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Quantum Gravitational Acceleration

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Abstract

In this study, we present the quantum gravitational acceleration. By having something in common All modern theoretical physics equations. Therefore, we can connect the theory of relativity General Einstein with quantum physics, we discuss the physics of black holes from one side and theory Information We show that it is natural to introduce the concept of black hole entropy as a metric Information about the inner parts of a black hole that cannot be accessed by Monitor outside. All equations have physical variables and variables, which express the values of certain, and these values are preserved that preserve all equations and information in theoretical physics modernity.

Keywords: quantum Gravity, Physics Equations.

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Introduction

Gravity is one of the main forces present in nature. Introduced a newton law It expresses gravity. He considered it to be the force. Then Einstein presented a frame General Theory of Relativity Gravity is a field caused by a curvature of a fabric. space-time. Since the field inhomogeneity resulting from the heterogeneous distribution of Gravity, Einstein realized that the space in which we live must be curved, and must the curvature be related to the distribution of Article [6]. And that everything in this universe is caused by the atomic particles that make up matter and are not made of anything smaller than it. in physics Energy and mass are considered one concept. It is possible to calculate the gravitational acceleration of holes black. Black holes also have an acceleration of quantum gravity and the acceleration of the inverse quantum gravity. The inverse that keeps all the information inside the black hole is the vacuum energy. And the inverse quantum gravity accelerates dark energy, the energy of the vacuum causing this to happen the inflation of the universe, which preserves all the information in our universe.

Fundamental Natural Forces

Basic Molecules of Matter

The atomic particles from which all forms of matter are made consist of two groups Quarks and leptons, the quarks and leptons are distinguished in different ways that interact with the main factors. All matter that we see in the universe is made of atoms, then protons and neutrons. Therefore, quarks are the most common The universe is the up and down quarks, two of the mentioned forces Fundamental forces (Gravity and electromagnetic) [1]. Including the electromagnetic force, the force Gravity, weak force and strong force according to the unified field theory [9]. Force pose Weakness between a positron and a neutron. A strong force is produced between a neutron or between a pair of neutrons and protons [10]. the spread force gravitational must about photon radiation and the interaction of gravity [11]. In space, the gravitational wave is propagated [11]. Van Grafton and all elementary particles. Others are one-dimensional objects, that (string theory) created the first atomic particle. that carries the gravitational force the infinite range of all atomic particles on the plane Atomic [2]. Grafton played a central role in determining the gravitational field, and is the mediator in gravitational interaction. be similar to the photon in quantum electrodynamics [8]. About the curvature events in the space-time fabric in "(Einstein's general theory of relativity) by means of a photon that carries the electromagnetic force at the atomic level." The presence of bosons as in the standard table of the elementary particles that carry the force carriers Medicine at the atomic level. As in the figure. 2 .1 .

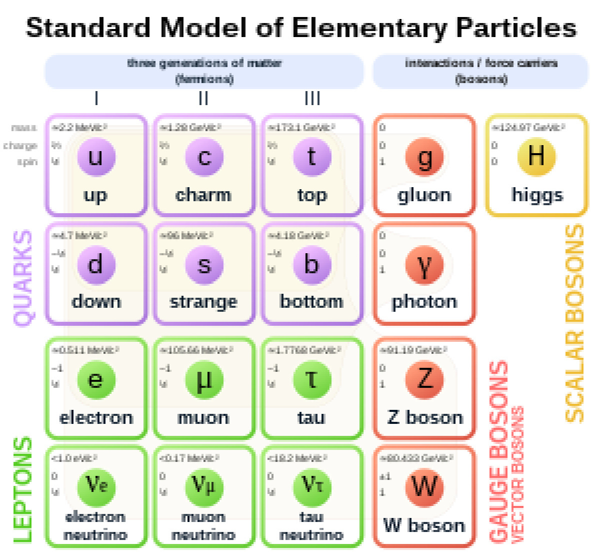


Fig. 2.1: Standard Model for Elementary Particles Poses Measured in the Fourth Column in Red Color [25]

The general theory of relativity in 1916 goes further by including an interesting Acceleration as we can see. Its main conclusion is that the force of gravity arises from deformation Space-time is surrounded by a particle of matter [3]. (As in Figure 2.2) there is an increasing recognition that The fields of measurement have a duality in gravity, and there is another indication that gravity may In fact, it is quantum mechanics in disguise. It has been proven that the power of the universe along displacement derives from gravity [12]. In addition, it is said that time and place belong to entanglement [23]. It has brought about these developments to the maximum through its effects until relativity The general public and quantum mechanics are ultimately the same [24].

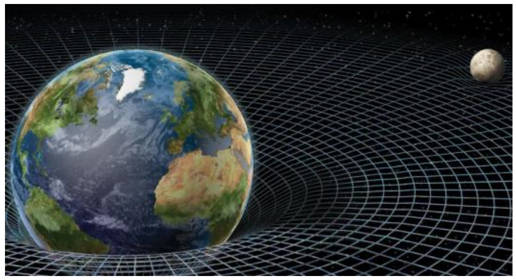


Fig. 2.2: Of the Gravitational Ratio as a Deformation of Space Because there is a Particle of Matter, Time Tells the Mass How Movement, and Mass Tells Time How to Bend [3].

Derive the Quantum Gravitational Acceleration Equation

Entropy

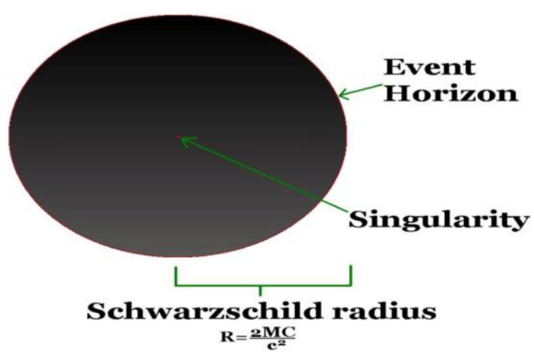
There are a number of similarities between black hole physics and thermodynamics. What is most striking is the similarity in the behavior of the black hole region and its entropy [15]. A black hole, when light enters it, will not be able to get out of it in any way. It has the property that it always increases when you put extra matter or radiation into the black hole. If Black holes are shown to collide and merge to form a single black hole. Bigger The sum of the original black hole regions. A small change in the entropy of the system is accompanied by a change relative to a change in the energy of the system and the change in the mass of the black hole to a change in the event horizon field [13]. Simplest possible solution to Einstein's field equations is the Schwarzschild radius [14]. The Schwarzchild solution, which describes the exact outer field of a spherical body, then occurs the collapse of a spherical particle will be done according to the entire geometry of space-time by a solution Schwarschild, so the Schwarzschild solution tells us more about the field behavior of the force of relativity the general. The Schwarzchild solution for the space describing the gravitational collapse approach contains a singularity The spacetime that is hidden inside a black hole [4]. Give the radius of Schwarzchild [13]. with this relation.

$$R = \frac{2MG}{C^2} \quad (3.1)$$

As is R is the radius of Schwarzchild, M mass, G The general gravitational constant, C light's speed.

Bixchtein Entropy is the amount of entrance that must be allocated to the black hole in order to obey the compliance of the laws of thermal dynamics as explained by observers with the black hole [15].

Let us take the black hole in the half of the diameter (radius) of Schwarschild [13]. as well as (3.1) in which the equation was mentioned. The radius of Schwarschild such as shape 3. 1.



Shape 3.1: Horizon of the Event, Radius of Schwarschild

So, we suppose that the photon fell into the black hole is accordance with one part of data that it will add to area horizon of the event. then give photon through its form (Blank and Einstein), according to Einstein's energy equation, energy equivalent and mass [18].

$$E=\frac{hc}{\lambda} \qquad (3.2)$$

So E is a energy, h is a Blank Constant, $\boldsymbol{\lambda}$ wave length, the change he mass of black hole when the photon fall in it.

$$\delta M = \frac{\delta E}{C^2} = \frac{h}{\lambda c} \qquad (3.3)$$

Schwarschild with the increase of the mass he supposes the wave length of the photon according the ranking of the radius of Schwarschild ($\lambda . r_s$) therefore the change will be in radius of Schwarschild [15] [16].

$$\delta r_s = \frac{2\delta MG}{c^2} = \frac{2hG}{r_s c^3} \Rightarrow r_s \delta r_s = \frac{2hG}{c^3} \qquad (3.4)$$

When the photon, which is the smallest piece of information, falls on the surface of the black hole it causes increase the area of the black hole by simple amount. (Stephen Hawking and Beckstein) [15]. agreed about the black hole. The black hole that was got by the scientists by solution of the gravitational field's equation of Einstein in the general relativity theory that appear in first time on November 25, 1916 [17]. The black hole which included the curve fabric time–place by resolution of Schwarschild such as idea of (Einstein and Schwarschild) [4]. because the general relativity theory has a part of Tμv which tells us about the amount of energy and momentum and what causes the curve in fabric of time – place and gravitational generator [5]. When the photon falls on the face of the black hole the area of the black hole will increase in limit amount.

Newton gave an equation in classical gravitation. Newtonian gravity attracts all things, with the power (F) that was given by mass (M),[7]. Newton equation was given by this relation.

$$F = \frac{GMm}{r^2} \qquad (3.5)$$

The gravitational acceleration to be by the symbol (g), gave by this relation.

$$g = \frac{GM}{r^2} \qquad (3.6)$$

As we mentioned, the amount of $r_s \, \delta r_s$ is represents the change in the event horizon area, then relationship compensation (3.4) with the equation given in this shape (3.6) We get this relation.

$$g = \frac{GM}{r^2} = \frac{GM}{\frac{2hG}{C^3}} = \frac{MC^3}{2h} \qquad (3.7)$$

In a mathematical way, we get the mass, which is with this symbol (M) and the relationship is in this way.

$$M = \frac{2hg}{C^3} \qquad (3.8)$$

The Schwarzchild equation for the radius, which is of this shape (3.1) which in the equation substitute it with the equation given in shape (3.6) we get this Relation.

$$g = \frac{GM}{r^2} = \frac{GM}{(\frac{2GM}{C^2})^2} = \frac{C^4}{4GM} \qquad (3.9)$$

If we substitute the equation given in shape (3.8) with the equation in the shape (3.9) we get this relation.

$$g = \frac{C^7}{8Ghg} \qquad (3.10)$$

If we multiply both sides of the equation (g), the relation becomes like this shape:

$$gB = \sqrt{\frac{C^7}{8Gh}} \qquad (3.11)$$

These three values are constants that can be calculated. We add the letter B near the acceleration gravity to distinguish that this acceleration is valuable. The researcher believes that the acceleration of quantum gravity for a black hole (gB) is given with this value 24859×10^{12} m/s ^{2}.

Quantum Gravity

Equation for the Quantum Gravitational Acceleration

Through previous experiments, researcher BASSAM MUWAFAQ SALMAN was able to find something Common to all physical equations, formulating the quantum gravitational acceleration equation. Walt, it keeps all the information inside the space, and that all the equations are in theoretical physics Modernity preserves quantum information. The gravitational acceleration equation can be written Quantity for the researcher, in this form.

$$gB^2 = \frac{C^7}{8Gh} \qquad (4.1)$$

Dark Energy

The emergence of general relativity Einstein in 1916 represents one of the most important fundamental discoveries for modern physics. Since then, our understanding of the universe has improved, and problems have been exposed very open. Although many astrophysical experiments have been developed in order to study the theory of general relativity. Yet our understanding of the universe is very limited so far. In current cosmology, there are two fundamental questions that give focus to theoretical physics. one of them the gravitational dark matter fluid represents the domains of large galaxies. Such as the other fundamental question of modern cosmology is the phenomenon of dark energy. Then discover this the phenomenon at the end of the last century has been revealed by two independent observational studies from (SNIa) Ia Supernovae The universe is expanding by accelerated [20] [21]. Looking at the attractive nature of gravity, the existence of the phenomenon of energy the dark is an example of a shift in theoretical physics and cosmology. Since then, then He proposed several scientific theories that could explain the dynamics of this phenomenon. and its basic characteristics [22]. To distort the geometry of the universe as if it were a matter of strong negative pressure, acting as an unordered antigravity force in all energies, is known as It contains mostly dark energy [6]. If the researcher sees, the acceleration of the inverse quantum gravity is Its dark energy, and its vacuum energy that keeps all quantum information.

Black Holes

The Bekenstein postulates that black holes are extreme entropy objects. have entropy More than anything else of the same size, in the field of radius R. Bekenstein use This situation is an upper bound on the entropy in a region of space, which is appropriately proportional to an area Region. He asserted that the entropy of a black hole is directly proportional to the region of the event horizon [24]. The increase in the surface area of the horizon has any transformation [15]. It is possible for a black hole to It absorbs molecules according to the well-known laws of general relativity [19].

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