

Mass Shift, Coupled to Electromagnetic Field Mass, and Temporal Superposition

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ABSTRACT

In this paper I consider two ideas of time travel, which is highly speculative, that gravity might diverge backward in time (and therefore having a speed in excess of light), and having negative potential energy, while all ordinary bodies have positive mass. As we move forward in time, we experience gravity as a converging force. If the mass of a body were engineered to diverge backwards in time with gravity, one would have a form of time travel. One considers the electromagnetic field mass as having a gravitational field, whereby if one could mass shift mass of and capacitor, one would experience a gravitational field that might diverge backwards in time. The 2nd idea of time travel regards quantum superposition of particles, being everywhere in space. I consider temporal superposition of particles anywhere in time, that if quantum superposition can be done with larger objects in the future, such objects could be teleported anywhere in time, e.g. the past.

Keywords: electromagnetic field mass; superposition; mass shift; diverging backwards in time

INTRODUCTION

Here I present two new ideas on time travel, in part one, I comment upon a paper [1] 'Retrocausality experiments and theory', by Antonella Vannini and Ulisse Di Corpo, where their view is presented that gravity diverges backwards in time, and that then it would be faster than light. From observations of time gravity from the Sun to the Earth is instant propagation, that gravity is faster than light. I also mention a paper [4] by Yin Zhu, where he shows that if gravity were to travel at the speed of light, across the galaxy, the galaxy would be unstable and not be the shape of a spiral, because gravity would not have time to reach the end of the galaxy in time. Which is contradicted by observation.

I introduce the idea here that if one could engineer the mass of a body to also diverge backwards in time with the gravitational field of the Earth, one would then have a form of time travel. The problem here is that the mass of a body is positive, and that gravitational potential energy presented by Newton is negative energy. I present different papers on experiments of manipulating mass [5][6][7][8][9]. [5][6] is on experimental evidence of electromagnetic inertia manipulation thrusting. In [8] Takaaki Musha Honda experiment, where electromagnetic energy is fed into a capacitor that loses weight by 3% .i.e. mass shift. I point out that these experiments point in the right direction to manipulate mass in the above ideas I present, of getting mass to diverge backwards in time.

I then go into a long discussion on a paper [11], 'The mass of the gravitational field', and consider ideas of electromagnetic field mass, where it is argued that electromagnetic fields have mass and gravity and

therefore, gravity can be manipulated, and I present experimental proof in a paper [12] that light has a gravitational field. I then present the idea that if one did Takaaki Musha's Honda experiment [8] of a mass shift of a capacitor by feeding into it electromagnetic energy, the electromagnetic field mass would be coupled with the mass shift, say of 100%, of the capacitor, and as this electromagnetic energy will have a field mass and a gravitational field, that the mass of the capacitor might diverge backwards in time, according to the speculations here that gravity might diverge backwards in time?

I then go into some detail about the centre of mass of the electromagnetic field, and how this can be manipulated to be coupled with the capacitor, where energy can be transported from one place to another. Then in part two, I present my second idea on time travel from the paper [16], 'Quantum mechanics and travel to the stars' by Christopher MacLeod, where he outlines the quantum superposition of large objects in the future, to teleport anywhere in the universe, and presents the idea of space travel. Because in quantum superposition the particle is everywhere in space before the collapse of the wave function. I take these ideas and argue that with quantum superposition a particle can also be anywhere in time. That in the future if they can get superposition of larger objects, that such an object could be teleported through time, say into the past?

This being my 2nd idea of time travel, and I present experimental evidence that scientists have created quantum states in large objects. Then at the end, I present considerations that EM fields in the near-field being superluminal, would have electromagnetic field mass, that this field mass or gravity of EM fields in the

near-field would be superluminal and might have future technological possibilities, such as space travel. I present a paper by Walker [20] where from his experiment, Walker proves that EM fields in the near-field of a transmitter can be superluminal.

PART ONE: Mass shift, coupled to electromagnetic field mass.

Here I present 2 new ideas on time travel, the first is in regard to the notion that gravity might diverge backwards in time, which is presented in a paper [1] 'Retrocausality experiments and theory', by Antonella Vannini and Ulisse Di Corpa. The other idea on time travel on quantum superposition of particles teleported into the past.

In the first idea [1], they say in their paper, that there are two types of energy, negative time energy which manifests as converging energy, that is that it propagates into the past (i.e. negative energy), and positive time energy, that manifests as diverging energy. Gravity is a converging energy, and also in experiments by Bajlo [2], who first detected advanced waves, that propagate into the past and is a converging energy, converging from infinity to a point of emission from the transmitter. As Bajlo explains [3] this is due to the fact that due to the forward flow of time energy and thermodynamics, has the effect on our time direction to converge from the past to the present, where the effect occurs before the cause. Bajlo argues in his paper [3] that advanced waves are really outgoing waves propagating into the past and the effect of converging arises because of our thermodynamic direction of energy. The same effect can be applied to gravity, that gravity would be a converging force but is really outgoing into the past.

They say further in their paper, 'We continually experience gravity, but we cannot see it. According to the dual time energy solution:

$$E^2 = m^2 c^4 + p^2 c^2$$

Where the total energy (E) is the result of the sum of the momentum (p) and mass (m), multiplied by the speed of light (c). Being a second-order equation, it is necessary to operate a square root which produces always two solutions, one positive and one negative. This simple property of square roots implies that the solution of energy is always dual: Positive ($+E$) and negative ($-E$). According to Einstein's special relativity:

- The positive energy solution ($+E$) describes energy which diverges from causes located in the past and which propagates towards the future (retarded potentials);
- The negative energy solution ($-E$) describes the energy that diverges from causes located in the future and which propagates backwards in time from the future towards the past (advanced potentials).

Gravity is a force that diverges backwards in time and for us moving forward in time, is a converging force. The fact that gravity is invisible is known to all, but that it diverges from the future is known to few. In their paper, [1] Antonella Vannini and Ulisse Di Corpa comment on the above statement: can we prove it. Yes, and it's quite simple. If gravity propagates from the future its speed must exceed that of light. Tom van Flandern, an American Astronomer specializing in celestial mechanics, developed a series of procedures to measure the speed of gravity propagation.

In the case of light, which has a constant speed of about 300,000 km per second, we observe the phenomenon of aberration. Sunlight takes about 500 seconds to reach the earth. So, when it arrives, we see the Sun in the sky position it occupied 500 seconds before. This difference is equivalent to about 20 seconds of arc, a large amount for Astronomers. Sunlight strikes the Earth from a slightly shifted angle and this shift is called aberration. If the speed of gravity propagation were limited, one would expect to observe aberration in gravity measurements. Gravity should be maximum in the position occupied by the Sun when gravity left the Sun. Instead, observations indicate that there is no detectable delay in the propagation of gravity from the Sun to the Earth. The direction of the gravitational attraction of the Sun is exactly towards the position in which the Sun is, not towards a previous position, and this shows that the speed of propagation of gravity is infinite. Instant propagation of gravity can only be explained if we accept that gravity is a force that diverges backwards in time.

There is a paper by Yin Yhu [4], 'The speed of gravity: And observation on galaxy motions'. In his abstract, he states: The radius of a spiral galaxy is usually 5×10^4 light years. The stars, planets and other mass are orbiting around the centre of the galaxy. If the speed of gravity was equal to the speed of light, the star at the distance of 5×10^4 light years from the centre only could orbit the centre at the time 5×10^4 years ago. It should result in that a galaxy is not in the form of a disc. usually, a galaxy is older than 1×10^{10} years. At this time, a galaxy should become a strip larger than 5×10^6 light years. It is contradicted by observation.

I also came independently to a similar viewpoint. One might argue that this notion of gravity diverging backwards in time, as a converging force is purely Newtonian, and does not apply correctly, and that Einstein's General Theory of Relativity is a more correct view. If gravity diverges backwards in time, one could argue that this concept applied to General Relativity implies that the curvature of spacetime propagates from the future into the past.

But you may be thinking, what has all this got to do with time travel? It occurred to me, that if gravity propagates backward in time, the mass of an object under gravity does not diverge backwards in time, if one could engineer the mass of an object to also

diverge backwards in time, in the gravitational field, then one might have a form of time travel, that the mass of an object might propagate into the past.

When regarding temporal motion through time, perhaps we should not take for granted ordinary motion through space, although it seems obvious and trivial, but is it trivial. What distinguishes motion through space, and motion through time is their dimensions, and what also distinguishes motion through space and motion through time is energy. And negative energy goes backward in time. Perhaps then one needs to consider the nature of motion through space in regard to the nature of motion through time, and not take things for granted, because then were considering the nature of a dimension and of energy, and this is true of motion through hyperspace.

Because usually, we tend to take these concepts for granted and as obvious as if we know what we are talking about. Einstein in his Theory of Special Relativity questioned and considered the nature of motion and the nature of light and in quantum physics the nature of motion of a particle is considered, questioned and not taken for granted, especially in non-local phenomena that are faster than light.

All energy corresponds to inertial mass and all inertial mass corresponds to gravitational mass. The gravitational mass of a closed system must therefore be determined by its energy. The energy of its gravitational field also belongs to the energy of a closed system, hence the gravitational field energy itself contributes to the systems gravitational mass, so that all gravitational fields are also forms of motion or acceleration. So, when a body accelerates through space its gravitational inertial field moves temporally into the past, is equivalent to a determination of all its energy. Therefore, accelerated motion and energy through space, being an increase in its temporal inertial field backwards in time, is an effect of energy in motion through space.

This makes the nature of motion through space or acceleration a fundamental principle of gravitational fields, as inertial fields are gravitational fields, diverging backwards in time. But the energy determining the gravitational field dose diverge backwards in time.

If the mass of a body could be engineered to also diverge backwards in time along with the gravitational field, we would have a form of time travel. One is led to the above ideas if gravity really dose diverge backwards in time.

It is known that regarding March's principle that $\frac{GM}{Rc^2} = 1$ or $\frac{1}{G} = \frac{M}{Rc^2}$. Since R is a function of time, it would seem to follow that G should also be a function of time. If G is a function of time one can apply it to the equation.

$$m = \frac{\Gamma c^3}{G}$$

Making G the subject

$$G = \frac{\Gamma c^3}{m}$$

If G is a function of time one can replace G with t in the expression:

$$t = \frac{\Gamma c^3}{m}$$

If G diverges backward in time, one may write:

$$\frac{\Gamma c^3}{m} = t > 0$$

or

$$G = \frac{\Gamma c^3}{m} = t > 0$$

For engineering or the manipulation of mass to also diverge backward in time, along with the gravitational field there are two papers based on the manipulation of inertia by electromagnetic fields by Hector H. Brito [5]. They say in their abstract:

New experimental results suggesting that "propellantless" propulsion without external assistance is being achieved by means of electromagnetic (EM) inertia manipulation are discussed here and compared with previous work along the same line of research. The underlying theory, based on Minkowski's Energy-Momentum tensor for describing field-matter interactions, together with an alternative mass tensor formulation, both justifying that the inertial properties of the field-generating device can be modified, are revisited. Former tests of an electromagnetic inertia manipulation thruster, engineered up to the "proof of concept" level, having yielded increasingly sharper and clearer evidence of alternate, then sustained thrusting are briefly discussed. Recent testing activities, where increased power, improved power processing strategy and optimal use of the sensing device sensitivity were applied, resulted in a direct thrust signal, as observable in time domain plots. These results, on the basis of a reassessment of uncertainties, are shown to be consistent with an alternative formulation of Minkowski's EM force density, which correctly predicts former peer-reviewed experimental results. They remain meanwhile controversial since the system momentum is not conserved. A conjectural approach based on the mass tensor concept allows for a tentative explanation, its predictions showing a complete agreement with the new experimental data.

They also published another paper on this work [6] Hector H. Brito and Sergio A. Elaskar. And in a paper by me, [7] from the work in the above papers [5][6] by using advanced waves, manipulation of inertia by advanced electromagnetic fields. This might be in the right direction for manipulating mass and inertia and gravitational fields, (as inertia is gravitational). So how to manipulate the mass of an object to follow the negative gravitational potential energy field into the past (as the potential energy of a gravitational field is regarded as negative energy).

Takaaki Musha Honda's experiment got a mass shift of 3% of a capacitor [8]. In the abstract, it says, that the research group of the HONDA R&D Institute observed a weight reduction by applying an alternating electric field to a capacitor. This phenomenon, which is called the "dynamical Biefeld-Brown effect", cannot be explained within the framework of conventional physics. From the standpoint of the ZPF field, the author tries to explain this phenomenon as an interaction between the vacuum electromagnetic field and the high-potential electric field. From this I wrote my paper [9] 'Notes: The possibility of mass shift into the past, by feeding advanced waves into a capacitor, to see if the mass of the capacitor is shifted into the past, where advanced waves were discovered by Darko Bajlo.

The above experiments, manipulation of inertia, and mass shift of a capacitor seem to be in the right direction for manipulating mass to diverge backward in time with the direction of the gravitational field. But surely doing this we might have negative mass? As gravitational potential energy is negative. There are two experiments where created particles with negative mass [10] by M. Wurdack, T. Yun, M. Katzer, A. G. Truscott, A. Knorr, M. Selig, E. A. Ostrous Kaya, and E. Estrecho. They found that the negative mass particles accelerated against an applied force in the opposite direction of the force, which agrees with theoretical predictions. We are considering engineering the mass of an object under a gravitational field to follow the direction of the negative potential energy of the gravitational field that supposedly diverges backward in time. There is no evidence from the experiments of negative mass particles propagating backwards in time (or perhaps they did not detect such an effect).

Gravitational field energy itself contributes to the system's gravitational mass, but why does the mass also not diverge backwards in time? One answer to this is that the mass moves forward in time, and the gravitational field energy moves backward in time, and for this reason, the mass experiences a converging force we call gravity. Advanced waves also converge to a point from infinity as has been experimentally detected by Bajlo [2][3].

Now I will consider work from a paper [11] by Charles T. Sebens, 'The mass of the gravitational field', and will consider the mass of the electromagnetic field. In examining this paper one will be looking for clues of how mass might be engineered to diverge backwards in time, like the gravitational field does.

Charles T. Sebens, says in his paper, by mass-energy equivalence $m = E/c^2$ the gravitational field has a relativistic mass density proportional to its energy density. In Newtonian gravity, one does not need to attribute any mass to the gravitational field, to ensure the conservation of mass. However, one does need to attribute negative energy to the gravitational field in order to ensure the conservation of energy. Interesting that Newtonian gravity one attributes negative energy to the gravitational field.

If the gravitational field has a relativistic mass density, proportional to its negative energy density, the relativistic mass density of the gravitational field might diverge backwards in time.

What is the concept of a field? How does it have mass, can its direction into the past as a field mass, take the mass of a body with it? It's said further in the paper, that one describes the flow of energy, the mass of the gravitational field plays the conservational role. It also plays an inertial role in a similar way to the mass of fields in other theories. The mass of the gravitational field appears to play the gravitational role, though it is difficult to say how it does so, as this seems to depend on the way Einstein's field equations are written.

It says further in the paper, first there has been much discussion about how to properly understand mass-energy equivalence by $m = E/c^2$. Material bodies clearly possess mass, and by mass-energy equivalence, also possess an energy that is proportional to their mass. Fields clearly possess energy and by mass-energy equivalence, also possess a mass that is proportional to their energy. In General Relativity the mass of the electromagnetic field acts as a source of gravitation in just the same way that the mass of matter does. In fact, the electromagnetic field is considered to be "matter", in the broad way the term is often used in the context of General Relativity.

If the electromagnetic field is considered to be "matter" in General Relativity, one could manipulate it, one can't generate gravitational fields artificially, but one could generate gravitational fields by manipulating electromagnetic fields as a source of gravitation, just the same way that mass of matter does and manipulate the mass of an object to diverge backward in time.

Remember Takaaki Musha Honda experiment [8] of 3% mass shift or weight loss of a capacitor. And other papers [5][6] in experiments that manipulate inertia by electromagnetic fields to create a force of acceleration. All the experiments and papers [8][9][5][6] are ways to manipulate mass and inertia, are in the right direction if one wants to manipulate the mass of a body to diverge backwards in time if of course, it does diverge backwards in time?

Finally, Charles T. Sebens says in his paper: According to mass-energy equivalence, if something has energy E it has mass $m = E/c^2$. 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. Let me pause to preempt a potential confusion. When particle physicists discuss the 'mass' of a given field, they are unusually talking about a certain quantity that appears in the dynamical equation 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 .

So electromagnetic fields also possess mass or a gravitational field, that might also diverge backwards in time, as gravity does, and one can manipulate electromagnetic field mass or gravity. And it has been proved experimentally that light has a gravitational field [12] in a paper by Richard C. Tolman, Paul Ehrenfest and Boris Podolsky, 'On the gravitational field produced by light'. This experiment was done in 1931, I am surprised no one has explored the nature of gravity in electromagnetic fields and light in experiments. 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 neighborhood. 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 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 Light has gravitational fields, if one could couple the gravitational mass of the electromagnetic field to that of a capacitor, that has had a mass shift (weight loss) as in Takaaki Musha's Honda experiment [8], then that mass shift might be full of negative potential gravitational energy and diverge backwards in time. Such an experiment might be done? This amounts to a form of time travel. For coupling the gravitational mass of the electromagnetic field centred in the capacitor by the centre of mass energy of the electromagnetic field, maybe a way of achieving this? Because the electromagnetic field mass must have a centre of mass.

CENTRE OF MASS

In physics the centre of mass of a distribution of mass in space (balance point) is the unique point at any given time where the weighted relative position, of

the distributed mass sums to zero. This is the point to which a force may be applied to cause a linear acceleration (the same with electromagnetic field mass) without angular acceleration, Centre of mass of an object may be assumed to be concentrated to visualise its motion. The centre of mass is the particle equivalent of a given object for acceleration of Newton's laws of motion. From this can one then accelerate electromagnetic field mass?

The centre of mass may be located outside the physical body of an object. the centre of mass of an electromagnetic field is the centre of energy of its field configuration. The electromagnetic field on train tracks can move train carriages of several tons, so maybe one can get sufficiently strong electromagnetic fields to move an object or diverge backwards in time.

In a paper [13] by Timothy H. Boyer, he writes of the centre of energy of electromagnetic fields, 'Illustrations of the Relativistic conservation law for the centre of energy'. Boyer says in his paper of the generators of the Poincare group for electromagnetism:

For charged point masses m_i interacting through electromagnetic fields E and B , the generators of the Poincare group take the form,

$$p = \sum_i m_i y_i v_i + \int d^3r \frac{1}{4\pi c} E \times B$$

(Linear momentum) (1)

$$U = \sum_i m_i y_i c^2 + \int d^3r \frac{1}{8\pi} (E^2 + B^2)$$

(energy) (2)

$$L = \sum_i r_i \times m_i y_i v_i + \int d^3r r \bar{r} \times \left(\frac{1}{4\pi c} E \times B \right)$$

(Angular momentum) (3)

$$U \vec{X} = \sum_i r_i m_i y_i c^2 + \int d^3r r \bar{r} \frac{1}{8\pi} (E^2 \times B^2)$$

(energy times centre of energy) (4)

Notice that (2) and (4) are very similar to each other and so are (1) and (3). The electromagnetic expressions in the first three equations appear in the electromagnetic textbooks, whereas the last is usually absent, and this describes the energy times centre of energy of electromagnetic fields. Why has it not been in the textbooks?

Derivation of centre of mass

The centre of energy \vec{X} in equ (4) is analogous to the familiar centre of (rest) mass $\vec{X}_{restmass}$ of nonrelativistic mechanics:

$$M \vec{X}_{restmass} = \sum_i m_i r_i, \quad M = \sum_i m_i \quad (5)$$

Except that all energy contributes the centre of energy expression (4) involves weighting the displacement r by the amount of the energy located at r .

Thus a point mass of energy $m_i y_i c^2$ contributes $r_i(m_i y_i c^2)$ while the electromagnetic energy $u d^3r$ is a differential volume d^3r contributes $r(u d^3r) = r \left[\frac{1}{8\pi} (E^2 + B^2) d^3r \right]$. Summing over the particles and integrating over all the electromagnetic fields in space, we obtain the expression (4) for the energy times the centre of energy $U \vec{X}$.

For a system of charged particles interacting through the electromagnetic fields, we differentiate equ(4) to obtain:

$$\frac{d(U \vec{X})}{dt} = c^2 \left[\sum m_i y_i v_i + \int d^3r \left(\frac{1}{4\pi c} E \times B \right) \right] = c^2 p \quad (6)$$

Thus, in equ(6) we see that the time rate of change of the quantity {energy times the centre of energy} is equal to c^2 times the linear momentum of the system. Since the linear momentum and the energy of the system are constant in time, this means that the velocity of the centre of energy is constant in time $\frac{d\vec{X}}{dt} = \text{const.}$

The powers delivered by the external forces gives the time rate of change of the systems energy:

$$\sum_i F_{ext i} \cdot v_i = \frac{dU}{dt} \quad (7)$$

The rule for the centre of energy:

$$\sum_i (F_{ext i} \cdot v_i) r_i = \frac{d(U \vec{X})}{dt} - c^2 p \quad (8)$$

Thus, the power weighted by the position, where the power is delivered equals the time rate of change of the system energy times the centre of energy minus c^2 times the system linear momentum. In special relativity, the flow of energy has a continuous meaning. Thus, the introduction of energy by external forces located at points in space, changes the centre of the energy of the system.

This is the clue needed to move the centre of energy (mass) of the electromagnetic field mass in the centre of a capacitor giving it negative gravitational energy, (as the electromagnetic field may have negative gravitational potential energy) once all its positive energy mass has been reduced 100% by the way used in Takaaki Musha's Honda experiment, of causing a mass shift to a capacitor by feeding it with an electrical field.

The continuous flow of energy in space for a relativistic system is in contact with the situation in nonrelativistic mechanics where energy can be suddenly transported from one place to another. Thus, in nonrelativistic physics, there is no separate law regarding the locations where energy is introduced into the system.

The integral form for the relativistic centre of energy law in (8) is:

$$\sum_i \int_1^2 (dr_i F_{ext i}) r_i = U_2 \vec{X}_2 - U_1 \vec{X}_1 - c^2 \int_1^2 dt p$$

CONSIDERATION

Consideration must be taken that if one wants the mass to diverge backwards in time, weather we want the mass of the body, on the ground (acceleration) or high up (negative potential energy). To get the mass to diverge backwards in time one has to reduce the mass and make it filled with negative energy. Because negative energy propagates into the past. One way to do this, is to use a capacitor in an experiment after Takaaki Musha's Honda experiment [8], to reduce the weight (mass shift) of the capacitor by 100% (In Takaaki Musha's experiment, they only got 3% mass shift, and more research would have to be done to get 100%) by feeding electric field energy into the capacitor, and coupling the electromagnetic field mass with the mass shift of the capacitor. Coupling the gravitational field of the electromagnetic field mass with the capacitor. If the energy of the gravitational field of the electromagnetic field mass is negative, would fill the mass of the capacitor with negative gravitational potential energy, making it negative and perhaps diverging backwards in time, if the gravitational field really does diverge backwards in time.

The mass of a gravitational field can be regarded as negative. In Newtons theory the gravitational field is negative, as negative energy, so why not the gravitational field mass of an electromagnetic field also regarded as having negative gravitational energy. Energy is equivalent to mass and electromagnetic fields do have gravitational effects as proved in experiments [11] where they found light to have a gravitational field. If this could be done, one might have a form of time travel into the past.

INFINITE PROPAGATION OF ELECTROMAGNETIC FIELD MASS

In experiments of the near-field EM waves proved to be superluminal, by William D. Walker [15]. Where he found the information, speed propagated superluminally. The point is that Walker says the fields themselves propagate with infinite speed at the point of creation. But it has been shown in this paper, the mass of the gravitational field [11] that it has been argued that electromagnetic fields have mass (relativistic mass) and gravitational fields. So a gravitational field mass is propagated faster than light in the near-field of a transmitter. One is tempted here to imagine technological applications of infinite propagation of electromagnetic field mass, that has a gravitational field.

PART TWO TEMPORAL SUPERPOSITION

For my 2nd idea of time travel, I take my idea from a paper [16] by Christopher MacLeod, published as 'Quantum Mechanics and Travel to the Stars'. He says in his abstract:

'This article outlines a view of the quantum mechanical wave-function as the limit of classical mechanics. It argues that the region inside the wave-function is physically unrelated to that outside and represents a fundamentally different reality. A review of published evidence of this view is presented and it is argued that these ideas (and indeed more traditional physics and mathematics, even if the interpretation is incorrect) lead logically to the possibility of interstellar travel and teleportation through quantum mechanisms'.

Christopher MacLeod of the above paper suggests getting macroscopic objects in quantum superposition states to teleport anywhere in the universe. My idea is that in quantum physics particles can be in a superposition of states anywhere in time (not just in space) and so macroscopic objects can be in a superposition anywhere in time, i.e. teleported anywhere in time. With this approach to time travel you don't get the problems of needing negative energy to prevent the collapsing of a wormhole that Kip Thorne suggested.

Christopher MacLeod says in his paper, the restriction imposed by the speed of light has no meaning inside the wave packet, because speed itself has no meaning. This is implicit in the mathematical rules which govern wave-packet collapse. But because the wave-packet is usually so small, that it can be effectively either ignored or replaced by simple probability in calculations, and the issue is usually swept under the carpet. Some books actually try and explain it away by saying that no information may be transmitted like this, although this is a redundant argument.

There are several lines of good experimental evidence to support the contention that simple special relativity is violated inside the wave-packet. These effects are not obvious, because the volumes involved are usually very small and difficult to study at normal energies. One area where such behaviour is observed is in quantum tunnelling, for particles that appear on the other side of the barrier instantaneously. It has apparently travelled from one side of the other faster than light. To all intents and purposes, the particle has 'teleported', through the barrier.

The key to using the dynamics of the wave-function to facilitate superluminal travel lies in two facts: Firstly, the wave packet can exist at remote places in space, and secondly, it can be 'engineered' into different forms and shapes.

From what he says I note that one can also use the dynamics of the wave-packet can also exist at different times as well as places, and might equally be 'engineered', and would be a form of time travel. One has to stop the wave function from collapsing, and isolate it from its environment, in a superposition state, were it exists in different times. The shape and evolution of the wave function is manipulated, so it extends in the region of time where we want it, by a potential well. Hence the particle most likely appears in time, in the past or future eg and can be manipulated and engineered.

Christopher MacLeod, says in his paper: regarding getting macroscopic objects in superposition, we are talking about putting large systems of interacting molecules into a superposition state. Progress has been made in the lab with macroscopic objects [17]. However, it is true that, at least initially it may be only possible with small, simple objects. Several options are also available for evoking unusual quantum states, in which a large object can appear as a single wave function. Although these usually involve extreme cooling. It may be possible in the future to engineer the properties of materials so that they can achieve superposition more easily or to produce a 'shield' for complex items with such substances.

From this I come to the view, that it just might in the future be possible to get superposition for large objects, that can then be teleported to different times, the past says, this would be a form of time travel. Christopher MacLeod had the idea that large objects might be teleported anywhere in the universe using superposition, where a particle exists everywhere in space. I had the idea that also in superposition a particle can be anywhere in time, and therefore an object could be teleported anywhere in time.

CONCLUSIONS

The whole nature of this paper has been highly speculative, but as ideas I feel are worth being presented and shared. The only way such ideas on time travel can be known as true, whether gravity does diverge backwards in time, is if experiments are actually done, to test out the possibilities. One can see that this will not be soon, but on in the future when the technology is available. For example, getting the mass-shift of the capacitor 100% weight loss would take active research. Takaaki Musha who did the experiment [8] on feeding a electrical field into a capacitor only got 3% mass shift. The 2nd idea on time travel can only be done in the far future, to get superposition of macroscopic objects to teleport through time. But there are quantum macroscopic objects called SQUIDS (Superconducting Quantum Interference Device) that are supercooled, they are big enough about the size of a wedding ring. And electric current circulating in them flows along forever. The electron wave going around the ring behaves like a single quantum entity, about a hundred million times bigger than an atom, bigger than a bacterium or even a flea. Experiments have shown the effects of the same wave going around the ring both ways at the same time, a superposition. Perhaps experiments can be done here to get the superposition of the macroscopic effects of particles to teleport through time?

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