IJSCIA
International Journal of Scientific Advances
ISSN: 2708-7972
Volume: 7 | Issue: 3 | May – Jun 2026 Available Online: www.ijscia.com
DOI: 10.51542/ijscia.v7i3.3

Equivalence Principle of Temporal Travel to The Future

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ABSTRACT

Here presented is an idea of travel to the future. By exploiting the nature of electromagnetic field mass (when it has been shown in experiments that light has a gravitational field), if one increases the gravitational field, the time dilation of electromagnetic field mass, to be equal to an acceleration near light speed, this time dilation would transport the crew into the future. One would have the crew in the centre of mass of the electromagnetic field mass, which has the absence of gravity; the crew would not be overwhelmed by the intense gravity, and the spacecraft would be shielded from the intense electromagnetic field with a Faraday cage. The large amounts of energy (as scientists have managed to extract vacuum energy in experiments) can come from the vacuum; in the future, it would reach the energy requirements. Also combined with this idea of time travel into the future is the idea where advanced energy is fed into a capacitor, where the mass shift of the capacitor is propagated into the past. So, here presented then, is an idea of travelling into the past and future.

Keywords: electromagnetic field mass; gravity; temporal travel

INTRODUCTION

Here presented is an idea of temporal travel to the future and travel into the past. It's known that travel through space near light speed, time dilation would be so great that the crew of such a spacecraft would travel into the future. This is identical to the time dilation of gravitational acceleration of a massive body. It is known that electromagnetic fields have mass, and that light has gravitational fields, and that electromagnetic field mass would have a gravitational field. If one increased the electromagnetic field mass, time dilation would increase (slowing of time), so that the crew of such a spacecraft would be transported into the future.

To avoid the overwhelming effects of gravity, the crew would be situated in the centre of mass of the electromagnetic field mass, where there would be no gravity experienced. Also, the spacecraft would be made to act like a Faraday cage, shielding the crew from the intense electromagnetic field. Scientists in a number of experiments [7][8] have found that they can extract energy from the vacuum. It's known that huge amounts of energy of the vacuum $10^{94} grams/cm^3$ energy normally self-cancels. But by extracting energy by borrowing the vacuum energy, and not paying it back (Heisenberg's uncertainty relation) as these scientists had done, (in the future) larger amounts of energy could be taken from the vacuum, to create such intense gravity for electromagnetic field mass.

Combined to this idea, in a paper I wrote [1] 'Notes: The possibility of mass shift into the past', where advanced waves being sent into a capacitor, might cause mass shift into the past of the capacitor, as advanced waves travel into the past, buy such means, the spacecraft can travel home, by travelling back into their past (or present).

TEMPORAL TRAVEL TO THE FUTURE

In a previous paper [1] 'Notes: The possibility of mass shift into the past', where in that paper I considered the work of two scientists, Darko Bajlo who first detected advanced waves in a set of experiments on 3rd December 2016 to 5th January 2017 and Takaaki Musha experiments on 1st February until 1st March in 1996, who got weight reduction of a capacitor by feeding into it an electromagnetic field. From both their works, I see the possibility of an experiment of combining both experiments to send advanced waves into a capacitor to see if the mass shift of the capacitor is shifted into the past [2][3][4]. But in all of this, there is no suggestion of how one would get back to one's own present time, which would require travel into the future.

It is known in relativity that for observers travelling close to the speed of light, time dilation becomes significant, so that an observer would travel into the future, because for that observer, time would be slowed, as in Einstein's twin paradox. One gets identical effects with inertia and gravity, which are equivalent (gravitational fields, which is acceleration is identical to the acceleration of inertia, as both are considered gravitational). So instead of travelling at high speed through space, one creates a strong gravitational field (which is acceleration) and travels through time, because time dilation in gravitational fields would be a form of time travel into the future, or temporal motion through time.

One way to create strong gravitational fields is to exploit the fact that there is such a thing as the mass of the electromagnetic field. In a paper [5] by Charles T. Sebens, 'The mass of the gravitational field'. He says on pages 4 and 5, 'The mass of the electromagnetic field: According to mass-energy equivalence, if something has energy ε, it has mass ε/c^2. The electromagnetic field thus possesses a mass proportional to its energy. Upon first encountering the idea that the electromagnetic field has mass, one might think that this must be a very different sort of mass than the mass of an ordinary material body. It is not. The mass of the electromagnetic field plays all three of the above roles. In this section, I explain how it does so. Before we start on all of that, let me pause to preempt a potential confusion. When particle physicists discuss the 'mass' of a given field, they are usually talking about a certain quantity which appears in the dynamical equations for the field and corresponds to the proper mass of the particle associated with that field. In this sense, the electromagnetic field is massless because the photon has no proper mass. That is not the sense of field 'mass' which I am examining here. When I talk about the mass of a field, I am talking about the relativistic mass of the field, proportional to the field's energy. Even though the photon has no proper mass, the electromagnetic field still has a relativistic mass density equal to its energy density divided by c^2.

It has also been shown that light has gravitational fields, and it's known that light is all the electromagnetic spectrum, as shown in the paper, on experiments [6]' On the gravitational field produced by light', by Richard C. Tolman, Paul Ehrenfest and Boris Podolsky, in 1931. They say in their abstract: Expressions are obtained, in accordance with Einstein's approximate solution of the equations of general relativity valid in weak fields, for the effect of steady pencils and passing pulses of light on the line element in their neighbourhood. The gravitational fields implied by these line elements are then studied by examining the velocity of test rays of light and the acceleration of test particles in such fields. Test rays moving parallel to the pencil or pulse do so with uniform unit velocity, the same as that in the pencil or pulse itself. Test rays moving in other directions experience a gravitational action. A test particle placed at a point equally distant from the two ends of a pencil experiences no acceleration parallel to the pencil, but is accelerated towards the pencil by *twice* the amount which would be calculated from a simple application of the Newtonian theory. The result is satisfactory from the point of view of the conservation of momentum. A test particle placed at a point equally distant from the two ends of the track of a pulse experiences no net integrated acceleration parallel to the track, but experiences a net acceleration towards the track, which is satisfactory from the point of view of the conservation of momentum.

This proves that electromagnetic field mass has a gravitational field. Because electromagnetic field mass has a gravitational field, one could manipulate the electromagnetic field mass to increase the gravitational field to a gravitational acceleration close to the speed of light, where time dilation (slowing of time) is so intense that observers in a craft that produces such fields would temporally propagate into the future.

But such intense gravitational fields produced would attract any nearby objects to itself, and one would not want the gravitational field to be so intense that it becomes a black hole. Such energies required for this seem beyond our technology (I will come back to this point later), for the gravitational field to have any realistic time dilation into the future by electromagnetic field mass, it has to be a mass far stronger than that of the Earth. Even if this could be done, it would have to be done outside the solar system, far away from objects and other bodies.

Such strong gravity might be overwhelming the spacecraft. But the centre of mass of the electromagnetic field mass could be a place where the crew and spacecraft avoid the crushing gravity. At first sight, all this seems beyond present technology, and also the intense electromagnetic fields would be so strong that it might not be healthy for the crew. One way around this is if the spacecraft could act like a Faraday cage and protect the crew from the intense electromagnetic fields. So, we have found that placing the crew and spacecraft in the centre of mass avoids the overwhelming effects of gravity, because in the centre of mass, there is no gravitational field, as in the Earth's centre. And that by making the spacecraft operate as a Faraday cage, it can protect the crew from the intense electromagnetic fields.

It turns out that the centre of mass of a gravitational field experiences significant time dilation, say at the centre of the Earth (one would be floating), time runs slowly. The centre is the low point of gravitational potential, will not of local gravitational acceleration, which is zero at the centre. Even though net gravity is zero at the centre, the surrounding mass still creates a strong gravitational potential, causing time dilation.

Theoretically, if the gravitational acceleration of the gravitational field of the electromagnetic field mass is at the speed of light, time would stand still, would stop, would not exist, as it is for light that does not experience time. The crew would travel to the distant future in an instant.

But all this requires a lot of energy, and there is a way of getting such energy. In two papers [7] 'Casimir-cavity-induced conductance charges', and [8]'Optical-cavity-induced current'. Where scientists prove that they can extract energy from the vacuum. They do this by using a Casimir-cavity photoinjector to borrow energy from the vacuum and do not pay it back (according to Heisenberg's uncertainty relation, energy is paid back as soon as it appears in the vacuum; here, they take it and don't pay it back).

They say in their Abstract [7]: The differential conductance of metal-insulator-metal devices increases when they are joined with Casimir cavities. An imbalance in the injection of hot charge carriers from each side of the insulator is increased with thinner cavities that suppress more quantum vacuum modes. The result is an observed increase in conductance. Additional conductance changes, with insulator thickness and other device parameters, are consistent with an imbalance-induced injection of hot carriers. In addition to the conductance changes, we observe anomalous offsets in the current and voltage. We interpret the conductance changes in terms of a $\Delta E \Delta t$ uncertainty-principle-like limit to the injection of hot carriers from zero-point fluctuations.

They got as much energy from the ZPF vacuum as a single solar cell. They considered that if one could extract vacuum energy as much as the volume of a light bulb, it would boil all of the Oceans of Earth many times over. Vacuum energy is $10^{94} grams/cm^3$. This is a lot of energy; it usually self-cancels. As we know, energy is equivalent to mass $m = E/c^2$. The electromagnetic field mass of $10^{94} grams/cm^3$ would create a black hole. One would not need all this energy, but enough to get a gravitational electromagnetic field mass under the gravitational acceleration of the speed of light for time dilation, to time travel into the future.

It's a question of time if in the future they can get enough vacuum energy to create a strong enough gravitational field mass to make time dilation possible in the future. If they can, in the future, you would then have enough energy from the vacuum to solve all the world's energy problems, cars with unlimited energy, no pollution of Earth or the environment, and spacecraft that need no payload.

I realised I could combine my mass-shift into the past idea, using advanced energy, with the above, as one would be getting huge amounts of vacuum energy converted into intense advanced fields into the capacitor material in a spacecraft, it can go back into the past, from the future. So, one has a form of time travel into the future and into the past, and gets back to where one started.

CONCLUSION

Creating artificial gravitational fields by manipulating electromagnetic field mass could create time dilation to such a degree that time travel to the future would be possible. Also presented is the use of producing advanced waves, of mass-shift into the past, whereby the crew could return to their own time.

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