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Re-examination of Penrose's and Kerr's Singularities and the Origin of Protons in Astrophysical Jets

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Abstract

Penrose's model predicted that in the center of the black hole space-time curvature is infinite and consequently gravity force there is infinite. Kerr's model predicted ring gravitational singularity inside a black hole. In 2014 NASA measured universal space has Euclidean shape. This means that stellar objects cannot curve universal space and that the space-time singularity model has no physical existence. In the center of black holes energy density of superfluid space is so low that the electromagnetic properties of space are changed. This causes electromagnetic forces between the nucleus and orbiting electrons to become unstable. In the center of a black hole, atoms are falling apart into elementary particles. Black holes are rejuvenating systems of the universe, they transform old matter into fresh energy in the form of elementary particles. Astrophysical jets are the outcome of this process.

Keywords: space-time singularity, astrophysical jets, energy density of superfluid space

1. Introduction

In 2014 NASA measured inner angles between three stellar objects. The sum of their inner angles was exactly 180^0. This confirms universal space has an Euclidean shape: "Thus the universe was known to be flat to within about 15% accuracy prior to the WMAP (Wilkinson Microwave Anisotropy Probe) results. WMAP has confirmed this result with very high accuracy and precision" [1]. In 1965 curvature of space was considered real, today we know space is flat. We have to re-evaluate space-time singularity in the light of NASA measurements. Recent research confirmed that universal space is time-invariant. There is no physical time in the universe as a 4^{th} dimension of universal space. The only time that exists is the duration of a material change in time-invariant space [2]. In Penrose's sketch which is in his 1965 article [3] (see Figure 1 below), we see an arrow that depicts the flow of time. In the universe, there is no flow of time, the flow of change runs in time-invariant space. Black holes exist in time-invariant space. The physical properties of black holes have nothing to do with the observer. In Penroses's sketch, we see designed an "outside observer". In his sketch, the radius of the black hole is 2 meters, and the infinite curvature of space is inside the space-time cone and is designed by the straight line that comes out of the black hole. Hypothetical singularity should be in the center of the black hole not on its border where stated and is prolonged in the center of the space-time cone. Penrose's sketch design seems a pure speculation that is based on some mathematical models which are non-realistic, they have no counterpart in physical reality.

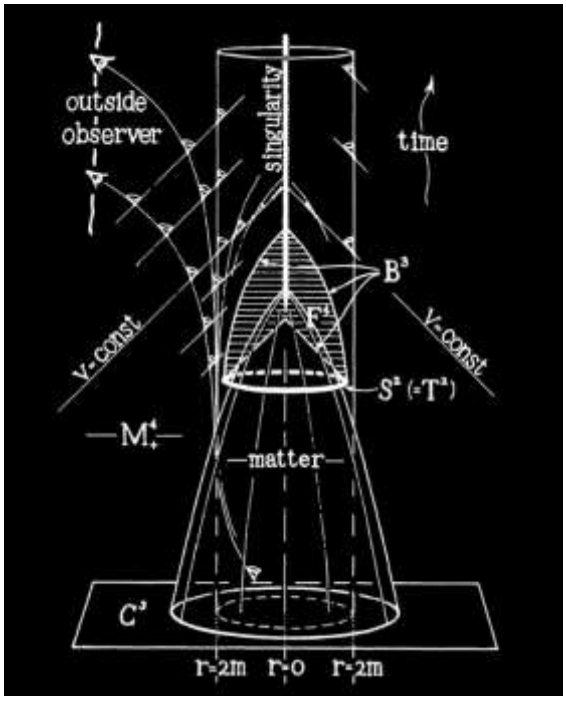

Figure 1: Space-time singularity

2. Penrose's space-time singularity contradicts mathematical laws and contradicts physical laws

Let's predict that Penrose's singularity is possible. We have a straight line in universal space where there is a singularity. The unsolvable question is how this singularity is diminishing with the distance from the line. We know in mathematics that the cardinal number of natural numbers can never turn into a finite natural number. We know in physics that gravity diminishes with the square of distance. Having infinite value for gravity only in one point of the universal space, the entire space would have infinite gravity. Penrose's singularity is against these basic rules of mathematics and physics. In mathematics infinity is an indispensable tool, its use in physics is problematic and leads to contradictions. In this article is proposed that singularities should be abolished from physics because "infinity" is not a metric term. We do not know its meaning, and its use in physics is highly problematic. It has created physics that is out of the reach of experimental research methodology. Penrose's singularity is not a scientific fact, it can be seen as a working hypothesis that is based on vague speculations that contradict the common sense of physics.

Geometrization of gravity has brought in physics exotic models like closed time-like curves (CTC) where one could travel into the past, kill his grandfather and so it could not be born [4]. In 1935 Einstein and Rosen proposed the existence of wormholes where a black hole is connected with a white hole [5]. Still today their

model is the basis for speculations about travel in time through these wormholes. It is clear today, that motion occurs in time-invariant space where time is the duration of motion and that time travel is categorically excluded. An astronaut can only move through universal space but not through time because time is the mere duration of astronaut motion in space [6]. We have to admit, that "black hole" is an inappropriate term because where a black hole is situated there is no hole in space. A better term would be "dark star" which means that the star has such a strong gravity that light cannot escape.

3. Curvature of space and gravity inside black holes

It is proposed in this article, that the geometrization of gravity where stars are supposedly warping space is a mere mathematical model that describes some fundamental physical properties of the superfluid universal space. In the intergalactic space energy density of superfluid space is at its maximum and has the value of Planck energy density. A given physical object diminishes the Planck energy density of space ρ_{PE} in its center by exactly the amount of its mass and energy, according to the following equation:

$$\rho_{cE} = \rho_{PE} - \frac{mc^2}{V} \qquad (1),$$

where m is the mass of the object and V is volume of the object. Eq. (1) can be written as follows:

$$E = mc^2 = (\rho_{PE} - \rho_{cE})V \qquad (2).$$

Eq. (2) describes the extension of the mass-energy equivalence principle on superfluid space [6]. Every physical system tends toward a homogeneous distribution of energy. The same holds for superfluid universal space. Eq. (1) confirms that also in the center of the stellar object, the sum of the energy density of matter and the sum of the energy of superfluid space has the value of Planck energy density. The curvature of superfluid space in GR is a mathematical description of its energy density, more space is curved less is its energy density.

In the model presented in this article, stellar objects are not curving space, they are diminishing space energy density. In the center of a black hole, the energy density of space is so low that atoms become unstable. They fall apart into elementary particles. The transformation of matter into fresh energy in the form of elementary particles creates high pressure and a black hole can explode in a supernova. The force of fresh energy pressure in the chamber where atoms decay into elementary particles is bigger than gravity forces (see Figure 2 below).

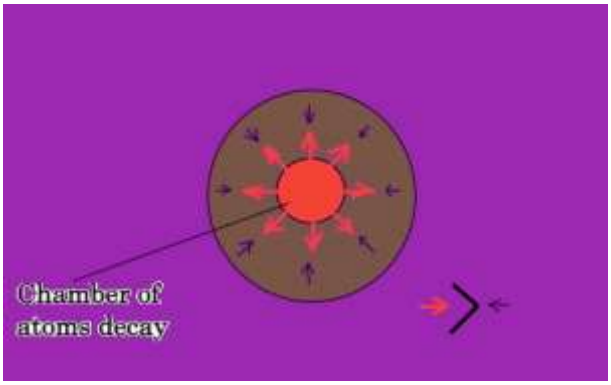

Figure 2: Fresh energy pressure and gravity forces in supernova

The mechanism proposed in this article is giving new light on the supernova explosion, whose mechanism is not clear yet: "SNIa explosions are driven by fast thermonuclear burning in 12C/16O white dwarf (WD) stars with a mass close to, or below, the Chandrasekhar-mass limit of ≈ 1.4 solar masses (4) - the maximum mass of a WD supported against the gravitational collapse by the electron degeneracy pressure. Beyond this general statement, however, the exact mechanisms of SNIa remain unclear (5–8), with a number of possible scenarios" [7].

When the black hole is supermassive it cannot explode because the gravity force is bigger than the pressure of free energy in the chamber. The pressure of fresh energy creates the tunnel in the direction of the supermassive black hole's rotational axis. Through this tunnel, fresh energy is thrown out into the intergalactic space in the form of an astrophysical jet, as we can see in Figure 3 below.

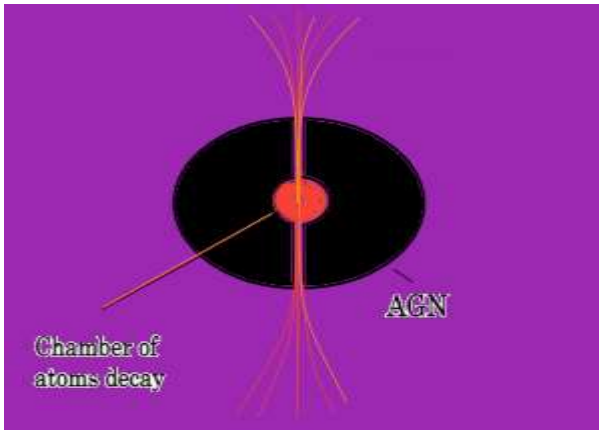

Figure 3: AGN with the chamber of atom decay and outcoming jet

Every AGN (active galactic nuclei) has in its center the chamber where atoms are decaying in elementary particles. The matter of the walls of the chamber is

transformed into fresh energy, which is ejected in the form of jets into the intergalactic space, AGN is literally eating itself. AGNs are rejuvenating systems of the universe [6].

Using Eq. (1) we will calculate the energy density of superfluid space in the center of a proton, Moon, Earth, Sun, and some supermassive black holes:

- In the center of the proton: $\rho_{cE} = \rho_{PE} - 5.45 \cdot 10^{34} Jm^{-3}$.
- In the center of the Moon: $\rho_{cE} = \rho_{PE} - 3.01 \cdot 10^{20} Jm^{-3}$.
- In the center of the Earth: $\rho_{cE} = \rho_{PE} - 4.97 \cdot 10^{20} Jm^{-3}$.
- In the center of the Sun: $\rho_{cE} = \rho_{PE} - 1.27 \cdot 10^{20} Jm^{-3}$.
- In the center of a supermassive black hole ASASSN-14li energy density of superfluid space is: $\rho_{cE} = \rho_{PE} - 4.55 \cdot 10^{24} Jm^{-3}$.
- In the center of supermassive black hole GRS 1915+105 energy density of superfluid space is: $\rho_{cE} = \rho_{PE} - 8.62 \cdot 10^{32} Jm^{-3}$.
- In the center of a supermassive black hole Cygnus X-1 energy density of superfluid space is: $\rho_{cE} = \rho_{PE} - 3.58 \cdot 10^{34} Jm^{-3}$.

The model of the variable energy density of superfluid space suggests that the extremely low energy density of superfluid space in the center of black holes causes electromagnetic forces between the nucleus of the atom and orbiting electrons to become too weak and atoms fall apart into elementary particles [8].

Black holes are "eating" themselves that is why they tend to shrink. Schwarzschild's collapse of black holes is not due to the infinite gravity in the center, but instead, it is caused by the extremely low energy density of superfluid space in their center. Toward the center of the black hole (black star), the gravity force diminishes according to Newton's Shell theorem, as it diminishes in all other stellar objects, see Figure 4 below [9].

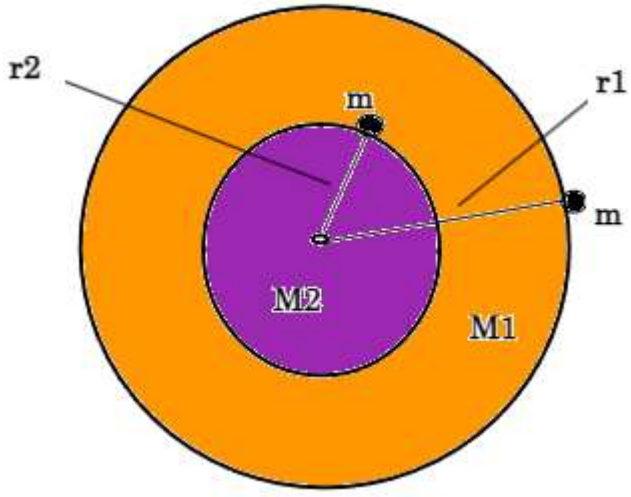

Figure 4: Newton's Shell theorem inside a black hole

$$F_{g-surface} = \frac{m(M_1+M_2)G}{r_1^2} \qquad (3),$$

$$F_{g-inside} = \frac{mM_2G}{r_2^2} \qquad (4).$$

There is no scientific literature available that would explain why Newton's Shell theorem should not be valid in stars with extremely high density of matter. Bending of light is not proving the curvature of space. Light is bending because of the change in the energy density of superfluid space, which causes a change in the refraction index [10]. When light moves in the direction of the Sun, the energy density of space is decreasing, when light moves away from the Sun, the energy density of space is increasing, see Figure 5 below:

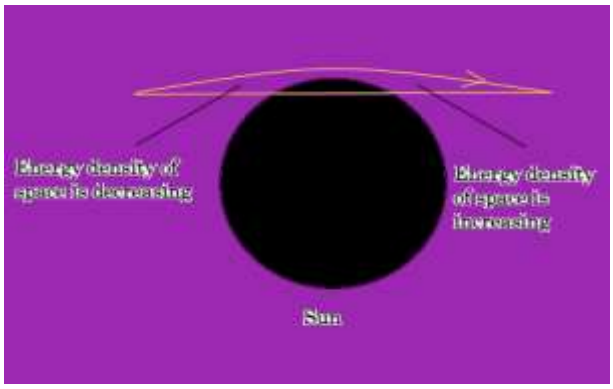

Figure 5: Light is bending because of the decrease and increase of energy density of space

The idea that inside black holes high curvature of space defines gravity is a working hypothesis that has not been proved yet. Schwarzschild metrics define the relation between the mass m of the stellar object and its radius R, where the object forms a black hole, see Eq. (5) below:

$$R = \frac{2Gm}{c^2} \qquad (5).$$

Combining Eq. (2) and Eq. (5) we get:

$$R = \frac{2G(\rho_{PE}-\rho_{cE})V}{c^4} \qquad (6).$$

We insert the equation for volume and we get:

$$1 = \frac{8G\pi(\rho_{PE}-\rho_{cE})R^2}{3c^4}$$

$$R^2 = \frac{3c^4}{8G\pi(\rho_{PE}-\rho_{cE})}$$

$$R = \sqrt{\frac{3c^4}{8G\pi(\rho_{PE}-\rho_{cE})}} \qquad (6).$$

Eq. (6) tells us that Schwarzschild radius is directly related only to the energy density of superfluid space ρ_{cE} in the center of the black hole. Velocity of light and gravitational constant are constants. As in the center of the black hole, matter falls apart into elementary particles, the black hole has a tendency to shrink to the zero radius. The "gravitational collapse" of black hole is not occurring because of the infinite gravity in the center; actually, it should be better termed "atoms decay collapse".

In principle, only a black hole with infinite mass could have on its surface infinite gravity and could attract a given massive object with mass m with infinite gravity, see Eq. (7) below:

$$F_g = \frac{m \cdot \infty \cdot G}{r^2} = \infty \qquad (7).$$

It is clear that a given stellar object only can have a finite mass, so infinite gravity is out of question. You cannot squeeze infinite mass into a star that will have a finite radius, so a star with infinite mass would also have an infinite radius and thus occupy all of universal space, which makes no sense. If we want to progress in cosmology, singularities of any type should be abolished from physics. The only infinity that exists in the universe is its Euclidean infinite vastness of universal space.

Gravity inside black holes follows the same rules as gravity inside the Earth. A black hole is a star with high density of matter, and this is the only difference from other stellar objects. Going towards the center of the Earth gravity is decreasing, going towards the center of the black hole gravity is also decreasing. The graph of decreasing depends on the density of matter, but it follows the general rule of diminishing towards the center.

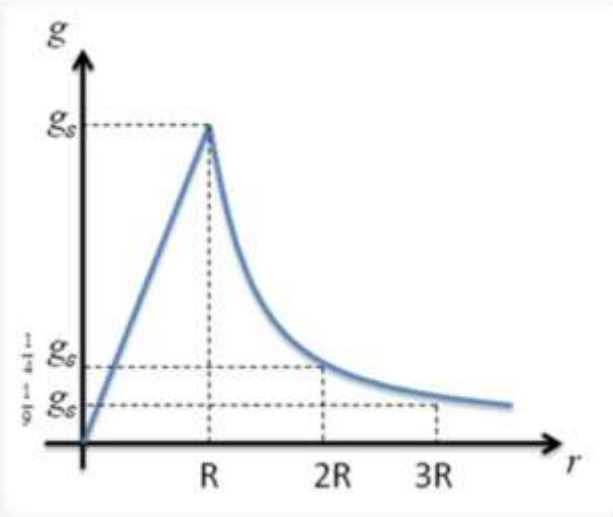

Figure 6: Gravity above the surface and to the center of the Earth

Let's apply Einstein gravity tensor $G_{\mu\nu}$ to calculate gravity of the Earth.

$$G_{\mu\nu} = \kappa\, T_{\mu\nu} \qquad (8),$$

where κ is Einstein gravitational constant and $T_{\mu\nu}$ is stress energy tensor ($\kappa = \frac{8\pi G}{c^4}$).
Equation (8) is not directly related to the mass m of the Earth and to the radius r of the Earth, which are essential to define how gravity diminishes going above the surface and going towards the center. With equation (8) we cannot calculate how gravity decreases when moving above the Earth is surface or going towards Earth's center. We measure gravity force in units of Newton (N) and what are units of equation (8) is still a subject of debate [11]. Where is the superiority and advancement of geometrization of Einstein's gravity compared to Newton's gravity, nobody has explained yet.
Gravity model based on variable energy density of superfluid space shows that gravitational acceleration on the Earth surface depends on the radius of the Earth and energy density of space in the center of the Earth, see Eq. (9, 10, 11) below:

$$F_g = mg \quad (9),$$

where m is the mass of the object on the Surface, and gravitational acceleration $g = \frac{MG}{r^2}$, where M is the mass of the Earth, G is gravitational constant and r is the radius of the Earth.
We combine Eq. (2) and Eq. (9) and we get following equation below:

$$F_g = \frac{m\,(\rho_{PE} - \rho_{cE})VG}{c^2 r^2} \qquad (10)$$

where ρ_{PE} is Planck energy density of space in intergalactic space, ρ_{cE} is energy density of space in the center of the Earth, G is gravitational constant, and V is the volume of the Earth. Gravitational acceleration g is the measure of gravity vector on the Earth's surface:

$$\vec{g} = \frac{(\rho_{PE} - \rho_{cE})VG}{c^2 r^2} \qquad (11)\ [8].$$

The gravity vector on the Earth's surface depends on the energy density of space in its center ρ_{cE} and on the Earth's volume V. When moving away from the surface, gravitational vector decreases, because distance r is increasing. Moving toward the center gravity vector decreases according to Newton's shell theorem. This is valid for all stellar objects from the size of the Moon to the size of SMBHs.

We can calculate the energy density of the space at the given point T from the center of a given stellar object by the following equation:

$$\rho_{TE} = \rho_{PE} - \frac{3mc^2}{4\pi(r+R)^3} \qquad (12)\ [8],$$

where ρ_{PE} is Planck energy density of the space in the interstellar space, m is the mass of the stellar object, r is the radius of the stellar object, and R is the distance from the center of the stellar object to the point where we calculate the energy density of space. When R tends to infinity, ρ_{TE} tends to become equal to ρ_{PE}. When R tends to zero, ρ_{TE} tends to become equal to the energy density in the center of the stellar object ρ_{cE}. In the center of the stellar object, equation (12) turns into the equation (1). Gravity vector at the point T depends on the difference in energy densities $\Delta_{\rho E} = \rho_{TE} - \rho_{cE}$ [8], see figure (7) below:

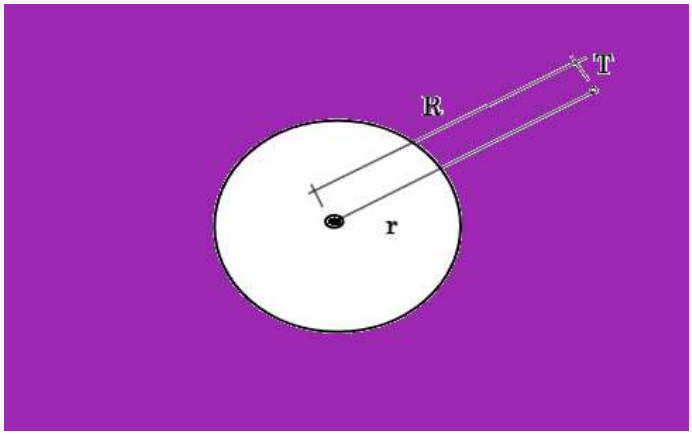

Figure 7: Energy density of space at the point T from the center of stellar object

Eq. (12) and Figure 7 are valid for all types of stellar objects from the size of Moon to the size of SMBHs.

4. Experimental verification of the existence of superfluid space

Superfluid space is the new name for ether. In the theory of ether light is the wave of ether. When light is moving in moving ether, its velocity is increasing or decreasing for an external observer. In 1851 French physicist Hippolyte Fizeau measured the velocity of light in moving water. His results confirmed that light when moving in the direction of water will have a higher velocity than when moving in the direction opposite to the motion of water accordingly to the equations below:

$$v_+ = \frac{c}{n} + \left(1 - \frac{1}{n^2}\right) v_w$$
$$v_- = \frac{c}{n} - \left(1 - \frac{1}{n^2}\right) v_w \qquad (13).$$

where v is the velocity of light in moving water, n is the refractive index of the water (1,333), c is the velocity of light and v_w is the velocity of the water. In Fizeau's experiment happens that moving light also moves the superfluid space. As

light is the wave of superfluid space (ether), the final velocity of light depends on the motion of the superfluid space.

Sagnac interferometer is proving that phase shift of light occurs when interferometer is rotating. This happens because rotating interferometer also rotate local ether, and so light moves in rotating ether, and this changes its velocity for an external observer. For an external observer, light that is moving in the direction of interferometer rotation increases velocity. Light that is moving in the opposite direction of interferometer rotation decreases velocity. This is observed as a phase shift that results in the change of interference pattern. This is in accordance with the Fizeau experiment.

In 2013 Russian physicist Samokhvalov carried out an experiment that proved that rotating objects cause the rotation of objects that are in their vicinity. In the experiment, two discs are placed in a vacuum chamber. When the down disc is put into the rotation, after a while also disk that is placed above the first disc starts rotating. Between discs, there is no physical connection. We predict that a rotating disk causes the local superfluid space around the disc to start rotating and so the other disk starts rotating as well. The rotation of the local superfluid space (ether) exerts a given force on the second disc, which also begins to rotate.

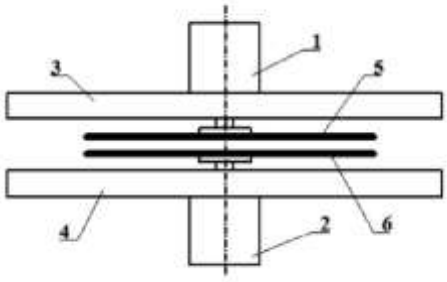

Figure 8: Samokhvalov experiment

The number 5 denotes a disk that is rotated by an electric motor. Number 6 denotes the disc that is attached to the bearing axle [12].

The same happens with the rotation of superfluid space (ether) around the rotating Earth. Earth is rotating around its axis and local ether is rotating with the Earth. Light takes an extra 0.014 microseconds when moving from San Francisco to New York. This is because ether is rotating with the Earth and light is the wave of ether. When light moves in the moving ether, light diminishes its velocity. When light is moving in the opposite direction of the moving ether, light is increasing its velocity. We can calculate the velocity of ether motion as follows: we divide the distance between San Francisco and New York, which is 4.500.000 m with the duration of light motion, which is 15000,014 microseconds. We get velocity of 299.999.720 meters per second. The velocity of light in moving ether is diminished by the velocity of the ether that is in this case 280 m/s. The velocity of light when moving from New York to San Francisco is 300.000.280 meters per second. 280 m/s is the velocity of ether motion in the direction of Earth's rotation at the latitude

of San Francisco and New York, which is about 39 degrees north. Velocity 280 m/s is velocity 1008 km/h. At 39 degrees, north velocity of Earth's surface rotation is 1301 km/h. This means that at the Earth's surface at 39 degrees north, ether is rotating with 77.5 % of the Earth's surface velocity.
The data about the duration of light motion from San Francisco to New York and back was published by Canadian physicist Paul Marmet in 2000 in Brazilian journal Acta Scientiarum, the title of the article is "The GPS and the constant velocity of light" [13].
As we have seen in the Fizeau experiment, moving water in a pipe moves ether, and so the velocity of light for an observer is higher than light speed. For an observer that would move in the pipe with the water, the velocity of light would be smaller than light speed for the value of the velocity of water. The same happens by the rotating ether around the Earth. We are inner observers, and we experience that light moving from San Francisco to New York has a lower velocity than ordinary light speed, which is 300.000 kilometres per second. Light moving from New York to San Francisco has a higher velocity than ordinary light speed. The constant velocity of light is valid for all observers when they are moving in the stationary ether. Moving ether is a particular situation where ether is not an absolute reference frame. An observer that would observe the motion of light from San Francisco to New York from intergalactic space would have experience that light moves faster from San Francisco to New York, and it moves slower when moving from New York to San Francisco. He would identically experience the velocity of light as we experience it in the Fizeau experiment.

We will design an experiment with an optical cable in moving water. We will measure the elapsed time of 1.000.000 loops of the light signal, see Figure 9 below.

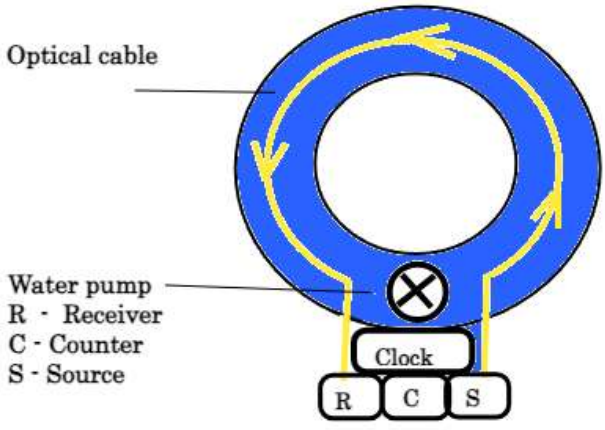

Figure 9: Velocity of light in moving ether for an external observer

The diameter of the optical cable is 0,955 m. One loop of light signal is 3 m. 1,000,000 loops is 3,000,000 m. The elapsed time of 1,000,000 loops should be around $t_0 = 0{,}001$ second. We expect that when water will move in the direction of

light signal motion, the elapsed time t_1 will be shorter, when water will move in the opposite direction of light signal, the elapsed time t_2 will be longer than 0.001 second.

$$t_2 > t_0 > t_1 \qquad (14).$$

Water is moving ether, and for an external observer, light needs more time when moving in the opposite direction of water motion and needs less time when moving in the direction of ether motion. The same happened in the Fizeau experiment.

Imagine you swim in a lake at a speed of 15 km/h and continue to swim in a river that comes out of the lake that has a speed of 10 km/h. Your speed in the lake will be 15 km/h. Also, for an observer on the bank of the lake, your speed will be 15 km/h. Your speed in the river will be 5 km/h as for an internal observer. The same happens for an internal observer when measuring the duration of light motion from San Francisco to New York. For an external observer on the bank of the river, your speed will be 25 km/h. The same happens for an external observer in Fizeau and Sagnac experiments. The lake represents still ether, the river represents moving ether, and you as the swimmer represent light and its variable velocity. When you start swimming upstream, you will have a speed of 25 km/h concerning the river. When swimming upstream, for the external observer on the bank, you will have a speed of 5 km/h. The same is valid for the light when propagating in the direction of ether's motion or the opposite direction of ether's motion. In the Fizeau experiment, the speed of light which moves in the direction of moving water that also moves ether increases for an external observer and decreases for an internal observer.

Fizeau, Sagnac, and our experiment experiments prove that a given physical object that is moving and/or rotating also moves local ether in the direction of its motion and/or rotates local ether with it. Earth is moving local ether in the direction of its motion and is rotating local ether. That's why Michelson-Morley gave a negative result. The motion of Earth is creating ether wind, and Earth is moving within ether wind. The idea in physics at the end of the 19th century that Earth moves through stationary ether was wrong. Ether is a dynamic fluid that moves and rotates with physical and stellar objects. Ether is rotating around the Sun and causing precession of Mercury's perihelion. The velocity of ether on the Mercury orbit is $0{,}00381\ ms^{-1}$. Similarly, AGN in the center of galaxy is rotating ether inside the galaxy and this causes the galaxy rotation curve [6].

5. Curvature of space has no experimental confirmation

The idea that the curvature of the universe conveys gravity has led to 100 years of misunderstanding about what characteristics gravity has within the event horizon. Presumption about possible existence of increasing curvature of space inside the event horizon was never observed and as such it can be thus appropriately handled at best just as an unproven working hypothesis.

Today in physics, it is automatically accepted that stellar objects curve space and so light bends when passing the Sun [14]. As we have seen in this article, (see Figure 5 in chapter 3) bending of light can be explained differently. Curvature of

space around Sun should be proved by measuring inner angles between Sun, Earth and for example Saturn. Their sum should be bigger than 180^0. This would prove space around Sun is curved, see Figure 10 below.

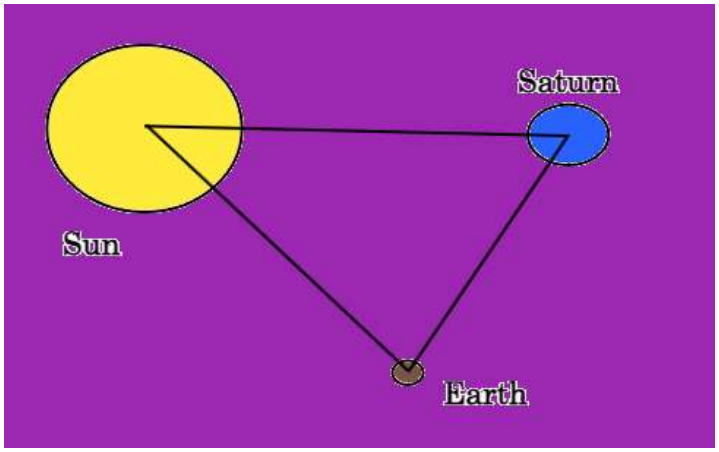

Figure 10: Sum of inner angles in triangle Sun-Saturn-Earth

Our Milky Way is a part of huge galaxy cluster called Laniakea. Our galaxy is moving towards the Great Attractor [15, 16], see Figure 11 below. Gravity force of The Great Attractor is working despite the fact that intergalactic space has Euclidean shape. This proves that gravity works also in Euclidean space.

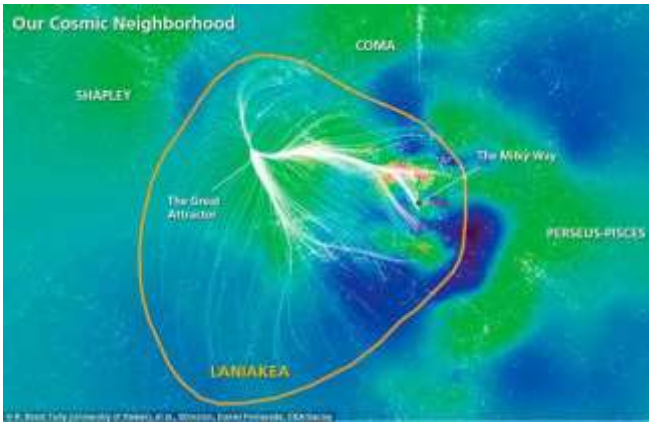

Figure 11: Laniakea and The Great Contractor

Gravity is pushing force of 4-dimensional superfluid space towards the lover energy density of space that is created by the presence of two or more 3-dimensional physical objects [6], see Figure 12 below.

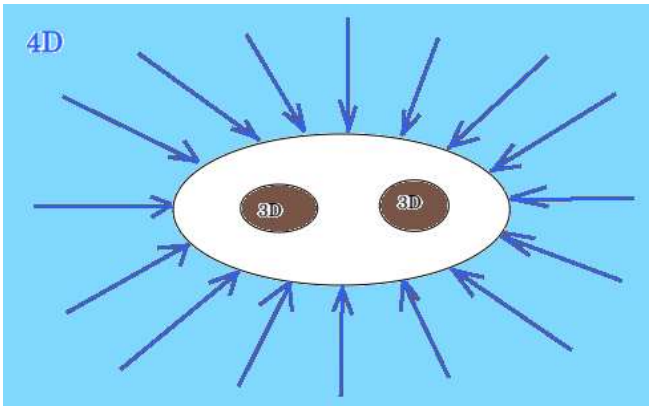

Figure 12: Gravity is a pushing force of superfluid space

Three-dimensional physical objects are somehow locked in the four-dimensional area with lover energy density of superfluid space. Gravity vector is pointing from higher energy density to lower energy density of space.

Einstein's idea that gravity is carried by the curvature of space was never proved by an experiment. In the famous experiment by Cavendish, the smaller metal balls move closer to the bigger metal balls because both balls are forming an area of lower energy density of superfluid space. This causes the outer space with higher energy density is pushed in the direction of lower energy density. This pushing force is gravity force. Superfluid space is four-dimensional and balls are three-dimensional. Balls are somehow locked into the area of lower energy density of space, see Figure 13 below:

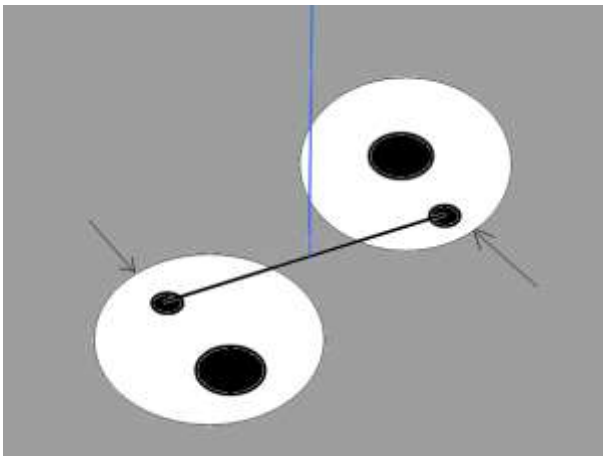

Figure 13: Cavendish experiment

Smaller balls are not moving closer to the bigger balls because bigger balls would curve the space. If this was true, the bigger ball should curve the local space. In addition, Earth should curve the local space. In the trigonometry net of Slovenia,

the points of first order are distant between 10 km to 30 km. On the picture below first order points are marked with white triangles [17], see Figure 14 below:

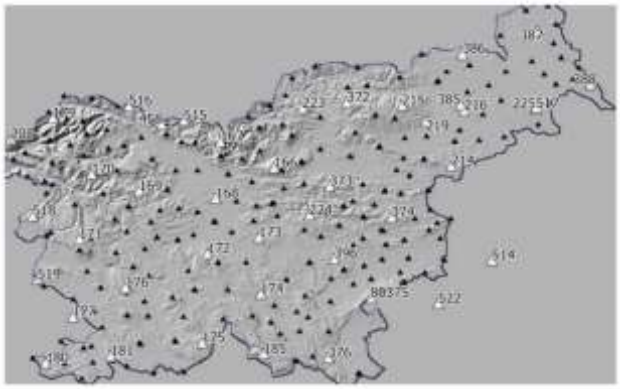

Figure 14: Trigonometrical net of first order in Slovenia

If Earth curved the space, the sum of inner angles between three points would be more than 180 degrees, which is not the case. This is direct geodesic proof that Earth is not curving space.

Physicists have detected the gravitational force between freely falling caesium atoms in-vacuum [18]. The model that caesium atoms bend space and therefore attract each other is unconvinced. The model where caesium atoms are diminishing the energy density of space and this generates gravity (see Figure 12) seems more plausible.

6. Origin of protons in astrophysical jets

No physical object from macro to micro scale is able to curve space, but for sure all physical objects from macro to micro scale are diminishing the energy density of space. In chapter three, we have seen that in the center of a proton, the minimal energy density of superfluid space is for the order 10^{10} higher than in supermassive black hole ASASSN-14li. The extremely low energy density of superfluid space in the center of the proton suggests that the proton remains a stable particle also in the center of black holes because of its internal structure whose stability is not dependent on electromagnetism.

Besides other particles, protons also compose astrophysical jets coming out of AGN [19]. Blandford-Znajek's mechanism explains the electromagnetic component of the jets [20], but it cannot explain the presence of protons. The model presented in our article suggests that the origin of protons in astrophysical jets is a consequence of the decay of atoms at the center of AGN.

7. Progress of cosmology requires the abolishment of all kinds of singularities

Roy Kerr recently published an article wherein the abstract is a clear description of how singularities have been brought in physics despite there is no proof yet of their existence in the physical world. Kerr is clear that the model of singularity needs to be proved by all scientific means, it is not enough to cite Roger Penrose: "The consensus view for sixty years has been that all black holes have singularities. There is no direct proof of this, only the papers by Penrose [1] outlining a proof that all Einstein spaces containing a"trapped surface" automatically contain FALL's. This is almost certainly true, even if the proof is marginal. It was then decreed, without proof, that these must end in actual points where the metric is singular in some unspecified way. Nobody has constructed any reason, let alone proof for this. The singularity believers need to show why it is true, not just quote the Penrose assumption" [21]. Kerr's criticism of gravitational singularities is a clear signal that we need a revision of the model of curvature of space as a carrier of gravity. This also implies that curvature of space inside Kerr's rotational black holes [21] is an example of mathematical model that has lead physics on the wrong path. Interiority of Kerr black holes is pure mathematical speculation that was never observed, see Figure 15 below.

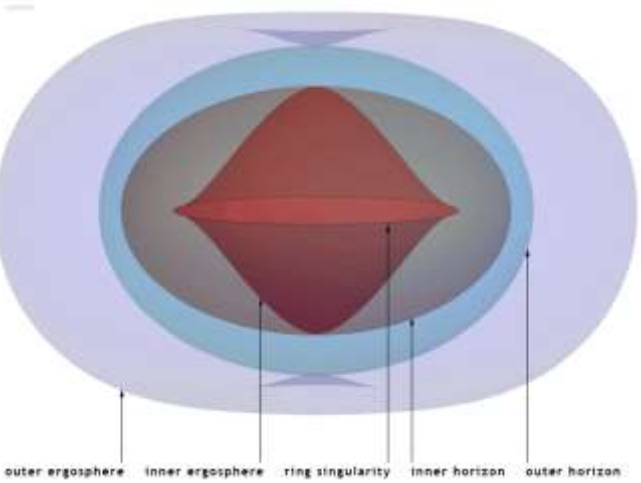

Figure 15: Kerr's ring singularity

In the black hole there is no outer ergosphere, there is no inner ergosphere, there is no inner horizon, and there is no ring singularity. The only physical reality that exists is outer horizon. If ring singularity would have physical existence, it could not diminish with distance, which means the entire universal space would have infinite singularity. If we want progress physics, any type of singularities should be abolished from physics. In his recent article on arXiv, Kerr is categorically excluding physical existence of his gravitational ring singularity: "The Kerr metric was constructed in 1963, soon after the discovery of Quasars. It has a singular

source with angular momentum as well as mass, surrounded by two elliptical event horizons. The region between these will be called the »event shell", for the want of a better name. Objects that enter this are compelled to fall through to the interior. Kerr itself is source-free, »generated" by a ring singularity at its centre. It cannot be non-singular since GR would then admit smooth, particle-like solutions of the Einstein equations that are purely gravitational and sourceless! The ring singularity is just a replacement for a rotating star" [21].

The main problem of black hole physics today is that majority of black hole physicists think that gravitational singularities of Kerr and Penrose have physical reality. This conviction is the main barrier for the development of black hole physics. Here, Kerr is beautifully quoting Richard Feynman: "Science is what we have learned about how to keep fooling ourselves" [22]. The progress of black holes physics would be possible when Kerr and Penrose both admit that the curvature of space inside a black hole has led to the wrong models that have no correspondence in physical reality. There is an infinitely small possibility that this will happen.

Black holes have an unfortunate name because there is no hole there in the universal space where black hole exists. High curvature of space at the place of a black hole is a scientific illusion, see Figure 16 below:

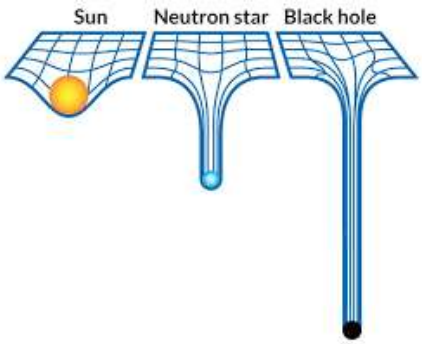

Figure 16: High curvature of space at the place of black hole

We have in physics this image in our minds for more than 100 years. The main problem is that this image has no physical existence, it is a pure scientific illusion. Abolishing this illusion is the only way to progress physics. It might happen this year, it might happen after 100 years. As already mentioned in this paper, a better name for "black holes" would be "dark stars" which have an extremely high density of matter. Because of their high rotational velocity black holes are interacting with the energy of superfluid space, they integrate this energy in-between their atomic structure, which increase their mass. Because of their high rotational velocity, black holes have huge relativistic masses. For example: "Mass of Cygnus X-1 that would not rotate would be $4.2169 \cdot 10^{31} kg$. Actual relativistic mass of the rotating Cygnus X-1 is $136129 \cdot 10^{32} kg$ [23].

When you read Penrose's and Kerr's articles, you see that they think in mathematical terms. Their minds are convinced that their mathematical terms are real. Yes, they are real, they exist in their minds, in the minds of many other mathematical physicists and nowhere else. Here is the beauty of physics: the model becomes real when proved by experiment or astronomical observation. Nobody ever observed singularity of any type. It is here that physics has fallen on the exam. We are pretending that singularities are real despite the lack of scientific evidence. Actually, Kerr did an important step, in his recent article on arXiv by confessing that singularities are dogma: "The fact that there is at least one FALL in Kerr, the axial one, which does not end in a singularity shows that there is no extant proof that singularities are inevitable. The boundedness of some affine parameters has nothing to do with singularities. The reason that nearly all relativists believe that light rays whose affine lengths are finite must end in singularities is nothing but dogma" [21]. Our proposal to progress black holes physics is clear: "extension of the mass-energy equivalence on superfluid space is showing that in the canter of the black hole gravity force is zero, but energy density of superfluid space is so low that atoms fall apart into elementary particles". Kerr and Penrose will probably never consider this model as a realistic one because this would mean that they waste some of their lifetime on models of black holes that are false. The biggest quality of big minds is to admit their big mistakes.

Finally, Hawking initial singularity is also a scientific illusion. He proposes that the universe started from a mathematical point where density, pressure, and temperature were infinite. His model is out of the realm of physics because a mathematical point has no dimension, and we cannot attribute physical properties to dimensionless phenomena [6]. All types of singularities exist only in the scientific mind. If we want progress physics, we have to admit this fact.

The scientific community's conviction that with the James Web Telescope we see in some remote physical past that was after the big explosion is a cardinal misunderstanding. The light from remote galaxies moves only through time-invariant space, in the universe, there is no physical past that one could observe with the telescope [2]. The universe that exists in time-invariant space is real, all the rest is only human imagination. The question about the origin of the universe is not scientific, it belongs to religion. In the universe, we observe huge jets of fresh energy that are coming out of SMBHs (super massive black holes) in the canter of galaxies. AGNs are rejuvenating systems of the universe that is eternal and non-created [6]. We are back into stationary cosmology, the era of religious impact on cosmology that started with Georges Lemaître in 1927 is over.

8. Conclusions

The idea that gravity is carried by the curvature of space was never proved experimentally. In 1915 General Relativity introduced the geometrization of gravity which led to a wrong understanding of gravity inside the event horizon of black holes. There is nothing mysterious inside the event horizon. All physical laws are in place, there is no gravitational singularity. Black holes tend to shrink because, in

the center of black holes, matter is transformed into fresh energy that forms astrophysical jets. The idea that gravity is carried by the curvature of space was never proved experimentally and should be seen as a model that belongs to the history of physics.

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