

A New Explanation for Dark Energy and Dark Matter

The world around us has been always decoded by physics, but still, lots of wonderful mysteries remain which physics endeavors to discover them. One of these wonders is recognition of the exact mass and energy of the whole universe.

Dark energy and the universe expansion

Initially, we give a brief explanation of the Big Bang theory. The Big Bang is the greatest theory in explanation of universe genesis. According to this theory, the universe creation has been started by a huge explosion and continued by the generation of electrons, protons, neutrons, atoms, substances, planets, stars and galaxies by consuming the energy of this massive explosion. Concurrently, some of this energy made all these masses scattering. It's expected after a while of this great event the velocity of masses reduces until they stop. However, it has not happened yet, but also their expansion accelerates. The only solution that scientists provided to explain, was the probability of the presence of unspecified energy in the universe that potentiates this cosmic acceleration and since they were unaware of its origin called it dark energy. So a major question in physics came to the existence: What the dark energy is and what its specifications are?



Saleh Theory calculates the released energy of the Big Bang in a different way. Accordingly, we can imagine the whole universe as a sphere which its volume is one cubic meter and made up of neutrons. We calculate the reserved energy in this neutron star by Monte Carlo technique. The binding energy of the neutron star calculates by this experimental equation:



$$E(\rho) = a\left(\frac{\rho}{\rho_0}\right)^\alpha + b\left(\frac{\rho}{\rho_0}\right)^\beta$$

In this equation the $E(\rho)$ is the energy of each Neutron, α , β , a and b are free and independent parameters, ρ is the density of the world and ρ_0 is the Neutron density.

As the Neutron density and the nucleus density are equal, so ρ_0 will be equal to:

$$\rho_0 = 2.3 \times 10^{17} \left(\frac{kg}{m^3}\right)$$

But the density of this spherical mass is equal to:

$$V = 1m^3, \quad \rho = \frac{m}{V} = \frac{10^{53}}{1} = 10^{53} \left(\frac{kg}{m^3}\right)$$

By putting the following values for the free parameters in the energy equation, for the energy of each Neutron, we have:

$$\begin{aligned} \frac{a=13.4, b=5.62(Mev)}{\alpha=0.514, \beta=2.436} \rightarrow E(\rho) &= 13.4 \left(\frac{10^{52}}{2.3 \times 10^{17}}\right)^{\frac{514}{1000}} + 5.62 \left(\frac{10^{52}}{2.3 \times 10^{17}}\right)^{\frac{2436}{1000}} \\ E_1(\rho) &\simeq 7.3 \times 10^{86} (Mev) \simeq 1.1 \times 10^{74} (j) \end{aligned}$$

In this equation, as the first part is almost negligible, comparing to the second one, it has been ignored.

We considered the total mass of the universe as neutrons, and by dividing the total mass of the universe ($10^{53} kg$) to the mass of a neutron ($1.6 \times 10^{-27} kg$), the total number of neutrons will be equal to:

$$N = \frac{10^{53}}{1.6 \times 10^{-27}} \simeq 2.6 \times 10^{79}$$

By multiplying the computed energy for each neutron to the total number of neutrons we can calculate the total energy:

$$E_T(\rho) = N \times E_1(\rho) \simeq 1.1 \times 10^{74} \times 2.6 \times 10^{79} = 2.8 \times 10^{153} (j)$$

While the calculated energy by the Mass–energy equivalence of a mass equal to $10^{53} kg$ is about:

$$E = mc^2 = 10^{53} \times 10^{17} = 10^{70} (j)$$



By comparing the calculated energy of the Big Bang moment by two ways, we face to a significant difference between the amount through the density energy and through the mass–energy.

Saleh Theory believes that the calculated released initial energy at the Big Bang moment should be calculated by the density energy and if we calculate the released energy in this way, there is no need to define unknown energy called dark energy.

Accordingly, dark energy is nothing but the remaining energy of the initial energy released at the Big Bang moment, minus the energy consumed to form the objects of the universe including: Electrons, Protons, Neutrons, celestial objects, etc.

Dark matter

Another wonder of the physics is dark matter, which some scientists were believed would never be solved because of the lack of signs of its solvability.

Scientists proposed dark matter theory, when they realized that there is a great difference between the calculated mass of galaxies by their gravitational effects and the observable mass of galaxies.

To clarify, could compare the gravitational force between the sun and earth and the gravitational force between the Black Hole in the center of the milky way and sun.

Newtonian gravitational force is equal to:

$$F = G \frac{mM}{r^2}, (G = 6.6 \times 10^{-11})$$

Now we calculate the gravitational force between the sun and earth by this formula:

$$M_{earth} = 5.9 \times 10^{24} \text{ kg}, M_{sun} = 1.9 \times 10^{30} \text{ kg}, r = 150 \times 10^6 \text{ km}$$

$$F_{E\&S} = 6.6 \times 10^{-11} \frac{5.9 \times 10^{24} \times 1.9 \times 10^{30}}{(1.5 \times 10^{11})^2} = 3.2 \times 10^{22} (N)$$

The gravitational force between the sun and Black Hole in the center of the milky way also equals to:

$$M_{Blackhole} = 5.7 \times 10^{36} \text{ kg}, M_{sun} = 1.9 \times 10^{30} \text{ kg}, r = 2.4 \times 10^{17} \text{ km}$$

$$F_{Blackhole\&S} = 6.6 \times 10^{-11} \frac{5.7 \times 10^{36} \times 1.9 \times 10^{30}}{(2.4 \times 10^{20})^2} = 1.2 \times 10^{16} (N)$$



Comparing these two forces realize that gravitational force between the earth and the sun is much greater than the sun and a black hole in the center of the milky way.

Hence the second force in Galaxies is required to prevent their collapse.

To justify this observation, physicists presented theories in this field, one of the most important was the mystery of dark matter. It exists everywhere, but does not occupy space, passes through all matters, does not emit any light beam, and interacts with other objects only through gravity. Therefore, it can only be discovered by gravitational effects. But despite all these definitions and limitations, the existence of this material has not yet been formally proofed. It is notable which it makes up about 27% of the mass and energy of the entire universe, and is one of the largest unanswered questions of current Physics.



Saleh Theory presents a new description of the cause of galaxies' survival and instead of believing in the dark matter that has none of the primary properties of the matter, it points to the existence of a force that has all properties of a force with specified source.

As you aware, all the celestial objects have a rotational motion around the supposed center of the Universe, which is the result of the initial rotation of existing at the Big Bang moment and as the after the Big Bang no force has affected this rotational motion, the rotation continues at the initial angular velocity with a constant value, and the constant of the angular velocity means that the celestial objects at the edges of the universe rotate with more tangential velocity than the objects closer to the supposed center of the Universe.

For a better understanding, we compare the tangential velocity of rotating objects at the edge of the Milky Way with the rotating objects on the known edge of the universe. By placing values with index one for celestial objects at the edge of the Milky Way and index two for celestial objects at the known edge of the universe, it results that, firstly, the tangential velocity of the celestial objects at the known edge of the universe is more than the tangential velocity of the celestial objects at the edge of



the Milky Way. Secondly, the velocity at the known edge of the world is tens thousand times faster than the speed of light.

So, as we get further away from the supposed center of the Universe, the tangential velocity increases, and this enormous difference in velocity, between the objects on the edges of the universe and ones closer to the supposed center of the universe causes a vortex force and like a Tornado pushes everything toward the center of the rotation.

So what is called Dark Matter is only a Vivid Force that is generated from the difference in the speed of rotation of celestial objects at the edge of the universe and those that rotate near its supposed center.

Dark energy and accelerating expansion of the universe

Dark energy is always increasing the radius of the universe and consequently, the radius of the universe sphere is increasing. On the other hand, due to the lack of force on the rotational motion, the angular velocity is constant. Therefore, the tangential velocity of celestial objects is increasing. According to the definition of acceleration, the secondary velocity minus the initial velocity divided by time variations, the acceleration is always positive and in fact, expanding of the universe looks to accelerate. Therefore, this accelerated expansion does not require linear force outward.

In other words, due to the lack of force on the rotational motion, the angular velocity is constant, and on the other hand, the existence of dark energy increases the radius of the universe and thereby increases the radius of rotation of the celestial objects. So, by increasing radius the tangential velocity increases and makes accelerating expansion of the universe.

