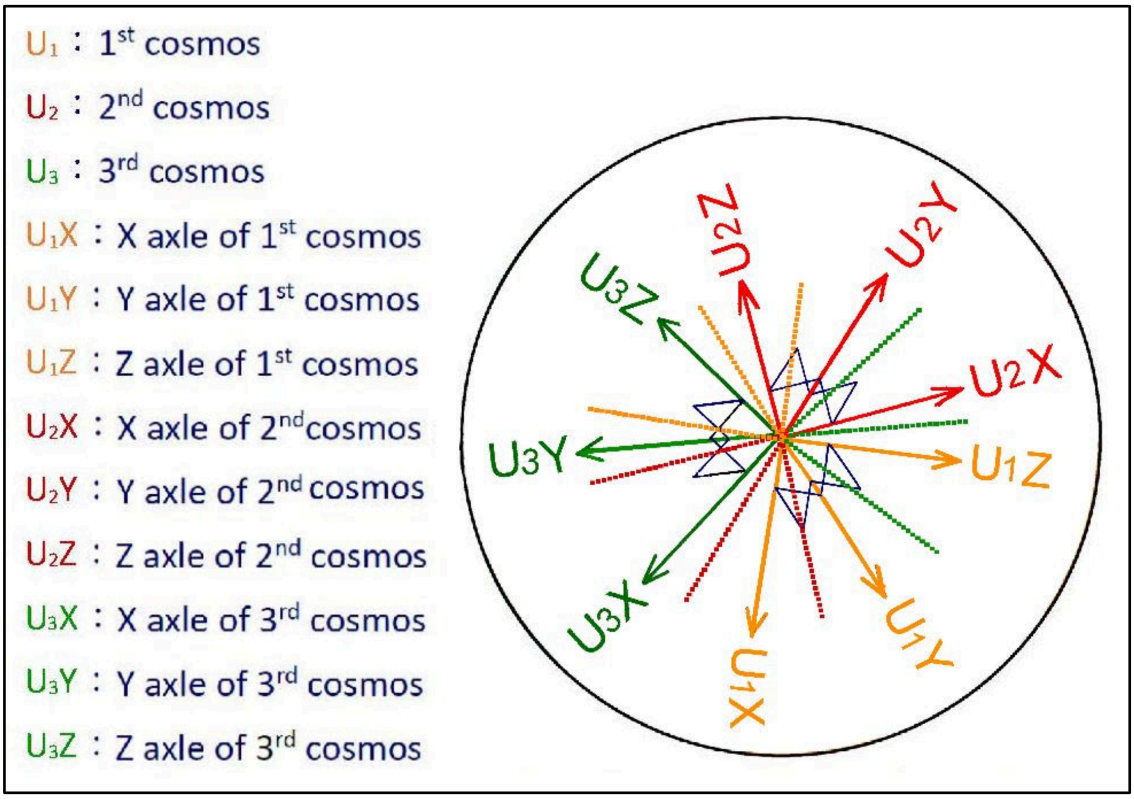

Figure 1: The imitation schematic diagram of nine-dimensional space in the 3-cosmic framework of the Universe

All the three cosmoses (U_1, U_2, and U_3) exist, but none of fundamental forces can affect with each other except gravity; for example, if U_1 is our cosmos, we cannot observe U_2 and U_3. The deep blue lines denote three axles, X, Y and Z, all perpendicular to each other in each cosmos. In the diagram, the center of circle is assumed a point P, which has nine coordinates: U_1Xp, U_1Yp, U_1Zp, U_2Xp, U_2Yp, U_2Zp, U_3Xp, U_3Yp and U_3Zp in the Universe. Assuming a star at P position, which appears in our cosmos, the other cosmoses cannot observe the star, its coordinates ordinarily are denoted by Xp, Yp and Zp.

3.2. Exploring dark matter from the interior of the Earth.

Based on String theory and the 3-cosmic framework of the Universe, we can find the dark matter in the other cosmoses than ours. The best method of exploring dark matter is to start from the Earth where we live. In 2019, author published a research article “Based on the Spacetime of String Theory Exploring Dark Matter Inside the Earth” [19]. The part of its abstract is as the following:

According to the characteristics of the Earth's interior, equitably examining its constitution, temperature, density, and pressure from a different view of the core, the special arguments are put forward. It is inferred that the solid rock and the magma change states interactively at the crust-mantle boundary. In the low viscosity F-layer of outer core, hot temperature causes some elements and oxides of magma to undergo oxidation-reduction reactions and separate due to its gravity. The considerable number of heats, produced from radiogenic heat, chemical reaction heat and nuclear fission heat, become the power sources for the geo-dynamo of great convection cell, which are the flows of the magma and the solid rock migrating up to the crust and down across the crust-mantle boundary to the F-layer.

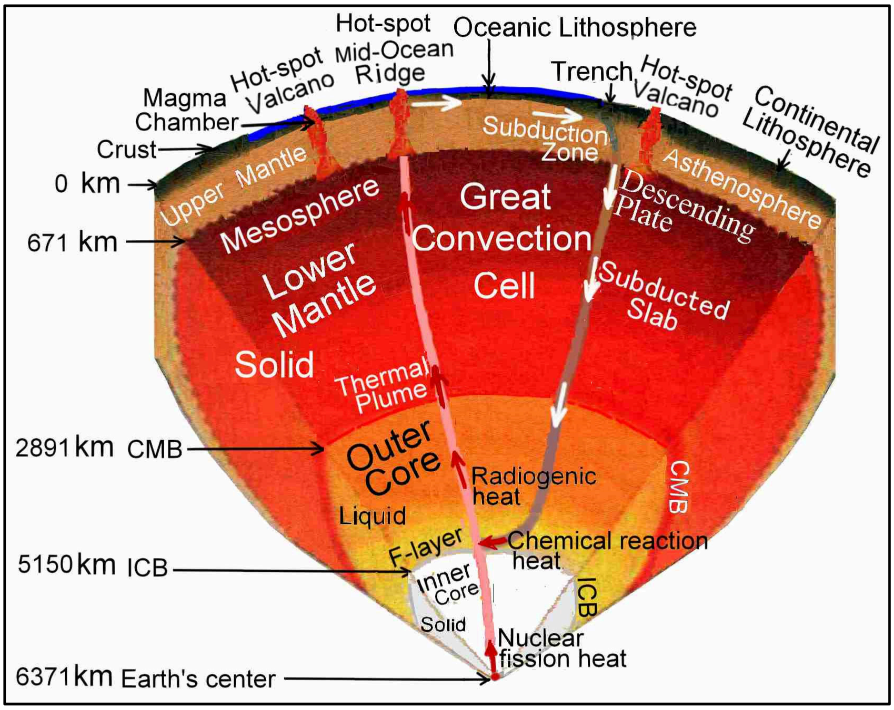

Figure 2: A schematic diagram of a great convection cell and heat flow, and the composition of Earth's interior

Based on the new conception and applying a simplified method tries the different density distribution curves of models in the core to calculate the data of the Earth and compared with the existing current data of the Earth. The insufficient mass and moment of inertia belong to the missing objects, taken as the parts of dark matter, which may be in the interior of the Earth, and then evaluate the Earth's mass and moment of inertia that are found to be only 85.73% mass and 94.82% moment of inertia of the current data. By the two insufficiencies of the Earth's data, formulating the reasonable assumptions, a planet of dark matter inside the earth has been figured out. And then calculate gravity and pressure in every depth within the Earth to check suitability or not. Finally, a dark planet, radius 3700.375 km about 1.33 times of Mars, exists inside the Earth but in another cosmos than ours.

3.3. Based on "The Big Bang Theory" Dark energy should be residual energy of the Universe.

In 1930s, Georges Lemaître proposed "The Big Bang Theory". In the beginning of the Big Bang, the Universe were made up of extremely hot temperature and hot energy with uniformity and isotropy, but no matter [20]. When this hot energy expands very quickly outwards, an exponential inflation occurs [21]. As the Universe expands rapidly and temperature decreases, the distribution of energy changes slightly, according to Einstein's famous equation ($E=MC^2$) for energy and mass interchange gradually, creating the earliest substances. In 1964, the discovery of the cosmic microwave background (CMB) by Radio astronomers Penzias and Wilson was the most important evidence to assess the Big Bang Theory [22]. Then more astronomical and physical evidence came out, such as Cosmic Background Explorer (COBE) [23], WMAP and Planck Satellite, when their detected spectrum was measured to map its black body radiation curve, the Big Bang Theory became more complete, and scientists believed in it.

In 2018, plank satellite detects tiny temperature fluctuations in the radiation of the Universe. These distributions of fluctuation reflect the baryon density of the Universe before galaxies have yet to form. Normal matter from galaxies and stars accounts for only 4.94 % of the Universe's composition, with the rest missing substance, including dark matter, which accounts for 26.64 %, and mysterious dark energy, which accounts for 68.42% [24].

Dark energy is one of the most mysterious observations in physics today. To research dark energy, we apply the table of cosmological parameters of WMAP results and Planck results, whose Hubble constants nearly gradually decrease, are selected one set at each detection, and are showed as the following.

Table 1: Cosmological parameters from WMAP and Planck Satellite

Parameter	**Source / Symbol**	**1-year WMAP [25]**	**3-year WMAP [26]**	**5-year WMAP [27]**	**7-year WMAP [28]**	**9-year WMAP [29]**	**Planck 2013 [30]**	**Planck 2015 [31]**	**Planck 2018 [24]**
Hubble constant (100h km s^{-1} Mpc^{-1})	H_o	71.0	70.4	70.5	70.2	70.0	68.14	67.31	67.32
Physical baryon density	$\Omega_b h^2$	0.0224	0.02186	0.02267	0.02255	0.02264	0.022242	0.02222	0.02238
Physical cold dark matter density	$\Omega_c h^2$	–	–	0.1131	0.1126	0.1138	0.11805	0.1197	0.12011
Physical Matter density	$\Omega_m h^2$	0.135	0.1324	0.1358	0.1352	0.1364	–	0.1426	0.14314
Dark energy density/ Critical density	Ω_Λ	73.22%	73.2%	72.6%	72.5%	72.1%	69.64%	68.5%	68.42%
Matter density / Critical density	Ω_m	26.78%	26.8%	27.32%	27.43%	27.9%	30.36%	31.5%	31.58
Baryon density / Critical density	Ω_b	4.44%	4.41%	4.56%	4.58%	4.63%	4.79%	4.9%	4.94%
Cold dark matter density / Critical density	Ω_c	22.34%	22.39%	22.8%	22.9%	23.3%	25.43%	26.42%	26.64%
Age of the Universe (Gyr)	t_0	13.70	13.73	13.72	13.76	13.74	13.784	13.80	13.80

From the table, the dark energy density Ω_Λ from 1-year WMAP results (2003) to Planck 2018 results VI for 15 years, the value from 73.22% decreases gradually down to 68.42%, decreasing 4.8%, but the total matter density Ω_m from 1-year WMAP results to Planck 2018 results VI, the value from 26.78% increases gradually up to 31.58%, increasing 4.8%. As the Universe expands rapidly, the temperature drops, gradually cools down, then energy transforms into the building blocks of matter. From the table, dark energy transforms into matter at the same percentage of the Universe's content, which is consistent with the narration of the Big Bang Theory.

The cosmological parameters of Planck 2018 results VI are taken as the current situation of the Universe, we may imagine that at the firstly time of the Big Bang, the full energy (100% energy density) of the Universe gradually loses, after 13.8 billion years later, remains 68.42% energy density, which is called dark energy density, and creates 31.58% total matter density, so we should take the current dark energy as the residual energy of the Universe after the Big Bang.

3.4. The 3-cosmic framework of the Universe could also hold dark energy.

After the Big Bang, 68.42% dark energy density Ω_Λ is remainder today, but the lost 31.58% dark energy density transforms into matter density Ω_m, which contains 4.94 % baryon (normal matter) density Ω_b in our cosmos and 26.64 % cold dark matter density Ω_c in other space than ours.

According to the table of Cosmological Parameters from 1-year WMAP results to Planck 2018 results VI, cold dark matter density Ω_c from the value 22.34% increases gradually up to 26.64%, increasing 4.3%, and baryon density Ω_b in our cosmos from the value 4.44% increases gradually up to 4.94%, only increasing 0.5%, which compares to increasing rate of cold dark matter density Ω_c about 1 : 8.6. Because matter transforms from energy after the Big Bang, the Ω_b increasing value is so small that indicates energy in our cosmos poor. Temperature is a display of the thermal motion of microscopic particles, therefore hot energy must display its hot temperature. *After* WMAP *and* Planck *Satellite detected, t*he current actual temperature of CMB is 2.725 °K, which is awfully close to the absolute zero (0°K = −273.15℃), therefore, energy is also poor that cannot contribute to expand of our cosmos at an accelerating expansion.

Under the 3-cosmic framework of the Universe, the rate of expansion in a high-energy-density cosmos will be much higher than that of a low-energy-density cosmos as ours. According to the property of fundamental interaction forces of nature, except gravitational force, the other fundamental forces (including strong nuclear force, weak nuclear force, and electromagnetic force) cannot penetrate the other cosmoses, therefore, the energy of one cosmos cannot affect the other cosmoses. So, the high energy of the cosmoses cannot directly contribute to the expansion of our low-energy-density cosmos. But when the high-energy-density cosmos rapidly expands, its matter (i.e., dark matter) will expand at the same pace. From the data of 2018 Planck result VI, there is only normal matter 15.64% of total matter in our cosmos, however there are enormous amounts of dark matter 84.36% in other cosmoses, which use gravity to drag on the stars of our cosmos away at an accelerated pace, which causes the effect of pulling our cosmos accelerating expansion.

4. Discussions and Results

4.1. Chandler wobble conforms a dark planet inside the Earth but in another cosmos

It is hard to examine the existence of the dark matter directly; however, that can be recognized from Chandler wobble. Referring to the orientation of the rotation axis of the Earth in space in addition to both precession and nutation, there is a wobble on the instantaneous axis of rotation of the Earth itself. The wobble alters the position of a point on the Earth relative to the pole of rotation. In 1891, Chandler pointed out that there are two distinct kinds of the wobble periods. One is a period of 12 months, and the other is a period of 433 days, about 14 months [32]. The former, called annual wobble, is obviously affected by the seasonal climate. The latter, called Chandler wobble, has not been solved the problem for more than one hundred years. The Chandler wobble is a small deviation that amounts to change of about nine meters at the point in the surface of the rotation axis of the Earth.

In 2000, Richard Gross found that two-thirds of the Chandler wobble was caused by fluctuating pressure on the seabed. The remaining third is due to atmospheric fluctuations. The wobble, in fact, produces a small ocean tide with an amplitude of approximately 6 mm, called a "pole tide" [33]. While it must be maintained by changes in the mass distribution or angular momentum of the Earth's outer core, atmosphere, oceans, or crust, for a long time the actual source was unclear, since no available motions were coherent with what was driving the wobble.
It is inferred from the phenomenon in which the same side of the Moon always faces the Earth that means the Moon and the Earth rotate synchronously. The same phenomenon will happen to the Earth and the dark planet that both rotate synchronously, but the rotation axes of both are impossible coinciding with each other; i.e., an angle between the two rotation axes produces the Chandler wobble as the precession and nutation because of the Sun and the Moon on non-parallel rotation axes with the Earth's. Therefore, the effect of Chandler wobble may confirm the existence of a dark planet inside the Earth but in the other cosmos than ours.

4.2. From quantum experiments indicate the existence of multiverse in space

In classical physics, matter is made up of particles, which are entities that conform to a simple orbit, and can calculate their motion, velocity, angle, and speed at any one time; for example, an elementary particle in atom ─ electron, in Newton's classical mechanics, rotates around the nucleus in a circular orbit, and the position, momentum and orbit of each particle are fully predictable, and it is only in a single place at the same time. This idea is like the case in our solar system, but beginning in the 1920s, it is known from quantum experiments that in the atomic structure, each electron surrounds the nucleus, not in a stable orbit, but appears intermittently in different places, which can only be counted by probability or statistics, i.e., the elementary particles do not have a purely exact position. The only explanation is that these particles exist not only in our cosmos, but also shave other cosmoses, indicating the existence of multiverse in space.

4.3. The Universe is expanding due to current dark energy density is bigger than matter density

Energy causes the Universe expansion because of its hot temperature, but matter makes each other's shrinkage because of the gravity, however, current 68.42% dark energy density is bigger than 31.58% total matter density about 36.84%, therefore, this much dark energy certainly will put the Universe rapid expansion. According to the Big Bang Theory, dark energy will decrease gradually down, but matter increases gradually up, when dark energy decreases to below 50% or less, and total matter increases to bigger than 50% or more, the Universe may stop to expand, and turn around to collapse in a "Big Crunch" due to the gravity.

4.4. The existence of a dark planet X can solve problems of astronomical observation in solar system

In 1970s, Joseph Brady historically published records of the observation of Halley's Comet and found that its approach to the Sun has always been errors of 3 or 4 days in the predicted time of the perihelion passage. The prediction of Halley's Comet, Joseph Brady based on studies of periods of Halley's Comet using old European and Chinese records and used a computer to treat the data of it in a numerical model of the solar system. He has been able to predict an invisible X planet (trans-plutonian planet), affecting the orbit of Halley's Comet. It was about three times the size of Saturn, with highly inclined orbit (i = 120°, e = ± 0.07) to the ecliptic and the period of it to be 450 years [34-35].
In 1980s, scientists found that Uranus and Neptune were pulled off and deviated the normal orbit by an unknown force in the solar system; this unknown force may have come from an unknown planet, with its gravity disturbing these two giant planets. Flanders proposed a search for an X planet, which has about three times the mass of the Earth and a highly inclined eccentric orbit that accounted for all the perturbations on the motions of Neptune [36]. In 1988, NASA research scientist John Anderson, from observed astronomical data of the nineteen centuries presented the deviation of Neptune and Uranus in the regular orbit and proposed "The Theory of X Planet". The mass of X planet is about five times that of the Earth and its period is about 700～1000 years.

The orbit is elliptical and the inclination from the orbit to ecliptics large and almost perpendicular [37]. Now the planet X has been searched for, but it remains to be found.

The Pioneer 10 and 11 spacecraft launched in 1973 and 1974 respectively, when the spacecrafts approached Neptune and Uranus, unknown objects were found that could affect their operations. In 2002, John Anderson and colleagues' previous analyses of radio Doppler and ranging data from distant spacecraft in the solar system indicated that an apparent anomalous acceleration is acting on Pioneer 10 and 11, with a magnitude about 8×10^{-8} cm/s^2, directed towards the Sun. The effect is clearly significant and remains to be explained. Their tracking Pioneer 10 have assessed all known mechanisms and theories, but have so far found nothing, and cannot explain this Universe's mystical power; the probe has revealed an unknown force. The existing cosmology and space navigation theory will face a significant impact [38]. Recent observations by the Hubble space telescope in space, there is not the existence of other planets in the solar system. This phenomenon may be under the influence of unknown object that scientists have been looking for.

If we consider a dark planet X, which orbits around the Sun in the other cosmos than ours, then its gravity will sometimes affect the motion of Halley's Comet, Neptune, Uranus, Pioneer 10 and 11 spacecrafts, therefore, the problem of the invisible object may be solved, and that can solve problems of astronomical observation.

5. Conclusion

Based on the applications of ten-dimensional spacetime of String theory, a 3-cosmic framework of the Universe is developed. After studying the existence of a dark planet in the Earth's interior, this multiverse may be able to be confirmed. This result may be served as a proof of the existence of the dark matter, which locates in the other space than ours.

The 3-cosmic framework of the Universe should enable a new way to break the bottleneck of research in the space of the Universe. After the Big Bang, the energy of the Universe gradually loses, and transforms into matter, after 13.8 billion years later, remains 68.42% energy density today, which is called dark energy, and creates 31.58% total matter density, so we should take the current dark energy as the residual energy of the Universe.

According to the data, from 1-year WMAP results to Planck 2018 results VI for 15 years, cold dark matter density increases gradually about 4.3%, which implies to be in the high-energy-density cosmoses, comparing to baryon density increasing gradually about 0.5%, which is in our low-energy-density cosmos. Because the high-energy-density cosmoses rapidly expands, its matter, called dark matter for our cosmos, should subject to a "drag" on the stars of our cosmos due to gravity that causes the effect of pulling our cosmos accelerating expansion.

Under the 3-cosmic framework of the Universe, the problems of dark matter and dark energy in astrophysics may be solved as above, i.e., the 3-ccosmic framework of the Universe can hold dark matter and dark energy, but that still needs to be proved by the fine outcomes of physicists' new research.

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