



LAYERED MODEL OF THE WORLD: A NEW MODEL FOR EXPLAINING ASTRONOMICAL PHENOMENA

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ABSTRACT

It is assumed that of four main forces ruling the world around us, it is only Newtonian gravity force that due to the lack of adjacent repulsion force, determines the behavior of celestial bodies. In such circumstances, the nature of many astronomical phenomena, such as neutron star, black hole and dark matter and dark energy and other phenomena related to such celestial bodies are a mystery. It seems that the models are needed to illustrate how these phenomena form and what they are. In the presented model, it is assumed that there are three stages of collapse, in each of them, at first due to the pressure of gravity applied to celestial body (due to the mass accumulation), one of the repulsions is driven out of space. As a result, the sum of Newtonian gravity and the gravity left of the collapse force increases the density and changes the physical relations governing the collapsed part (in this model called “layer”). As a result of successive collapses in each stage, neutron star, black hole and black matter may be formed respectively that this formation can be stable or unstable. This model is also included the interpretation of the nature of some unknown astronomical phenomena such as Magnetar, pulsars, gamma rays, dark matter and dark energy.

INTRODUCTION:

The known world of nature is ruled by four main forces. These forces, with respect of their weakness, are general gravity, weak nuclear force, electromagnetic force and strong nuclear force. Except from the gravitational force, all other three forces include two components of gravity and repulsive forces that are neutralized in neighboring each other. Therefore, according to theoretical physics, despite the fact that each of these forces is far more forceful than its predecessor, gravity is the only force that dominates the universe due to the gravity neutralization of each force by its repulsion. Table 1 shows the characteristics of these four main forces.

Although many unknowns have been revealed in the field of astronomy due to the advancement of physics, significant questions and ambiguities remain unanswered. In spite of developing advanced devices, telescopes and radio telescopes to detect the presence of dark matter [1] and dark energy [2], the nature and features of them are still unknown. That is because the current models justifying the physical behavior of the celestial bodies are not adequately compatible with the newfound phenomenon. Many other physical phenomena have not been well identified and, therefore, there is not enough understanding to justify their complex behaviors. In this regard, the behavior of magnetar [3] and the phenomenon that have undergone much more research on them, such as the black hole, jet stream [4], or even sunspots, have failed to adequately be defined. All of these can be due to the lack of a global and holistic model that covers all the behaviors and definitions of the field of astronomy altogether. In this paper, we try to provide a holistic model that justifies many of the unknowns in the astrophysics.

TABLE 1- THE CHARACTERISTICS OF FOUR BASIC FORCES [5]

Force	Strength	Range	Particle
Strong Nuclear force	1	short 10^{-15} m	Gluon
Electromagnetic	1/137	Infinite	Photon
Weak Nuclear	10^{-9}	Very short 10^{-17} m	W^+, W^-, Z
Gravity	10^{-38}	Infinite	Graviton (not yet observed)

The general rule of this theory is that in any area of the universe, that one of the ruling forces is without repulsion, it indicates the collapse of that force within the intended area. So that the gravitational force of that force dominates the entire collapsed range. For example, the entire universe, with the exception of the special cases that will be described later, is under the control of Newtonian gravity [6], for now. This shows that in the entire space, the repulsive force has been removed from the environment due to the force collapse and absolute sovereignty is left to gravity. In this model, the world consists of nested bubbles, each of which contains the gravity dominance of one of these four types of forces, which we use "layer" to name the bubbles. In the following, we use this theory to justify the phenomena caused by the collapse of other forces ruling nature.

THE COLLAPSE OF WEAK NUCLEAR FORCE: THE FORMATION OF THE FIRST LAYER

If the intensity of gravity on celestial bodies is more than the maximum tolerance for the collapse of a weak nuclear force, its force will collapse. As a result of such a collapse, its repulsive force is driven out of the environment and it lends sovereignty to the weak nuclear gravity force. As a result of this evolution, a neutron star [7] develops that has radiation and smaller volume. The force dominates on this layer is no longer general gravity force, but the weak nuclear force. It should be noted that in these circumstances, due to the considerable power of the weak nuclear force, in relation to the Newtonian gravity force, the behavior of this new celestial mass defined on the basis of the sum of the two discussed gravity forces. In such a situation, the weak nuclear repulsion force is exited as a blast from the intended layer. Then, in the absence of the weak nuclear force repulsion, the sum of the two forces including weak nuclear and Newtonian gravitational forces lead to a sharp reduction in the mass of the celestial mass.

THE COLLAPSE OF ELECTROMAGNETIC FORCE: THE FORMATION OF SECOND LAYER

Following the collapse of the first layer, due to possible absorption of more mass, the gravitational force applied to weak nuclear gravity dominion, may become more powerful than the bond between gravity and repulsion of electromagnetic force. In this case, like the previous force, the electromagnetic force will collapse and the repulsion of the force will drive out which is led to the formation of the second layer. Therefore, like the previous case, after the collapse of this force, repulsion exterminated in explosive form from the pressurized environment and leaves the sovereignty to the sum of three unrivaled gravity forces, including general gravity, weak nuclear and electromagnetic force. The consequence of this incident is a significant increase in density and a reduction in the volume of the celestial body compared to the previous stage. In this way, the new celestial body created at this stage is far denser than the neutron star and its relative volume is much lower. In addition, due to the imbalance between gravity and repulsion of electromagnetic force, the electromagnetic field loses its features. As a result of the destruction of the electromagnetic field in this layer, all electromagnetic waves, including light, lose the ability to pass or produce in such an environment. The light on the way to dealing with this celestial body, either due to the curvature of space, changes its path, or is absorbed into it, and no longer comes out. Such features are related to the black hole celestial mass. According to this theory, the main reason for the lack of radiation of light is the absence of an electromagnetic field and not extreme gravity that prevents light from exiting the black hole.

THE COLLAPSE OF STRONG NUCLEAR FORCE: THE FORMATION OF THIRD LAYER

Due to the mass added to the black hole, the gravitational force applied to the dominion of electromagnetic gravity, this force may become more powerful than the bond between gravity and repulsion of strong nuclear force. So, the repulsion of strong nuclear force tries to exit the created layer. However, because of the high density of mass created in the previous collapse, cannot exit in a blast form and gets out of the two sides of the weak black hole axis as jet streams or gamma ray [8]. This process may take billions of years due to exit duct stenosis, until it swallows the whole volume of the black hole. After the last repulsive force collapse, which preserves the volume of the celestial body, there is no longer any factor for preventing the loss of the volume and so the resulting material has no volume. But after all the force repulsions collapse, the density would rise up so that this material is much denser than any other known mass. This dense material, which has no volume and no longer radiates light, is known as dark matter. As it was mentioned before, the factor eliminating the light radiation from dark matter is the absence of force and electromagnetic fields. Considering the formation of dark matter procedure, this material needs a much longer time to form, and thus it appears in the final stages of the formation of heavier celestial bodies.

POSSIBLE OUTCOMES AND PREDICTIONS BASED ON LAYER THEORY

According to what is said about the layer model theory, with the help of this model, it is possible to interpret a number of ambiguities in relation to the reasons for the occurrence of certain phenomena and the nature of astronomical events as follows.

A: EVENTS ASSOCIATED WITH THE SUN

The Interpretation of the formation of denser celestial objects within low density ones:

Due to the pressure increase inside or in the center of celestial body in scale of sun (caused by the mass increase), the first collapse occurs and the high dense objects are created within the low ones. These objects are not visible to us because of the surrounding area is covered by the star. But its symptoms may appear in mass stars in the scale of sun, in the form of a solar eruptions and sunspots [9]. There is an ambiguity that due to Chandrasekhar's limits [10], the formation of a neutron star is only possible in stars larger than the sun. To answer this ambiguity, it can be said that the formation of a neutron star, although occurring within the sun, will never be visible and at the surface of the sun. The formation of denser bodies inside and in center of low-density bodies is based on the pressure that is created due to the weight of the surface masses imposed on the masses in depth and this eventually cause unstable collapse. Because there are no stable collapse conditions such as the Chandrasekhar limit in a star like the sun. If such a situation exists, the collapse is sustained and this results in the formation of a neutron star which is discussed in part B.

1. *Nuclear fusion*: Due to the pressure exerted by the increase in mass (less than Chandrasekhar limit), the hydrogen core bond is disrupted and Helium is formed. This collapse is subtly the same as the formation of the first layer, but only partially deep within the sun.
2. *Solar eruption*: Solar eruptions [11] are due to repulsions caused by the collapse of forces and the formation and release of denser bodies such as neutron stars and possibly black hole at the depths of the sun. These Collapsed repulsions pass through different layers of the sun and, after reaching the surface; they are released in space and along with themselves, scatter the melt materials of the sun's surface into space.
3. *Sunspots*: Sunspots may have been caused by local collapse of electromagnetic field within the sun. Due to the lack of this field that can carry light, no visible light from that area is emitted.
4. This ambiguity may arise that due to the far greater density of neutron star and black hole, how these objects may appear on the surface of the sun. In response, it can be said that the release of neutrinos inside each of these objects due to collapse, as a propulsion engine, drives these bodies from inner part of the sun to surface.
5. As a general conclusion from this model, it can be said that the denser objects form inside or in the center of the lower-density objects, which means that the neutron star is formed in the center of a typical star. The black hole forms in the center or inside the neutron star and the dark matter develops inside and in the center of the black hole. In addition, each of these steps has other mid-stages, which may be a combination of the simultaneous formation of two collapses at different points of a dense object.

B. EVENTS RELATED TO THE NEUTRON STAR

1. *Conversion of the neutron star to the magnetar*: After the first collapse and the formation of the neutron star, due to the increasing density, some preliminaries will provide in order to start the next collapse. In the first step with the partial collapse of the neutron star into the black hole, as a result of the gradual fading of the electromagnetic field caused by the collapse, very severe magnetic eruptions are created. At this point, the neutron star becomes a magnetar.
2. *Conversion of the neutron star to Pulsar*: With the continuation of the increasing density, neutrinos from the second collapse that have been accumulated outside the unstable black hole will open the way to the outside of the neutron star. Due to the weakness of the two poles of the neutron star, gamma rays are emitted out. At this point, the neutron star has become Pulsar.
3. *Transforming the neutron star into a black hole*: After the mass of the neutron star gets to the necessary extent to become a black hole and full gamma radiation erupt from the two poles of the neutron star, the black hole is shaped steadily and visibly. It

should be remembered that the black hole has previously been in unstable shape within the neutron star.

4. A black hole can only be formed at the center of a neutron star. If a black hole forms at the center of the objects as several times bigger than the sun, before the formation, the neutron star has to be formed in the center of that star. Also various stages such as transferring into magnetar and then pulsar [12] inside that star has to be done until it turns into a black hole. But before turning into a black hole, all of the events mentioned for the star are unstable.

C. EVENTS RELATED TO THE BLACK HOLE

1. *Black hole transformation into dark matter*: Due to the increase in density in very large black holes and the formation of unstable dark matter in the center of the black hole, the repulsion released during strong nuclear force collapse, seek a way out of the black hole. This exit way would be the weakest parts of the black hole which are the poles. This type of eruption is probably the same jet stream associated with very large black holes.
2. *Hawking radiation [13]*: When particles of cosmic dust approach the black hole, before the arrival of the event horizon, due to the gravitational pressure of the black hole, it will have a weak nuclear deterioration. At this stage at this point, a lot of energy is generated; the radiation from it is detectable. Because it happened before it enters the horizon of the event. In the next step, when the material passes through the event horizon, it collapses again (the collapse of electromagnetic force).
3. *Mistakes in the estimation of the mass of collapsed bodies*: Due to the collapse of each force the gravity separates from repulsion and the repulsion is drifted from the environment. So the gravity forces are remaining in the objects and are collected together. As a result, sudden increasing gravity in that celestial mass is occurred. This change in gravity may misunderstand as more celestial body mass. Because based on Newton's general gravity equation, the increase in gravity can only occurred due to mass increase. But what we see in these events is the aggregation of gravity in a way that is no longer match the Newton gravity equation. This may be a good justification for the ambiguities that we have about dark matter, while we only face increasing gravity without increasing the mass.
4. *The magnitude of black holes [14]*: As a result of each collapse a layer of isolated repulsion forms around the collapsed mass that creates the magnitude effect around that objects. Due to the tendency of these repulsions to return to their original position, their density is much higher near celestial object that cause a change in light refractive index which is known as magnitude of black hole.

D. EVENTS RELATED TO DARK MATTER

1. *Dark matter web of halo [15]*: It is already said that dark matter does not have volume. So, it cannot occupy space. It is also mentioned that the repulsion originating from collapses surrounds the decayed material and has a tendency to penetrate it. Therefore, large objects which have been transformed into dark matter, have a massive gravity is concentrated at a point in space. This dark matter is surrounded by all released repulsion, and this repulsion connects the particles of dark matter dispersed in space, like glue. The tendency of all repulsions to all dark matter is alike, and this is why this repulsion holds all the particles of dark matter in space together, like a strong stick. In this case, the web of halo is created due to the scattered dark matter in space that is interconnected through repulsion.
2. *The location of the dark matter accumulation*: Since the passing of each of the steps mentioned in the collapse requires a very long time, so the dark matter is the oldest known cosmic mass of the universe. So, the farthest points to the center of the universe are surrounded by the web of halo of dark matter, and this network is at the closest position to the outer layer of the universe and forms the boundary of the known universe.

E. ACCELERATED EXPANSION OF THE UNIVERSE[16] (DARK ENERGY)

1. In the balanced state, any gravity force (except the Newtonian gravity force) is counteracted by its repulsion. On this basis, the proximity of the pair of gravity and repulsion forces reduces the space occupied by the mass carrying the force. But when one of the forces collapses (as a result of the pressure caused by Newtonian gravity force), the needed volume increases because of the separation of gravity from repulsion force and the repel between repulsion forces. So sequential collapse of large celestial bodies releases various repulsive forces into space, repeatedly so that it increases the pressure caused by the accumulation of repulsions forces. As a result, accelerated expansion of the universe occurs.
2. Another factor that may accelerate the expansion of the universe is the repulsions released by successive collapses, are looking to attract their own gravity. The existing of gravity without repulsion force outside the shell of the world may attract repulsions within the shell of the world to the outer parts and thus results in accelerated expansion of the universe.
3. According to this theory, it can be assumed that once the Newtonian gravitational and repulsive forces couples were neighbors and deflected each other. But as a result of a collapse, the repulsive force removed from the world, and absolute sovereignty has been assigned to Newton's gravity force. In this case, Newtonian repulsion force outside our universe is seeking to return near the gravity force to neutralize it. As the celestial bodies become closer to the outer shell of the universe, the distance between gravity force inside and repulsion force outside the layer is reduced. As a result, the celestial objects moves more rapidly to repulsion

outside the layer. Therefore, this can also accelerate the spread of the universe.

4. Due to the sequence of collapses discussed in this article, it is likely that the current status of the current world is also the result of collapse. So our world is floating in a bigger and more diluted world. This sequence may also be repeated in higher scales so that each inclusive world is surrounded by a more inclusive world that can be subject of next researches.

CONCLUSION

With the help of the set of theories and assumptions presented in this paper, a relatively comprehensive model was presented in describing the great astronomical phenomena. This model succeeds in responding to many unknown or less-known phenomena such as accelerated expansion of the universe (dark energy), dark matter, and the nature of gamma rays, the magnitude effect, Magnetar, Hawking radiation and the cause of black hole darkness. Although the actual model of the universe may not match this model, the response to this model can lead to a better understanding of physics and the universe. In addition, astronomy is incapable of understanding events and times before the Big Bang[17] and after the end of the universe. In this model, understanding of these cases is possible. Therefore, we can propose patterns on these issues to better interpret the universes that surround our world and their hierarchy. Certainly, the nature of the universes and the rules governing them and the causal relationships between their phenomena are not comprehensible to us for the time being, but gradually and after the step-by-step discovery of events in such worlds, we can discover and understand them better.

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