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Can Light Have A Carrier Medium? Black Holes, Light, Gravity, Time: Nature Shows Us Everything, We Just Have To Recognize It

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ABSTRACT

Black holes are still one of the great mysteries of the universe. There are several theories to describe black holes. According to the currently accepted theories, black holes can have different sizes, and their mass determines their gravitational force. Black holes have a boundary called the event horizon, beyond which nothing can escape their gravity. With the help of future research and technological developments, we can hopefully learn even more about these fascinating objects. október 14, 2023 mernokkapu [1]. However, there are several theories about black holes. Just two quotes about black holes. "A black hole is a region of space-time where gravity is so strong that not even light can escape from it. (Source: https://lexiq.hu) According to a publication published in the scientific journal Physical Review D, black holes may actually be frozen stars, the theoretical remains of stars that have cooled down and no longer emit light or heat. Stars called black dwarfs represent the last stages of the life of these celestial bodies." We know that scientific findings are not always the same. That is why let's look at another possibility. We will examine the relationship between black holes, light, and gravity. We will see that there is an important relationship between light, gravity, and black holes. Nature helps here too, because it shows that light can also have a carrier medium. It also shows when this carrier medium is missing. But it also shows that the speed of light is not constant. If the magnitude of the gravitational field changes, the speed of light must also change.

Keywords: black hole; gravity; Coulomb's law; Newton's law; Einstein; Maxwell's gravity; speed of light; propagation of light; passage of time.

INTRODUCTION

There are several ways to detect black holes. One is the effect of gravity on its surroundings. Most often, this is used to infer the existence of a black hole. The other is a consequence of the previous ones. We know that something should be there, but we don't detect it, we don't see it. Let's first examine black holes from the light side. If we don't see anything somewhere, what could be the reasons?

1. The gravity in the surroundings of a black hole is really so strong that not even light can leave it. This is the current position of science.

2. There is no mass there, so we don't see it.

3. There is no medium for light as an electromagnetic wave. So, light does not propagate there.

Therefore, we cannot see what might be there. In all three cases, light as an electromagnetic wave plays a role. Therefore, light plays an important role. Let's examine whether light can have a medium? If so, what could it be?The current scientific position is that electromagnetic waves do not require a carrier medium to propagate. During the propagation of light, electromagnetic waves do not require a carrier medium [1].

However, you can also read theories that say that a medium is also necessary for the propagation of light. This is less accepted by the scientific world, but there are such theories. You can read about this in the article Light and Gravity Reconsidered Based Upon a Randomly Changing Aether of Space [2]. Then let's look at the case of light. Let's look at the case that modern science accepts. Let's start with Maxwell's equation. The speed of light in a vacuum .

$$c_0 = \sqrt{\frac{1}{\varepsilon_0 \cdot \mu_0}} \tag{1}$$

This formula is always described as giving the speed of light in a vacuum. ε_0 and μ_0 are the permittivity and permeability of the vacuum. The vacuum is treated as if there is nothing there theoretically. However, this is not true. There is no vacuum in our environment in which there is no gravity. Therefore ε_0 and μ_0 are the permittivity and permeability of gravity in a vacuum. Nothing can have neither permittivity nor permeability. Let's do a unit analysis.

$\varepsilon_0 \left[\frac{A^2 s^4}{kg \cdot m^3}\right]$ $\mu_0 \left[\frac{kgm}{A^2 s^2}\right]$ At first glance, both units of measurement contain units of physical quantities.

Electric charge, mass, and length are included in the units. So this cannot be the permittivity and permeability of the theoretical vacuum. However, three very important things are visible.

1. ε_0 and μ_0 are the permittivity and permeability of gravity and not that of empty vacuum.

2. Therefore, based on formula (1), there can be a connection between light and gravity.

3. The speed of light depends on the magnitude of gravity, because the magnitude of gravity changes and with it the values of ε_0 and μ_0 must also change.

Therefore, the speed of light depends on gravity and is not constant. This contradicts the current state of science. But this is an explanation of how much light bends when passing by the Sun. During its path near the Sun, light travels in a constantly changing gravitational field. Let's see if we can reach these statements in another way. Since we are looking for a connection between gravity and light, let's examine gravity. There are two accepted theories of gravity today. One is Newton's law of gravitation. The other is Einstein's theory, which attributes gravity to the curvature of spacetime. However, there may be other theoretical solutions here too. If there is a connection between light and gravity, then there must be a common point that is present in both. We know that light is an electromagnetic wave. So here we can look for a common point between gravity and light. This means that the gravitational force field must also have at least a component of the electromagnetic force field. There are already theoretical solutions for.

Constantin Meis included the following formula for determining the gravitational constant. He also calculated the value of G using the Planck length [3].

$$G = \frac{l_P^2}{4\pi\varepsilon_0\mu_0 e\xi} \tag{2}$$

Based on the formula, both ε_0 and μ_0 are essential in determining the value of G. But it can also be seen that the formula contains c^2 in the form $\frac{1}{\varepsilon_0\mu_0}$.

But the formula also shows the Coulomb constant (2).

$$K_0 = \frac{1}{4\pi\cdot\varepsilon_0} \tag{3}$$

Takaaki Musha also gave a formula for determining G [4].

We know that G plays a fundamental role in the calculation of gravity. Based on this, the common point between light and gravity is the electric field. Based on formula (2), the gravitational field can have an electric field component. So there can be a connection between gravity and the electric field. Thus, gravity can be the carrier medium of light. But we can also reach the connection between gravity and the electric field in another way. Many people have puzzled over why Newton's law of gravity and Coulomb's law have the same form. Constantin Meis also established equality between Newton's and Coulomb's force law [3].

$$\mathrm{U_{Newton}} = \mathrm{G}\frac{\mathrm{m_i m_j}}{\mathrm{r_{ij}}} = \frac{1}{4\pi\varepsilon_0}\frac{\mathrm{e_i e_j}}{\mathrm{r_{ij}}}\eta_{\mathrm{ij}} = \mathrm{U_{Coulomb}} \tag{4}$$

$$K_0\frac{Q_S Q_E}{R_{SE}^2} = G\cdot\frac{M_S M_E}{R_{SE}^2} \tag{5}$$

If we arrange formula (5) we get a direct relationship between G and K_0.

$\frac{K_0}{G} = \frac{M_S M_E}{Q_S Q_E} = \mu_2 \qquad \frac{K_0}{G} = \mu_2$ Thus, the value of μ_2 can be calculated. (6)

$\mu_2 = 1{,}348\cdot 10^{20}\left[\frac{kg^2}{A^2s^2}\right]$ However, this is just an assumption. Therefore, it must be proven in another way. Let's look at formula (2) again. At first glance, it is clear that the formula contains . $K_0 = \frac{1}{4\pi\cdot\varepsilon_0}$ This is the first part of the formula. The second part of the formula is $\frac{l_P^2}{\mu_0 e\xi}$. If this is the same as the value of $\frac{1}{\mu_2}$, then formula (6) is also correct. The two formulas confirm each other. Let's calculate the value of the second term of formula (2).

$$\xi = \pm 1.747\cdot 10^{-25}\left[\frac{Vs^2}{m}\right]$$

$$\mu_0 = 4\pi\cdot 10^{-7}\left[\frac{A^2s^4}{kgm^3}\right]$$

$$l_p = 1.616\cdot 10^{-35}[m]$$

$$e = -1.602\cdot 10^{-19}As$$

$$\frac{l_P^2}{\mu_0 e\xi} = \frac{1}{\mu_2}$$

$$\frac{1}{\mu_2} = \frac{1{,}616^2\cdot 10^{-70}}{12{,}566\cdot 10^{-7}\cdot 1{,}602\cdot 10^{-19}\cdot 1.747\cdot 10^{-25}}$$

$$= 0{,}742\cdot 10^{-20}\left[\frac{A^2s^2}{kg^2}\right]$$

$$\mu_2 = 1{,}348\cdot 10^{20}\left[\frac{kg^2}{A^2s^2}\right]$$

The two calculations give the same result. So it is true that there is a direct connection between G and K_0. How important is $\mu_2, \sqrt{\mu_2}$ for us? Because, they connect the quantum world with the astronomical world. By proving that Newton's and Coulomb's laws are equivalent. It proves that Constantin Meis' formula is correct. It also proves that the laws of cosmology are derived from the laws of the quantum world. This confirms that the gravitational field has an electric field component. With its help, the electric field associated with gravity can be determined, the speed of the planets. The charge of the planets. Even the charge of the central mass of the Milky Way.

The value of μ_2 can be determined using data from the astronomical world and the quantum world. Detailed calculations in the article Connection Between Gravity and Quantum World [5]. Let's see how many ways we can write the speed of light and the value of G in the Solar System. The speed of light:

$$c^2 = \frac{1}{\varepsilon_0 \mu_0} \quad \text{Maxwell's equation.} \tag{1}$$

$$c^2 = \frac{K_0 4\pi}{\mu_0} \quad \text{With the help of } K_0. \tag{7}$$

$$c^2 = G \cdot \mu_2 . \frac{4\pi}{\mu_0} \quad \text{With the help of G.} \tag{8}$$

G value by calculation:

$$G = \frac{l_P^2}{4\pi\varepsilon_0\mu_0 e\xi} \tag{2}$$

$$\frac{K_0}{G} = \mu_2 \quad \rightarrow \quad G = \frac{K_0}{\mu_2} \tag{9}$$

$G = \frac{R_i v_i^2}{M_S}$ Read more What Is Hidden Behind the Gravitational Constant? (10)[5].Both the speed of light and the value of G can be given in several ways. It can be seen that the speed of light can be written using G and K_0. But it can be given using ε_0 and μ_0. Gravity has an electric field component. All of this shows that light has a carrier medium. Based on the above, this cannot be anything other than the gravitational field. Now let's look at the case where gravity is the carrier medium of light. In this case, where there is no gravity, light cannot propagate. Can there be a place in the universe where there is no gravity? That is why gravity must be examined carefully. There are many theories about gravity, as well as about other force fields. Despite this, we know very little about force fields and their formation. In most cases, we know force fields based on their effects. This is also the case with gravity. We constantly sense gravity in our everyday lives. Let's examine the known effect of gravity on Earth, which we perceive directly. Nature helps here too. Such is the tidal phenomenon. We can observe this directly. The periodic rise and fall of the water level of the seas and oceans is the tidal phenomenon. This is due to the gravitational attraction of the Earth, the Moon and, to a lesser extent, the Sun.

The result of these gravitational effects is the tidal phenomenon. The tidal phenomenon shows that gravitational effects can strengthen or weaken each other. If gravitational effects can strengthen each other, then the opposite is also true. That is, gravitational effects can also cancel each other out. We need to find an example of this in the Universe. First, let's look at a mechanical example, for the sake of easier understanding. Let's examine a regular circular disk. Let the disk be perfectly balanced. We increase the speed of this disk by means of an axis. No matter how fast the disk rotates, the central axis is not affected by any radial force from the rotating disk. Radial forces balance each other out. The disk only deviates from the plane of rotation when a force acts on it. In theory, the axis could also be removed. As a further step, let's examine a much larger rotating system. Let's see if we can find a similar model in the universe. This model is well approximated by spiral galaxies. According to the current state of science, at the center of galaxies there are supermassive black holes with masses of millions of solar masses.. The spiral arms are located in the disk surrounding it. Wikipedia [7]. The Milky Way is one of the most studied spiral galaxies. Let's examine the shape and motion of the Milky Way. When viewed from the side, the Milky Way looks like a disk (widening in the middle and flattening out at the edges). From this perspective, it appears symmetrical. The plane of symmetry that divides the Milky Way into two parts is called the major plane. If we look at the Milky Way from above, we would see arms radiating from the center and winding up in a spiral pattern. Wikipedia [8].

The Milky Way is shaped like a spinning disc. Astronomers have already proven that the Milky Way is indeed spinning. So it can be studied like a spinning disc. So it must have the properties of a spinning disc. Let's see what basic properties a spinning disc has. It is axially symmetrical. It only deviates from the plane of rotation under the influence of a force. It is balanced with respect to the central axis. The Milky Way must also have these properties. Its shape has remained unchanged for a long time. The Milky Way also rotates. It is axially symmetrical. It is moving towards the Andromeda galaxy. Despite this, its shape does not change. Therefore, its center must be balanced. The radial gravitational forces must cancel each other out. So there is a possibility that gravity is zero at the center in the plane of rotation. Therefore, the gravitational field here is partially absent, but it is absent. Thus, there is a place in the universe where there is no gravity. This shows that there are places in the universe where the medium for carrying light is missing. So black holes have properties that confirm that the gravitational field can be the medium for carrying light. That is why it will be understandable why black holes are so difficult to observe. But their radiation can also be limited. So there is not very much gravity in the vicinity of a black hole. The opposite is true, there is a partial lack of gravity. If the explanation so far for black holes were correct, then they would have devoured their surroundings more and more quickly. There may be a very large mass in the center of spiral galaxies, but there may not be. This does not affect the rotation of the spiral galaxy.

SUMMARY

Let's look at what shows that light has a carrier medium.

1. Maxwell's equation. $c^2 = \frac{1}{\varepsilon_0 \mu_0}$ (1)

   ε_0 and μ_0 are not the permittivity and permeability of the vacuum, but of the gravitational field.

2. $\varepsilon_0 \left[\frac{A^2 s^4}{kg \cdot m^3}\right]$ $\mu_0 \left[\frac{kgm}{A^2 s^2}\right]$ At first glance, both units of measurement are units of physical quantities. This also confirms that this cannot be the permittivity and permeability of the vacuum.

3. $G = \frac{l_P^2}{4\pi\varepsilon_0\mu_0 e\xi}$ based on formula (2) there is a relationship between G, K_0 and light. And G is needed to calculate the gravitational field.

4. We can write the speed of light using Maxwell's equation, G and K_0.

$$c^2 = \frac{1}{\varepsilon_0\mu_0} \quad \text{Maxwell's equation} \tag{1}$$

$$c^2 = \frac{K_0 4\pi}{\mu_0} \quad \text{With the help of } K_0 \tag{7}$$

$$c^2 = G \cdot \mu_2 . \frac{4\pi}{\mu_0} \quad \text{With the help of G} \tag{8}$$

5. There are also possibilities for the value of G by calculation that can be determined.

$$G = \frac{l_P^2}{4\pi\varepsilon_0\mu_0 e\xi} \tag{2}$$

$$\frac{K_0}{G} = \mu_2 \quad \rightarrow \quad G = \frac{K_0}{\mu_2} \tag{9}$$

$$G = \frac{R_i v_i^2}{M_S} \tag{10}$$

Formula (10) also shows that the value of G can vary. The orbital radius and speed of planets vary within very small limits, but because they move in elliptical orbits. In detail, what is hidden behind G is in the article [6].

6. The relationship between gravity and time. Gravity has another property that is worth examining. According to current scientific knowledge, time slows down in very strong gravitational fields. However, this is refuted by all timekeeping devices. There is no clock that has any part that would be affected by the passage of time. Therefore, a clock cannot measure the change in the passage of time if the gravitational field changes. This is another contradiction related to black holes. For full details, see "Can we measure time or do we live in virtual time?"[9].

CONCLUSION

1. These formulas all point in the direction that the gravitational field is the carrier medium for light.

2. The speed of light depends on the magnitude of gravity.

3. Where there is no gravity, light does not travel. Black holes do not require very high gravity to form.

4. The change in the passage of time cannot be measured by any timekeeping device.

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