

The Model of Space Convection System instead of Big Bang Theory

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1. Abstraction

It was found that the universe is inflating with accelerated speed in 1998. But until today there is no theory to explain it. This time, a stationary space model (Steady State theory) was made up that accounts for the cause of galaxies' leaving each other with accelerating speed, because of presuming space is equivalent to elementary particles (both made of the same substance named energy body). There are two unbalanced states of energy body in the universe. One is distortion caused by gradual decrease of energy body with each star as starting point and the other is gradual decrease of energy body with the verge of the universe as starting point. The former is gravity field and the latter is dark energy field. And both fields are created at the same time of a star formation and are caused from space's changing to elementary particles. And they are both in connection with each other. After space (=static energy body) changed to elementary particles (kinetic energy bodies) around the center of the universe, it is transported to the verge of the universe while stars and galaxies form for long time. And around the verge of the universe, stars and galaxies change back to energy body again, after bursting into elementary particles. This is the space convection system. And the interaction by gravity or dark energy is caused by the energy level difference of energy body.

2. Introduction

2.1. Back Ground

Currently, the most supported view of space is Big Bang Theory. The big bang theory has come to be widely backed among astronomers and physicists from the latter half of 1960s, because it is consistent with the estimates and observation data led from the theory, regarding two points of the existence ratio of helium and the cosmic microwave background radiation. (Yoshida¹) A star formation, a distribution of galaxies and quasars and the observational results of large scale structure of the universe are thoroughly coincident with the results of the simulation to the formation of the universe structure, and they are useful to complement the detailed parts of the theory. (Wikipedia²) There are generally considered to be three outstanding problems with the Big Bang theory: the horizon problem, the flatness problem, and the magnetic monopole problem. The most common answer to these problems is inflationary theory. (UchujohoCenter³) But two shocking observational results to shake the Big Bang theory were gotten. One is the universe inflation with nonlinear acceleration, not being under Hubble's law. (Wikipedia²) The other one is a discovery of Himiko which is a large gas cloud. It is kind of record-breaking size in the early universe, as large as 55,000 light years across (half the diameter of our galaxy). It results in that Himiko had already grown up to be about as large as a present average galaxy by eight hundred millions year from Big Bang start. It is thought in the Big Bang theory like that at first small celestial bodies were made, and after that large celestial bodies were made repeating to unite and gather. So, it can basically shake the Big Bang theory. (Wikipedia²) Toward these, here, I propose the model of space convection system that leads these problems, the accelerating expansion of the universe and Himiko, to a solution. More this model is not contradictory to cosmic microwave background radiation which bolsters Big Bang theory and other observational results. This model was built up as a by-product of a study about the cause

of gravity and its interaction. Also an elementary particle model which has all of these factors, a particle, a wave, energy and a field was made up too. This model beautifully explains fundamental principles of electromagnetism. But it is mentioned on a separate volume, so it is omitted on this paper. Still, it gives a solution to a magnetic mono pole problem showing that an elementary particle has originally no character of magnetic poles, but two magnetic poles are created by a pair of elementary particles with character of polarization. The model of space convection system and the model of elementary particles were made up due to discovering that elementary particles are equivalent to the space. This fundamental existence is the universe itself, and even elementary particles are a part of it. It is named energy body. Energy body theory is the same as Big Bang theory in respect of grasping that space is existing substance. But it is different from Big Bang theory on the point that the whole volume of the universe (= energy body) does not increase nor decrease, and is fixed (= steady state theory) Then, what state the outside of the universe is? The answer is “nothing”, because there is no energy body outside of the universe. That is to say, outside of the universe, there is no space, no energy, no time; then nothing exists. In that respect, it is different from the conception of nothing in quantum theory that explains elementary particles sometime emerge from nothing (= vacuum space). Then how it explains the accelerating expansion of the universe and the cosmic microwave background radiation, although it is steady state theory? Because it cannot be explained in a word, please look over the following explanations.

2.2. Premise

Observing the universe, you will find stars and galaxies are dispersed in a vessel of space. Then you will think that stars and galaxies are different matter from space. But, in fact, both space and stars are made of the same matter (energy body). The space is not a vessel. And also, elementary particles are made of common matter to space, energy body (a wave of energy body which is closed in a spherical shape and spins around its own axis). (Supposing that the ingredient of elementary particles is energy body, the reason why the fundamental phenomena of electromagnetism occur and why elementary particles emerge from a vacuum space will be rationally gotten.) Namely, every existing thing in this world, including space, is made of just only one kind of energy body. From this result, an ultimate principle is found that all kind of interactions are caused by the energy level difference between energy body systems. In addition, energy body can be thought of being composed of cell-like particles which are far smaller than elementary particles, and we will call them energy cell bodies. It is presumed that energy body vibrates by the medium of energy cell bodies. This vibration is energy itself.

2.3. Principle of Gravity Generation

Gravity is created around space of a star when a star is born, not revealed by a character of elementary particles. A star is born while a large gas cloud (elementary particles) is accumulating into one point of space. At this time, to supplement the vacant traces of elementary particles, from outside of the space, a part of energy body flows into. As energy body collapses from larger space into smaller space, redundant energy body generates and changes into elementary particles. This collapse and supplementation of energy body repeat and continue up to the edge of the universe. Space of energy body changes to elementary particles means space of energy body decreases in the direction of the edge of the universe from the star. At the same time the decrement is compensated, but distortion of energy body remains in the space. This is gravity field. Energy level difference between energy body of elementary particles and energy body

of space works as gravity which remains as deformation with decrement of energy level of energy body.

2.4. Dark Energy

On the process of gravity creation, after repeating energy body's collapse and supplementation up to the edge of the universe, it is not supplemented at the last layer of space. Because outside of the universe is nothing. Then, inversely, energy body of inner space starts to supplement it. Therefore, energy body diffuses from smaller space to larger space. This energy body diffusion advances toward a star from the edge of space. This is dark energy. However, in gravity field, energy body collapse remains as distortion, on the contrary, in dark energy field, energy body diffusion remains as actual insufficiency. Then, one dark energy field is mixed with other dark energy field to make another new dark energy field. It is thought that these shakes create large-scale structure of the universe.

2.5. The model of Space Convection System

As energy level difference of energy body between each energy body system, a star in high energy level is carried to the edge of space where energy body is in low level. The star carried to around the edge of space bursts apart into elementary particles, and after that, elementary particles change to energy body of space and absorbed into space. And around of the center of the universe, stars are formed again. According to that, energy body of space collapses and in consequence, redundant energy body is created and changes into elementary particles. For this, energy body of space is reduced. This repetition continues forever. The cosmic microwave background radiation is the result of stars explosion, and Himiko, a large gas cloud was formed in this repetition.

3. Gravity

3.1. First

Before explaining dark energy field, which is the cause that more distant objects are receding ever more quickly, it needs to consider what gravity is and how it generates. Why gravity attracts anything without choosing objects? The elucidation of it is one of the most difficult problems in physics. Gravity is one of four fundamental forces of nature in elementary physics and it is attempted to unite gravity with electromagnetic force, weak force and strong force. On the other hand, by general theory of relativity, both universal gravitation and inertia force are equivalent to each other (equivalence principle); also both are changes of geodesic by the distorted space-time. Just the cause of distortions between universal gravitation and inertia force is different. (Wikipedia⁴) The energy body theory is a model that embodies the distorted space-time described in the general theory of relativity. It can embody not only universal gravitation but also inertia force, but its explanation is omitted on this paper for short.

3.2. Energy Body

At first, you have to recognize the universe is not just the mere space like a vessel but is substance. Also, the notion has to be abandoned that galaxies and star clusters are dispersed in the vessel of universe and which is filled with energy. But existing theories have already started to perceive that. For example, they are the distorted space-time in the theory of general theory of relativity, inflating space in big bang theory and a concept of field in electromagnetism or quantum theory. In this paper, those concepts are advanced further, and clearly recognized the whole space of the universe is actual matter named energy body. More, from this concept, the consequence is gotten that

space is stationary and nothing exists outside of space. Also, it comes to be self-evident that energy filled in space is caused from vibration of energy body. By this, it is found that energy body is organized by the tissue as a medium of vibration. It is far smaller than elementary particles and named energy body cell. On the other hand, it is presumed that elementary particles that are an element of ultimate minimal matter existing in the universe are energy body too. Elementary particles are energy body that its vibration forms waves that revolve around the progression axis in a closed state. Due to that, they make systems independent from space. Also, the shape of its revolving energy body waves is in the shape of a disk, attenuating and spreading out infinitely. By this shape, it is found that elementary particles have an important character of polarization which includes a character of field. Fundamental principles of electromagnetism come to be more rational. More, it is already known that light and electromagnetic waves have a character of polarization. In energy body theory, light and electromagnetic waves are considered the imprints of elementary particles' posture, because when elementary particles' posture changes, the movements of them are imprinted into space (energy body). From this, it becomes understandable that both light and electromagnetic waves have the character of polarization. As both space and elementary particles are energy body, for the purpose of distinction, they are named static energy body and kinetic energy body respectively. The following figure is the shape of the most fundamental model of elementary particle and its electrode. The details are showed on another paper.

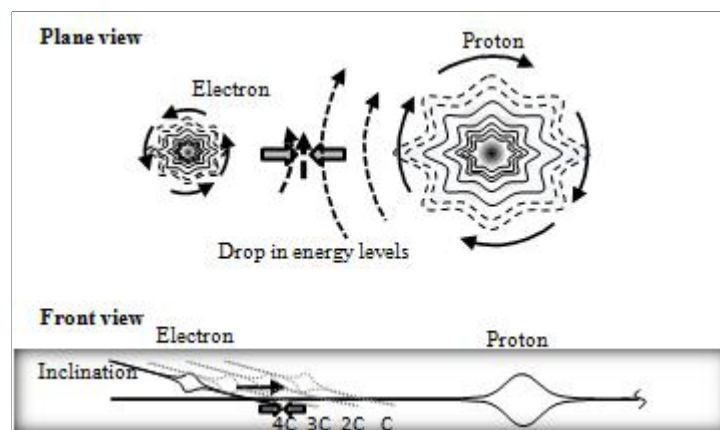


Fig.1. shape of elementary particle and connection of electron and proton

Like this, space of the universe, elementary particles, light (and electromagnetic waves) and energy are all energy body. The most fundamental principle is that all of interactions are caused by the energy level difference between energy body systems.

3.3. Gravity Generation

Gravity is distortion of space predicted in general theory of relativity, not a character of elementary particles. Then, from now on, I will explain how distortion of space is generated and how to work as gravity. In energy body theory, distortion of space created at the same time that a star forms. Then, how a star forms? Presently it is thought as follows. An opaque interstellar molecule cloud (composed of gas and dust) which drifts among stars separates into dense area and sparse area and the dense area initiates its gravitational collapse. This is an introductory chapter of a star formation. A dense region of interstellar molecule cloud is called molecule cloud core and it is considered to be a direct mother-body of star formation. (Yamamoto⁵) In triggered star formation,

one of several events might occur to compress a molecular cloud and initiate its gravitational collapse. Molecular clouds may collide with each other, or a nearby supernova explosion can be a trigger, sending shocked matter into the cloud at very high speeds. Alternatively, galactic collisions can trigger massive starbursts of star formation as the gas clouds in each galaxy are compressed and agitated by tidal forces. (Wikipedia⁶) By the way, for the sake that the interstellar cloud undergoes gravitational collapse, the density of interstellar molecule cloud need to be exceedingly high, because, if the density of interstellar molecule cloud is low, distortion of space will not be created. Due to that, at the initial stage, the contraction is taken place by interaction between elementary particles. And after the density gets to be fully thicken and the distortion of space begins to be created, interstellar cloud initiates its gravitational collapse. That mechanism by energy body theory model is as follows.

Suppose that interstellar molecule cloud spread out in space V and forms a star S .

A radius, a volume, and density of elementary particles of space V are $r+h$, $V=V_0+V_1$, δ_1 respectively.

A radius, a volume, and density of elementary particles of the star S is, V_0 , δ_0 respectively.

Because elementary particles spread in space V collapse into space V_0 , elementary particles leave from space $V_1 (=V-V_0)$.

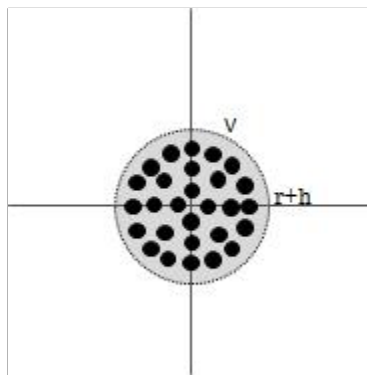


Fig.2. Interstellar molecule cloud

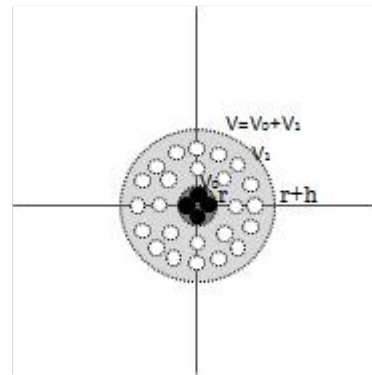


Fig.3. Collapse of interstellar molecule cloud and star formation

After all, there are apertures in space V_1 where elementary particles left. For that, from outside of space V_2 , static energy body (space) collapse into space V_1 and fill the apertures.

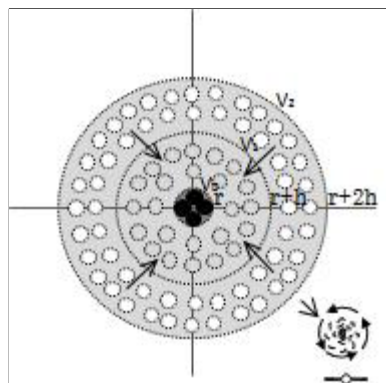


Fig.4. Insufficiency of static energy body V_1 , supplementation from outside space V_2 and creation of elementary particles

At this time, static energy body more than the apertures in V_1 collapse into V_1 from V_2 . The quantity is not the same as V_1 , but in proportion to V_2 . As the result, surplus static

energy body is generated and it changes to elementary particles. The convection like these collapses of static energy body, generations of redundant static energy body and creations of elementary particles continues up to the end of the universe.

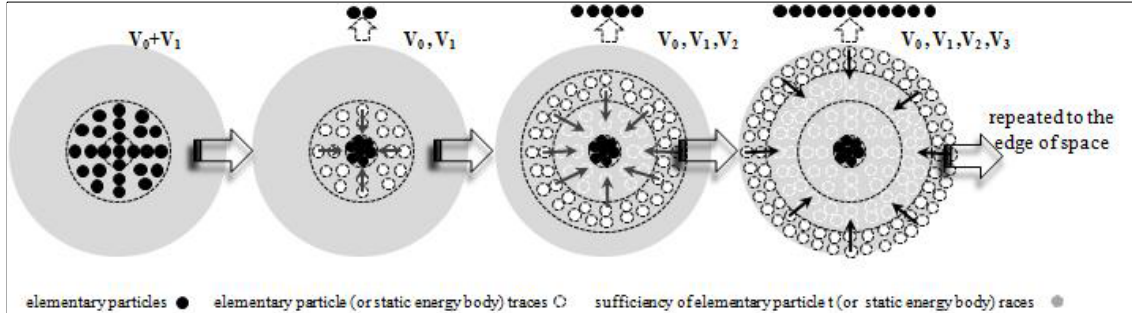


Fig.5. A chain of insufficiency, supplementation and surplus of static energy body and creation of elementary particles

It looks like, as it were, that there was no change in the space around a star, after a chain of static energy body collapses is completed. But, because static energy body changes to elementary particles, the further away from the star, the more the static energy body decreases and distortion leaves in energy body. This distortion is gravity.

For this reason, the further away from the star, the more the static energy body decreases. The energy level difference between the gradual decrement of static energy body and kinetic energy body works as gravity interaction.

The decrement rate of static energy body is as follows.

Let the surplus static energy body D_n work out, where is distant $R (=r+nh)$, when static energy body collapses to V_n from V_{n+1} . This D_n is distortion. Here, the unite energy of static energy body is e_u .

$$\begin{aligned}
 D_n &= (V_{n+1} - V_n) \times e_u \times \delta_1 \\
 &= \left\{ \left[\frac{4}{3} \pi (R+h)^3 \right] - \left[\frac{4}{3} \pi (R)^3 \right] \right\} - \left\{ \left[\frac{4}{3} \pi (R)^3 \right] - \left[\frac{4}{3} \pi (R-h)^3 \right] \right\} \times e_u \times \delta_1 \\
 &= 8 \pi R h^2 \times e_u \times \delta_1 \quad \text{-----1) }
 \end{aligned}$$

Next, the distortion D_n divided by the gross volume of static energy body E_s , which is the space volume of a radius $R(r+nh)$ makes distortion rate. More, the distortion rate multiplied by unit energy e_u makes decreasing rate g of static energy body. This g is gravitational acceleration.

$$\begin{aligned}
 g &= \frac{D_n}{E_s} \times e_u \\
 &= \frac{8 \pi h^2 R \times e_u \times \delta_1}{\frac{4}{3} \pi R^3 \times e_u} \times e_u \quad \text{-----2) }
 \end{aligned}$$

By the way, there is the next relationship between the interstellar cloud and the elementary particles' density.

$$(V_0+V_1) \times \delta_1 = V_0 \times \delta_0 \quad \text{-----3) }$$

Changing this makes the next.

$$\therefore h \cong r \times \left(\frac{\delta_0}{\delta_1}\right)^{\frac{1}{3}} \quad \text{-----4)}$$

Let this substitute \square , then the next shape is gotten.

$$g = \frac{\frac{4}{3}\pi r^3 \times \delta_0 \times \frac{6}{r} \times \delta_0^{-\frac{1}{3}} \times \frac{3}{4\pi} \times \delta_1^{-\frac{1}{3}}}{R^2} \times e_u$$

$$= G \frac{M}{R^2} \quad \text{-----5)}$$

The decreasing rate of static energy body g becomes the same as gravity acceleration. By energy body theory, every interaction is caused by the energy level difference between energy body systems. One energy body system in higher energy level comes to move toward another energy body system in lower energy level. This is a self-evident. In reality, it is not that an object is attracted by a star, but moves down due to the interaction with distortion created by energy body's gradual decrease. Figuratively speaking, it looks like an object slides down on a slant of static energy body gradually decreasing. This is true character of the curvature of space time from general theory of relativity.

4. Dark Energy Generation

The circulation of collapse of static energy body, generation of surplus static energy body and creation of elementary particles continue to the end of space, as being described at chapter "3.3.Gravity generation". But, there is not anything outside of the universe. So, insufficient static energy body in the last layer of the space is not replenished from the outside. For that, conversely, static energy body in the inside layer of the space diffuses out into it. This insufficiency and replenishment from inside of static energy body repeatedly continue toward the center of the star.

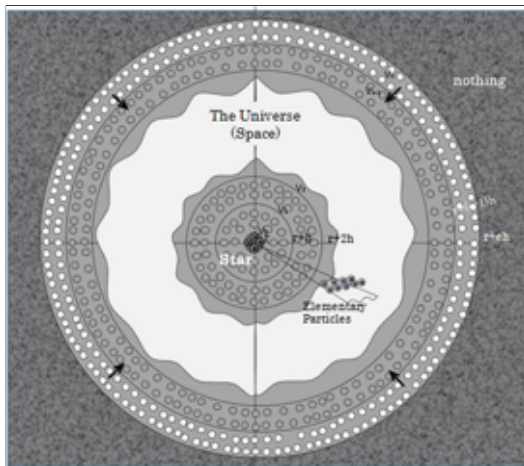


Fig.6. Gravity generation (static energy body collapse and elementary particles creation)

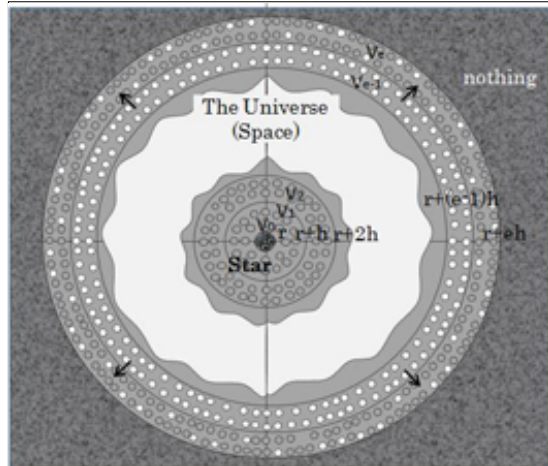


Fig.7. Dark energy generation (static energy body diffusion)

But it is not different from gravity generation that static energy body collapses from larger space to smaller space. Conversely, as static energy body diffuses from smaller space to larger space, static energy body is in insufficient state at a fixed rate. For this reason, the further away from the end of the universe, the more the static energy body decreases. And the space, where static energy body decreases gradually, is created. This is the dark energy field. The diminishing rate of static energy body is gotten as follow.

At first, let the distance between the end of the universe and a star, the distance between a space layer and a star, and the distance between the end of the universe and a space layer, put R_1 , R_2 and R respectively.

Next, gradually decreasing static energy body D_n is gotten by the following equation, when static energy body diffuses to its outside space V_{n+1} from the space V_n where is distant $R (=R_1 - R_2)$ far from the end of the universe.

$$D_n = (V_n - V_{n+1}) \times e_u \times \delta_1 \quad \text{-----5)}$$

This is the same as gravity equation multiplied minus.

$$-D_n = -(V_{n+1} - V_n) \times e_u \times \delta_1 \quad \text{-----7)}$$

Then, the acceleration g_B in the dark energy field is gotten as follows.

$$g_B = -G \frac{M}{R_2^2} = -G \frac{M}{(R_1 - R)} \quad \text{-----8)}$$

However, the dark energy fields made with plural stars are integrated into one dark energy field, then, in this case, the upper equation is not effective. And it is thinkable that large-scale structure of the cosmos is related to integration of dark energy field.

5. Different Points between Gravity and Dark-Energy

Both gravity field and dark energy field are a gradual decrease of static energy body generated at the same time, but they have different character.

- (1) While the direction of acceleration in the gravitational field moves toward the center of the star, in the dark-energy field, it moves toward the end of space. Thus, in the anti-gravitational field, not only objects but also the star itself receives dark-energy acceleration.
- (2) In the gravitational field, the energy volume of static energy body in a unit space maintains a standard level. This is the reason why it is expressed that space is distorted in general theory of relativity. However in the dark-energy field, the static energy body actually decreases.
- (3) The gravitational field depends on the star that causes it. If the star moves, the gravitational field also moves. In contrast, once created, the dark-energy field begins to exist independently from the star by which it was caused. Therefore, without the influence of other gravitational fields, the dark-energy field will remain in the location in which it was created, even if the star moves.
- (4) In terms of connection to other gravitational fields, when two or more gravitational fields overlap, each gravitational field exists independently, and each have independent gravitational influence on objects in that space. In contrast, when two or more anti-gravitational fields overlap, they affect each other and a new dark-energy field is created.

6. The Model of Space Convection System

Static energy body is most sparse around the end of the universe, because of generation of gravity field and dark energy field. Then, when stars and star clusters arrive there, they enter into a sparse static energy body in low energy. So, stars, which are made of elementary particles, namely, kinetic energy bodies in high energy cannot keep their shape. Therefore, they burst into a state of gas and after that it is absorbed into static energy body (space).

By the way, stars are formed one after another in interstellar clouds around the center of the universe. At the same time, static energy body changes to kinetic energy body (elementary particles) on the periphery of a star and as a result, gravity field and dark energy field are created. A part of elementary particles changed from space compose interstellar clouds and become a seed of next stars. For that, static energy body needs to be always supplied to the space around the center of the universe. That role is played by stars and star clusters that are carried to and absorbed into the end of the universe. And stars formed like this are carried to the end of the universe again, and return to the beginning of this explanation. Like this, the flow of energy body repeats the same thing; and then, let the flow name the space convection system. It does not need to be considered the beginning of the universe and the outside of the universe, in the model of the space convection system. Also, cosmic microwave background radiation, which is the evidence of Big Bang Theory, can be the evidence of the space convection system. More, the model of the space convection system does not contradict to a huge celestial Himiko found in recent years too.



Fig.8. Static energy body diffusion (in the case of one star)

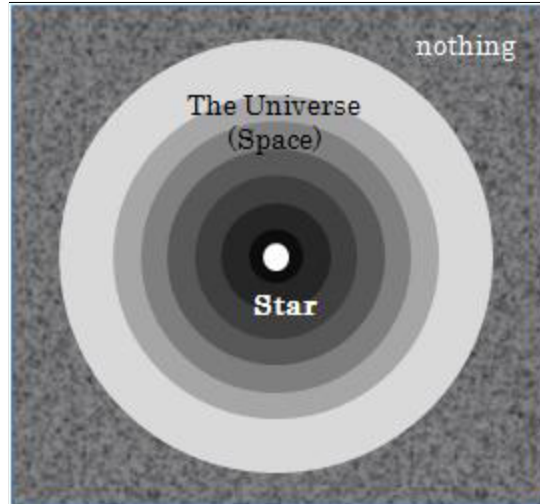


Fig.9. Static energy body diffusion (in the case of two stars)

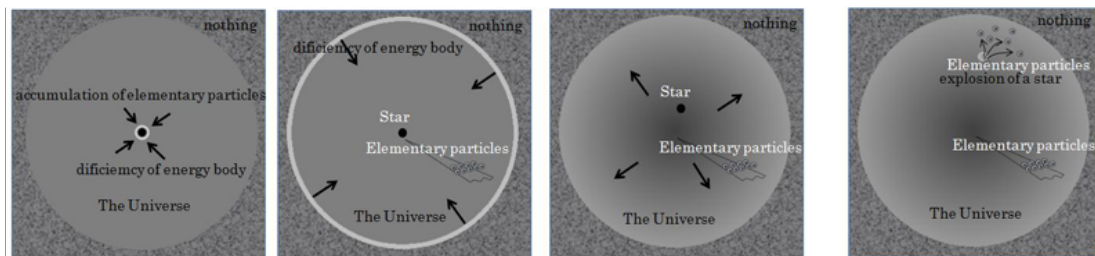


Fig.10. Space convection system (change of energy body)

7. Conclusion

It was found that the universe is a stationary space that made up of convection system of energy body, by energy body theory that describes both space and elementary particles are same energy body. By this, cosmology will be released from restriction of time and space, comprehension of stars and galaxies formation, and large scale structure of the universe. Also, energy body theory is grounded on a fundamental principle that all interactions are caused by energy level difference between energy body systems. In elementary particle's physics, fundamental interactions can be understandable by this principle.

8. References

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