Temporal Energy

The equivalence of inertial and gravitational masses

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Abstract

The force you feel as you accelerate otherwise known as inertia is "time" – temporal energy. As you accelerate, your mass increases and subsequently your gravitational field and the amount of time dilation you experience. Because of this your clock and the field around you exists further in the future relative to any outside non-moving clocks which are now in the past. As a result, these past clocks are attracted to you, due to the 2nd law of thermal dynamics and pull on you like a drag. Thus in this paper, we will show how and why inertial and gravitational masses are equivalent, what gravity is, and how temporal energy – "time", is the underlining mechanism which links and governs them.

Background and Introduction

For over 100 years, from Newton to Einstein, the scientific community has tried to unlock the enigma of gravity. In 1915, Einstein published his Theory of General Relativity, describing gravity as a warping in the fabric of space-time. Here we show that gravity is not caused by the warping of space-time. The paper, "Temporal Energy – The equivalence of inertial and gravitational masses" describes a new methodology in order to explain the process of exactly what gravity is. In doing so will perhaps lead to a resolution where Gravity and Quantum Mechanics can finally be reconciled. This accomplishment was achieved by taking a step back and analyzing the nature of time, which led to an undeniable conclusion about the nature of gravity.

From this moment forward we define time dilation as temporal energy and will prove our justification for doing so.

What is inertia? When you accelerate, relative to an outside observer, your mass and your gravitational field increase proportionally as a consequence of your rate of acceleration. This in turn increases your time dilation as your clock slows and you move into the future. Because of the 2nd law of thermal dynamics, all clocks must move forward from the past to the future. Thus non-moving clocks in the past, relative to your direction of acceleration, see you as the shortest path to the future – a lower state of entropy and are attracted to you from the opposite direction of acceleration. This pull is the sensation you feel as you accelerate.

When you decelerate the reverse happens. Relative to an outside observer, you acquire an increase in mass, your gravitational field and your time dilation increase proportionally to your rate of deceleration. Which again causes all outside stationary clocks to see you as the shortest path to the future and become drawn to you and pull on you in the opposite direction of deceleration.

This is inertia, it is a rising gradient of temporal energy, caused by an accelerating mass attracting outside stationary clocks in the past as its clock moves into the future.

However, what is gravity? In the Earth-Moon system. Each body exists at a different location in time relative to one another due to the different magnitudes of their individual gravitational fields caused by their mass. They each experience a different amount of time dilation which can be thought of as a position in time relative to one another. Because of Earth's stronger gravity, it exists at a position in time that is further in the future relative to that of the Moon's position in time. As such the Moon, further in the past, is drawn to the future here at Earth's surface in order to reach a lower state of entropy.

This is gravity. It is two bodies of mass that are in different positions in time relative to one another due to the amount of temporal energy they each possess, which is proportional to the amount of mass they each contain in a given volume. The two masses are drawn to one another to satisfy the 2nd law of thermal dynamics.

This is the same mechanism that is responsible for inertia and is the reason why inertial and gravitational masses are equivalent. Both are caused by the attraction of bodies possessing temporal energy, driven by the arrow of time to reach a lower state of entropy.

To be stated more accurately. The Moon is not just drawn to the Earth. The Earth is also drawn to the moon, and the point in time and space where they would intersect in a collision is the temporal nexus of the system. This is the point where all bodies of any given amount of temporal energy are attracted to in a gravitational system. However, this temporal nexus is always closest to the object with the greatest mass.

In Fig 1. Black holes with high magnitudes of temporal energy are depicted in space. Blue regions represent the future and red regions represent the past. As with any massive object, clocks point in the direction of black holes as they are extreme regions of high temporal energy and future time.
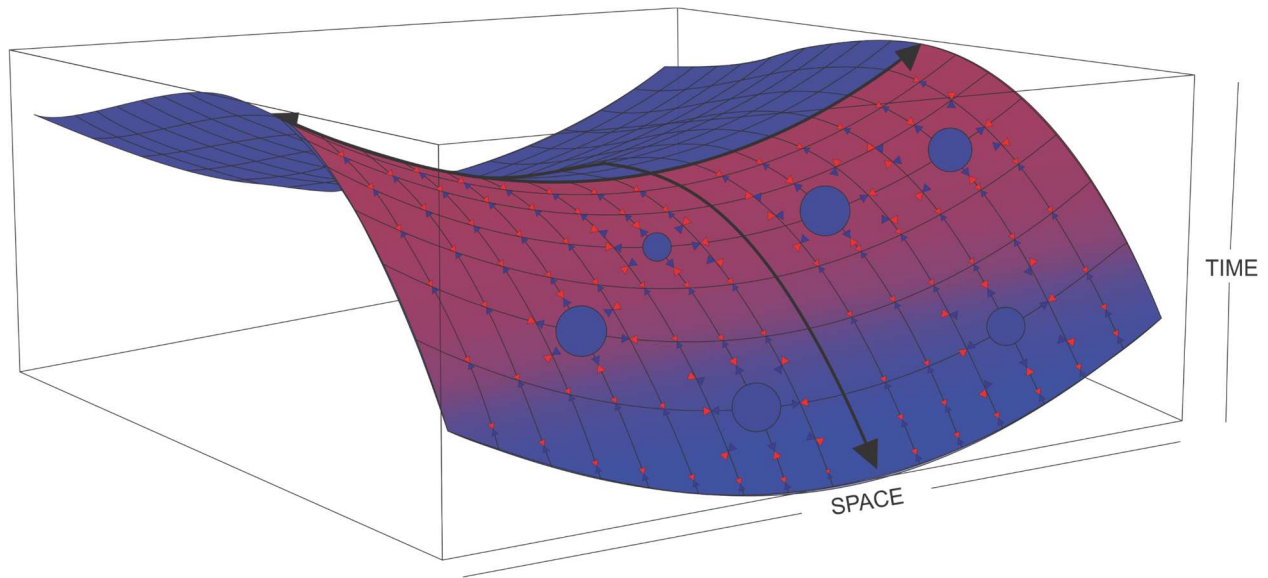
Fig .1 Clocks are attracted to the high magnitude of temporal energy of black holes which reside in the future.

To measure temporal energy and the amount of attraction it causes between two objects, we need to find the value of an objects temporal energy relative to the temporal energy value of another object. No matter how far apart the objects are in space and time.

To find this value we need to find a common point in space and time that is the same in all reference frames. A common lighthouse. For this, we use the Big Bang. By measuring the magnitude of time dilation/temporal energy of an object, we can determine its distance relative to the Big Bang and hence its absolute position in time.

To calculate the temporal energy value for an object we use the following constant. The stronger a gravitational field is – the greater the time dilation/temporal energy. And the greater the time dilation/temporal energy – the further in the future that region is relative to any clocks outside of that field. Thus by measuring the strength of the gravitational field as a function of the escape velocity of the speed of light gives us a direct correlation with y (gamma) – The Lorentz Factor.

Thus by measuring the acceleration of an object or the equivalent acceleration needed for an object to escape a gravitational field as a function of the speed of light. We can determine an object's time dilation and its subsequent temporal energy, which corresponds to its absolute position in time relative to that of the Big Bang and we denote this constant R0 (r- naught). Fig 2.
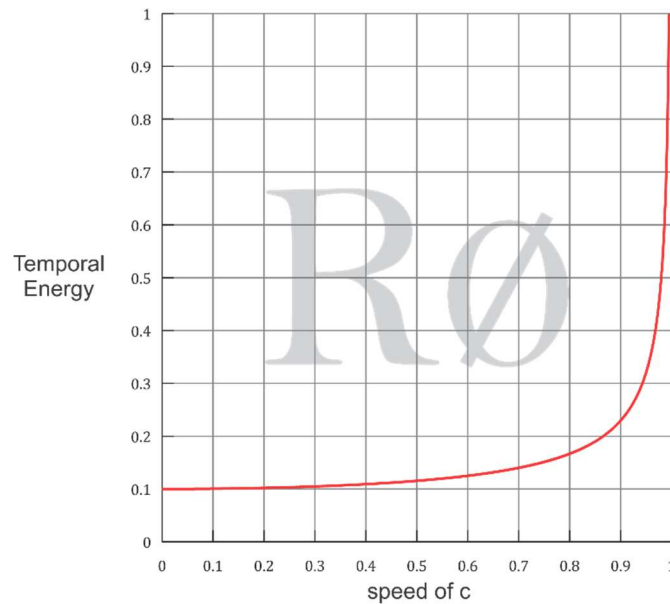
Fig .2 R0 (r-naught)

$$R\emptyset = 1 - \sqrt{1 - \frac{v^2}{c^2}}$$

Where

v = velocity from 0.0 -1.0 of c

c = 1 the speed of light

R0 = amount of temporal energy measured as 0.0 – 1.0 (1.0 = temporal energy of a black hole)

The closer an object's R0 is to 1, the higher its temporal energy and its subsequent time dilation. As mass and time are intrinsically woven together and cannot exist without one another. We write the equation for mass incorporating temporal energy in the following term. This equation explains how mass increases proportionally to R0 which is proportional to acceleration. Given E=mc^2, R0 is energy contained in mass

$$m = \frac{\left(\sqrt{2R\emptyset - R\emptyset^2} \cdot c\right)^2 r}{2G}$$

Where

R0 = amount of temporal energy measured as 0.0 – 1.0 (1.0 = temporal energy of a black hole)

c = 299792458 speed of light in meters

r = radius of object in meters

G = gravitational constant

m = amount of mass in kg

Thus we have conclusively shown how and why inertia and gravitational masses are equivalent, what gravity is and that "time" is the underlining mechanism responsible for each phenomena.

The following are conclusions of this theory.

1. Inertia and gravity is the attraction of time between two objects. All clocks in "the past" are drawn to "the future".

2. Time itself has/is energy – temporal energy. It is intrinsically apart of mass and is what gives mass energy as it is accelerated or accumulated in a volume of space.

3. If antimatter does have reverse time symmetry and travels backward in time. Then "neutral" antimatter should fall up in a gravitational field as it races away from the future into the past.

4. Gravitational lensing and tidal force are caused by clocks being drawn to a common future. Not by the curvature of space-time.

5. Anything with the same temporal energy has the same clock and exists at the same "now" no matter where they each are in the universe.

6. Space and time are not woven into a single 1 to 1 fabric of space-time. An object can be at a given distance away spatially but exist at a different location temporally. For example, if the sun was converted into a black hole. Spatially it would be 149 billion meters away. However temporally the black hole would exist in the far – far future. Thus space and time are not woven into a single fabric. Time has a separate coordinate system from that of space. It is actually mass and time that are woven together.

7. Gravitational acceleration of an object is the rate at which the object falls through time which is proportional to R_0. On Earth, that rate is 9.807 m/s^2

To find the R0 of Earth we convert its escape velocity to a percentage of c.

Which gives us 11186 / 299792458 = .0000373125 % of c, we then input this value in our equation for R0.

$$.0000000007 = 1 - \sqrt{1 - \frac{.0000373125^2}{1^2}}$$

Given Earth's R0 we can calculate its mass in kg

$$6.006*10\text{^}24 = \frac{\left(\sqrt{2_{.0000000007} - .0000000007^2} \cdot c\right)^2 6.371*10\text{^}6}{2G}$$

To find the R0 of a neutron star we again convert its escape velocity to a percentage of c.

Which gives us 125000000 / 299792458 = .416955119 % of c, we then input this value in our equation for R0.

$$0.0910729244 = 1 - \sqrt{1 - \frac{.416955119^2}{1^2}}$$

Given the Neutron Star's R0 and a radius of 10 km we can calculate its mass in kg

$$1.170*10\text{^}30 = \frac{\left(\sqrt{2_{.0910729244} - .0910729244^2} \cdot c\right)^2 10000}{2G}$$