Dark matter only intreacts with gravity

Redoune belfakih

In this paper. we developed the cpt symmetric universe theory. we added some modifications. there is another universe with antimatter in which energy is transformed into mass, is a mirror of our universe, and the characteristics of light have a very similarity with infinity. we suggest that antimatter has negative mass and that dark matter is the effect of antimatter in space 2 on space 1.

I. INTRODUCTION

Dark matter was identified in 1933 by Fritz Zwicky [1], [2] Then it was rediscovered by scientists Vera Rubin and Kent Ford [3] Dirac also launched his theory of antimatter in 1928 [4], [5] In our attempt to develop the theory of CPT symmetric universe [6] . To find out what is dark matter and where is antimatter, we asked the question: Does dark matter have a negative mass [7] We have relied on mathematics derived from the trigonometric geometry and from our observation of a similarity between the speed of light and infinity in special relativity [8] and we assumed that antimatter has negative mass [9]And also if mass is converted into energy, it is necessary for energy to be converted into mass somewhere. The sum of mass and energy in the universe is constant and does not change [10].

II. DARK MATTER IS NEGATIVE MASS

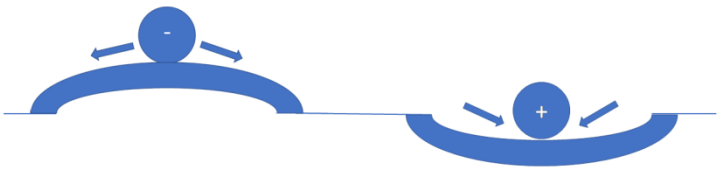

FIG. 1: Positive and negative matter bend the fabric of space-time.

There is a positive and negative charge in the electric force, so why is there no positive and negative mass in the gravitational force in our universe? The absence of negative mass prompted us to propose a new model on how negative masses bend the fabric of space-time.

We suggest that the space-time texture is like a paper and has two pages. The first page contains the positive matter and the second page contains the negative matter, and the black hole is the separator for these two pages. Through the double slit experiment of the electron [11] , we conclude that the electron is a particle and a wave like light, and this means that all matters in the universe have a dual nature between a particle and a wave, and dark matter does not interact with light [12], [13], which is a particle and a wave, this means that it does not interact with any a particle or wave in the universe , its kinetic momentum is 0 . In order to solve the

problem of baryon asymmetry, we assumed that antimatter has a negative mass..and all this does not contradict the model that we proposed in FIG. 2 .

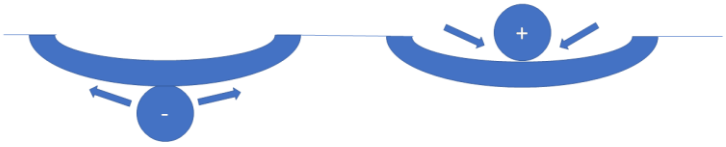

FIG. 2: Negative matter applies positive gravitational mass to positive masses and negative gravitational mass to negative masses.

III. SIMILARITIES BETWEEN SPECIAL RELATIVITY AND INFINITY

The Taylor series of $f(x) = \frac{x-1}{x}$ centered at 1 is

$$f(x) = (x-1) - (x-1)^2 + (x-1)^3 - (x-1)^4 + \cdots \quad (1)$$

Let us look at some detail

$$x - 1 = x[(x-1) - (x-1)^2 + (x-1)^3 - (x-1)^4 + \cdots] \quad (2)$$

Equation (2) is a polynomial that has no fixed term, so equation (1) on the right is also a continuous polynomial defined in the domain R from it

$$\lim_{x\to 0^-} \frac{x-1}{x} = \lim_{x\to 0^+} \frac{x-1}{x} \quad (3)$$

$$+\infty = -\infty \quad (4)$$

Mean that

$$\lim_{x\to \frac{\pi}{2}^-} \tan x = \lim_{x\to \frac{\pi}{2}^+} \tan x \quad (5)$$

$$\frac{1}{0} = \tan\frac{\pi}{2} = \tan\frac{3\pi}{2} = \frac{-1}{0} \quad (6)$$

From it

$$\frac{n}{0} = \frac{-n}{0} = \pm\infty \qquad n \neq 0 \tag{7}$$

From these calculations we can solve the undefined operations

$$+\infty - \infty = \pm\infty \tag{8}$$

We note that

$$+\infty + \infty = +\infty \;\; ; +\infty - \infty = +\infty \;\; ; \;\; +\infty + n = +\infty \tag{9}$$

This is similar to Einstein's relative velocity summation equations

c+c=c ; c+v=c ; c-c=c (Because the speed of light is constant in all reference frames)

So there is a relationship between the speed of light and infinity, and through this observation we concluded the following:

When we choose $\tan(90) = n$

Every tangent of the other angles changes according to an approximate equation $\tan(\alpha) = n\sin(\alpha)$

Example: when we choose $\tan(90) = 1$

$$1 + 1 = \pm 1 \;\; ; \;\; 1 - 1 = \pm 1 \;\; ; \;\; +1 = -1 \quad ; \quad \frac{n}{0} = \frac{-n}{0} = \pm 1 \quad n \in \;]0\,; +1\,[\tag{10}$$

$$\tan(45) = 1 \times \sin(45) = 0.7$$

$$\tan(45) + \tan(45) = \tan(63.43)$$

$$0.7 + 0.7 = 0.89 \tag{11}$$

And so that we do not get confused, we will call tan(90)= n the tangent of the angle with base n and we will denote it by

$$tan(\alpha)_n = nsin(\alpha) \tag{12}$$

When Tangent changes also changes sin and cos

$$\cos(\alpha)_n = \tan(\tan^{-1}\cos\alpha)_n \qquad \sin(\alpha)_n = tan(\tan^{-1}\sin\alpha)_n \tag{13}$$

Just as there is an infinite number of finite numbers there is also an infinite number of infinite numbers and when $tan90 = n$ n becomes an infinite number

In the case of speeds $tan90 = c$

$$c + c = c \quad ; \quad c + v = c \quad ; \quad c - c = c \tag{14}$$

Also $$-c = +c \;\; ; \;\; \frac{v}{0} = \frac{-v}{0} = \pm c \tag{15}$$

That is why the speed of light is constant despite the movement of the source because the speed of light is infinite, but in the equation of summing the relative velocities

$$u + v = \frac{u+v}{1+\frac{uv}{c^2}} \tag{16}$$

So $0.5c + 0.5c = 0.8c$ but in our equations we found $0.5c + 0.5c = 0.75c$ this is because our equation (12) is assumed .

in special relativity, propre time τ is 0, so the speed of light is undefined . $\vec{s}$ vector for light is null

$$0 = ct^2 - x^2$$

$$ct = \pm x$$

$$(ct = 1 \ ; x = \pm 1) \tag{17}$$

which means that light travels in both directions at the same time, and this confirms equation 15. , no matter reaches infinity, whether it is energy or mass, and the speed of light is undefined , this means one thing, which is that the maximum speed is c, but the speed of light is not c, get too close to it, its speed is not constant and nothing reaches the infinite top speed. This explains photoelectric effect and explains why it bends in front of huge masses. special relativity in Cartesian coordinates where x is 1 light second and time ct is in seconds, light must always travel through a unit of distance per unit of time in the space- time diagram. when the Rendler coordinates are converted to Cartesian coordinates, the light curve should not be represented by an exponential line because then it does not become constant in all reference frames. for general relativity equations, propre time by lambda must not be replaced in orbital or geodetic equations, so the path of light cannot be known.

$$\lim_{v \to c} v = c \tag{18}$$

all Einstein's equations are true and reveal the curvature of light, but in fact light does not travel at the maximum speed and particle that travels at the top speed we will call it true light and it travels in a straight line because all the coordinates of the space-time diagram must change according to true light . It is constant and always travels through a unit distance per unit time .

this is consistent with Newton's equations, there is no difference between a uniform and a constant, both of them are the same. always true light velocity is constant in all reference frames and travels in a straight line to all observers.

IV. ENERGY IS CONVERTED TO MASS IN THE SECOND PAGE

In space 2 ricci curvature tensore is negative, when objects travel in geodesic lines, they increase in size and the mass of antimatter is negative, means that the mass of the antiproton is smaller than the anti-electron and the sizes of the objects change. The greater the mass of particles, the greater its volume . mass of the positron is very large, so its size is very large, and this is a big problem. positron must have the same size as the electron. to solve this problem, we will discuss the law of conservation of mass and momentum through this law[10]. We know that the total mass of the entire universe must be constant, as well as the energy, and mass is converted into energy in the heart of the stars, mass of the universe must decrease and the energy must increase, and this is another problem.

mass of the entire universe decreases and energy increases

$$m_2 = m_0 - \frac{E_1}{c^2} \tag{19}$$

But if we imagine the opposite in a universe in which mass is converted into energy

$$E_2 = E_0 - m_1 c^2 \tag{20}$$

to solve these problems, we have to imagine that every mass m_1 has two energies E_1 and E_2, if the antimatter becomes negative E_2 energy and not mass. Its physical form is energy, the sizes of the antiparticles will become normal, and to show this, we have to take into account equation (4).
0 is the smallest number for positive numbers and the largest for negative numbers. Infinity is the largest for positive numbers and the smallest for negative numbers, so a negative number can be converted to a positive for the trigonometric circle with base n_0.

$$(n_1 \; ; \quad n_0 + n_{-1}) \tag{21}$$

Let's convert the energy E_2 of antimatter to positive

$$(E_3 \; ; \; E_0 + (-E_2) = \; E_0 + (-E_0 + m_1 c^2) = m_1 c^2 \,) \tag{22}$$

antimatter will become in its normal size and the law of conservation of momentum does not break if antimatter is energy and for the stability of the sum of mass and energy in the entire universe, energy must transform into mass at the same moment that mass is converted into energy in space 1 which indicates that Space 2 is a mirror of Space 1 .

$$\nabla^2 \varphi = \frac{4\pi G}{c^2} \rho_E \quad ; \quad \rho_E = En \tag{23}$$

in space 2, energy of antimatter is positive, which means that the antimatter are attracted to each other, but in the model we proposed, the antimatter applies a negative curvature in space, means energy responds to the curvature of the space-time fabric with a movement opposite to the movement of mass. when antimatter enters space 1 through the black hole. matters with the same mass charge attract each other and different mass charges repel each other

$r < \frac{2GM}{c^2}$ in space 1 is $r > \frac{2GM}{c^2}$ in space 2 , equation (4) shows this . fate of particle is not the singularity point inside the black hole . but to space 2 the same thing with antimatter. near the black hole in space 1 or 2 . antimatter and normal matter collide, causing large amounts of gamma rays, especially in the heart of the galaxy, but we do not see antimatter coming out of the black hole because the speed of light is not constant, and it is like any particle in the universe. Ordinary light erases anti-light when they collide. Paradox of information [14] states that the masses disappear irreversibly while entering the black hole, but they turn into dark matter, and the law of conservation of energy and momentum is not broken .

V. CONCLUSION

Dark matter only interacts with gravity, and this is what we observe in the observed universe. if light has a constant speed, it must be a wave only, and every matter has an acceleration, so it is a particle and a wave at the same time. The mathematics that we used may not apply to speeds only, but may even apply to mass and energy, or there may be no physical quantity in the universe equal to infinity, and that there are only infinite numbers in physical variables such as temperature, for example, and that all physical variables have a finite maximum amount.

Reference

[1] F. Zwicky, 'Die rotverschiebung von extragalaktischen nebeln', *Helvetica Phys. Acta*, vol. 6, pp. 110–127, 1933.
[2] F. Zwicky, 'On the Masses of Nebulae and of Clusters of Nebulae', *Astrophys. J.*, vol. 86, p. 217, 1937.
[3] V. C. Rubin, W. K. Ford Jr, and N. Thonnard, 'Rotational properties of 21 SC galaxies with a large range of luminosities and radii, from NGC 4605/R= 4kpc/to UGC 2885/R= 122 kpc', *Astrophys. J.*, vol. 238, pp. 471–487, 1980.

[4] P. A. M. Dirac, ‘The quantum theory of the electron’, *Proc. R. Soc. Lond. Ser. Contain. Pap. Math. Phys. Character*, vol. 117, no. 778, pp. 610–624, 1928.
[5] P. A. M. Dirac, ‘The quantum theory of the electron. Part II’, *Proc. R. Soc. Lond. Ser. Contain. Pap. Math. Phys. Character*, vol. 118, no. 779, pp. 351–361, 1928.
[6] L. Boyle, K. Finn, and N. Turok, ‘C P T-Symmetric Universe’, *Phys. Rev. Lett.*, vol. 121, no. 25, p. 251301, 2018.
[7] H. Choi, ‘Dark Matter is Negative Mass’.
[8] A. Einstein, ‘On the electrodynamics of moving bodies’, *Ann. Phys.*, vol. 17, no. 10, pp. 891–921, 1905.
[9] G. Chardin, ‘Does antimatter fall upwards?’, *Pour Sci.*, pp. 36–43, 2019.
[10] J. Wisniak, ‘Conservation of Energy: Readings on the Origins of the First Law of Thermodynamics. Part II’, *Educ. Quím.*, vol. 19, no. 3, pp. 216–225, 2008.
[11] C. Jönsson, ‘Electron diffraction at multiple slits’, *Am. J. Phys.*, vol. 42, no. 1, pp. 4–11, 1974.
[12] G. Bertone and D. Hooper, ‘History of dark matter’, *Rev. Mod. Phys.*, vol. 90, no. 4, p. 045002, 2018.
[13] A. H. Peter, ‘Dark matter: a brief review’, *ArXiv Prepr. ArXiv12013942*, 2012.
[14] S. W. Hawking, ‘Information loss in black holes’, *Phys. Rev. D*, vol. 72, no. 8, p. 084013, 2005.