Re: Question about Vacuum Gravity

Source: http://sci.tech−archive.net/Archive/sci.physics.relativity/2004−07/1042.html

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From: N:dlzc D:aol T:com \(dlzc\) (*net_at_nospam.com*)
Date: 07/05/04

Date: Mon, 5 Jul 2004 15:22:15 −0700

Dear vernonner3voltazim:

"vernonner3voltazim" <vnemitz@pinn.net> wrote in message
news:42336979.0407051142.7d00d30@posting.google.com...
> "N:dlzc D:aol T:com \(dlzc\)" <N: dlzc1 D:cox T:net@nospam.com> wrote:
> > "vernonner3voltazim" <vnemitz@pinn.net> wrote:
>
> For any new reader of this Thread,
> who sees this first, the Question is: If the vacuum self−
> energy, expressed as virtual particles, is a non−zero amount,
> on the average, then since EVERY FORM of Energy exhibits
> Gravitation, THEN, is the gravitation of those virtual
> particles repulsive or attractive? For years I thought it
> was attractive, but recently encountered an article in which
> it was stated to be repulsive. If true, I want to know why!
> Thanks!
>
> (below, discussion diverged widely from still−unanswered Question)

...
> > Let's drop this line, if you are willing. There are responses
> > below, but review and respond at leisure.. or not.
>
> OK. I'll try to make this shorter, and leave only a couple
> of remarks. (famous last words...)

...
> > > Regarding "infalling is maximal aging", that isn't clear. The
> > > rate of the Flow of Time doesn't significantly speed up anywhere
> > > in GR that I know of. (I would call the Base Rate of the Flow
> > > of Time to be that of the empty space between galactic
> > > superclusters, and that's only a trifle faster than the rate
> > > here on Earth, within five or so nested gravity wells:
> > > Earth's, Sun's, MilkyWay's, LocalGroup's, VirgoCluster's.)
> >
> > Any path a body travels, maximizes its aging. You are right that
> > this is a maximum, and possibly our 300 km/sec through space is
> > making us stay a little younger...

> *>*
> *> Hey, it's not just the velocity. BEING inside a gravity well*
> *> slows aging, too. (And my first T.O.E. essay shows how to*
> *> reach that GR conclusion using QM. :)*

Should be an interesting read then.

> *> > > <snip>*
> *> > > > > Now, if you can show in your statement "our time is*
> *> > > > > its space...") that direction doesn't matter, well, then*
> *> > > > > why should the direction of Time matter, either?*
> *> > > >*
> *> > > > Because it is powered by the gravity of a singularity...*
> *> > >*
> *> > > Bad choice. A singularity violates all the laws of Physics,*
> *> > > remember? How about a cliche`: "Nature abhors a vacuum"?*
> *> >*
> *> > All the infalling matter *is* the singularity. It is a*
> *> > singularity to the outside Universe, but the inside*
> *> > matter/energy is distributed "uniformly" across this new*
> *> > space. So no net attraction *or* repulsion.*
> *>*
> *> Sounds to me like a reason to say, "and no direction for*
> *> Time, either".*

Time is the one thing "attached to" the singularity. All the space dimensions are normal to time. The one direction we are not allowed to go, is back in time.

> *> > > Then a just Bang−spawned Universe, which is the exact*
> *> > > opposite of a vacuum, experiences Time as all that stuff*
> *> > > seeks to go everywhere else, thereby also maximizing*
> *> > > Entropy. Heh heh heh.*
> *> >*
> *> > I think I have infected you. I apologize.*
> *>*
> *> Oh, not to worry. I've been spewing mad ideas for MUCH*
> *> longer than we've been communicating! Fun, they are!*
> *>*
> *> > > <snip>*
> *> > > >*
> *> > > > There is little intermingling between clusters (like*
> *> > > > the Virgo supercluster, of which we are a member), though*
> *> > > > so... [antimatter galaxies are] still remotely possible.*
> *> > >*
> *> > > Yes. Quite remotely. Wouldn't there be a low background*
> *> > > of gammas from all over the Universe, created by those*
> *> > > locally−few annihilations?*
> *> >*
> *> > You mean like "gamma ray bursters"? There is a lot of gamma*
> *> > from space, just not all of it from localizeable sources.*

> *>*
> *> No, I mean gammas of specific frequencies that indicate*
> *> annihilations taking place all throughout the Universe.*
> *> I think we don't detect anywhere near enough to believe*
> *> that even one whole superclusters can be antimatter −− thin*
> *> as the surrounding space is with matter, mixing takes place*
> *> in quadrillions of cubic lightyears.*

With angular dispersion, and random orientation, and the fact that we *do* detect gamma from other than specular sources... I want to agree, but I cannot believe that there might not yet be a significant amount of antimatter here in this Universe.

...
> *> > > Along the lines of your "no antimatter", argument I would*
> *> > > like to offer that gamma radiation intensity is *not**
> *> > > surprisingly less intense, based on how far it has travelled.*
> *> > > Therefore the probability is that a real particle was the*
> *> > > seed for pair creation.*
> *> >*
> *> > I don't think I ever made any claims that might be similar to*
> *> > the old "tired light" argument. Where do you think I did?*
> *> >*
> *> You didn't. But gamma energies, sufficient to create pairs,*
> *> seem to make it across lots of intervening space, and in many*
> *> cases do so "spectrally" (preserving the direction to the*
> *> source). So it is likely that just having a gamma photon*
> *> isn't sufficient to bring a QBP pair into existence.*
> *>*
> *Oh. Well, THAT is where statistics come into play! The*
> *gammas we detect are the ones that were lucky enough NOT to*
> *be absorbed, or create pairs, until they reached our detectors.*
> *And remember that they mostly travel through the good vacuum*
> *between stars/galaxies.*

As required, this vacuum must be filled with QBP. So the opportunity to evoke a pair must involve somthing other than gamma and QBP, agree?

> *While I know you said that lots of*
> *different elements can provide the special conditions needed*
> *to let a gamma convert to a particle pair, I have my doubts*
> *about how easily hydrogen and helium (99% of the non−vacuum*
> *stuff between stars/galaxies) can offer that opportunity.*

A single electron can be made to do this. But this is real matter, and this is what (in my opinion) is required in addition to the gamma photon to evoke a pair.

> *> > I do know that I mentioned the antimatter problem because if*
> *> > antiparticles are not common enough in this Universe, then*
> *> > your FTL QBPs become less possible. More, if you have to*

> > > design your QBP to bring HERE an electron from 'way over
> > > THERE, along with a positron from another Universe entirely,
> > > well, perhaps you can see why this cannot be called simpler
> > > than borrowing some energy from the Uncertainty Principle.
> > > Finally, can you explain why you need a "seed" for pair
> > > creation, if a QBP brings them from elsewhere? (MORE
> > > complications, there.)
> >
> > Two Universes with infinitely diffuse futures provide all the
> > matter−antimatter necessary, to events in either Universe.
> > I see no insurmountable issues.
>
> What about the equipotentials topic, from farther−on−down?
> Your diffused future, with its maximized Entropy, has a
> shortage of variety.

But some symmetry wrt the instant *now*, in that they are (more or less) equidistant. And if matter and antimatter are in fact separated, then the two particles form a balance.

> > No real opportunites to get to space either, unfortunately
>
> Don't worry about it. If you email me your email address,
> I'll send you a whole other mad idea on that topic. (I
> plan on posting it to the Forum, but need to park an image
> or two first, for linking.) You can get the preview!

N@D.T in my signature line above. The N is "name", D is "domain", and T is "type"

> > > > Next, I would like to point out that when the pair is created,
> > > > the photon is gone.
> > >
> > > I SAID THAT. The energy of the absorbed photon matches the
> > > energy of the just−appeared particles. It is just that in
> > > the Standard View, the photon simply pays for the borrowing
> > > that the QBP did −− while in your scenario, the QBPs were
> > > fully existing the whole time, and so because we never see
> > > the gamma after the particles appear, it is necessary to
> > > talk about where it went (thus complicating the Burp event
> > > even more).
> >
> > In QM, "where" is not an issue, since space and time don't
*> > exist. We *are* still talking about quantum events.*
> > Temporary storage of a displaced gamma photon could be on
> > my Aunt Nanny's fanny, as far as the new pair, and the
*> > *now* that contains them are concerned. It is of course*
> > convenient that I don't have an Aunt Nanny... ;>)
>
> Sorry, but once you start talking about "temporary storage",
> you are not doing much different than the Standard view

> does with its temporary borrowing via Uncertainty. Worse,
> your Aunt Nanny's fanny might INTERACT with and absorb the
> gamma (to reradiate later as multiple lower−frequency photons),
> since it is real all the time −− until absorption occurs.
> Then it's no longer available for your hypothesis....

But not at an infinately diffuse future. No particle there has any other particle in its future. And all particles are cold, so condensate behaviour might provide some fluidity to its presence at any when. After all, if black holes evaporate, then matter must eventually cross the event horizon back into the container galaxy.

> > > Perhaps I should be asking why FTL Burps don't happen
> > > WITHOUT your specified seed and gamma, since the particles
> > > are fully−existing all the time.
> >
> > Casimir effect. Yukawa's predictions. Maybe they do.
> > Maybe our reality is based on, and powered by them.
*> > Heck maybe spacetime is *their* illusion and QM is simply*
> > a short term disturbance in their peace. A fart in
> > church.
>
> Are you that desperate to avoid the Standard view?

We'll see.

> <snip>
> > > In a library I saw an ancient Scientific American article
> > > about actual measurements of three gammas from electron
> > > /positron annihilations. (1950s maybe, but I think it was
> > > the cover article.)
> >
> > URL:http://www.udel.edu/mvb/PS146htm/146nocl.html
> > <QUOTE>
> > Since spin is conserved during a particle decay, the spins of the decay
> > products must add up to be the spin of the decaying particle.
> > <END QUOTE>
> > A photon is a spin 1 particle. If a photon goes in, an odd number of
> > photons need to come out when the created pair die.
> >
> > I could be mistaken. I truly don't believe I am.
>
> It appears that particle spin isn't the only factor:
> From this Page, http://www.np.ph.bham.ac.uk/pic/physics.htm
> "In a condensed medium (e.g. a solid or liquid), the
> emitted positron slows down to thermal energies in a few
> ps, travelling up to 1mm (less in a very dense medium).
> After a period in thermal equilibrium the positron will
> annihilate with an electron usually into two 511keV photons.
> The average lifetime for this is 100−500ps dependent on the
> material characteristics. Alternatively, in a molecular

> medium, the bound state of an electron and positron
> (positronium), may be formed during the slowing down
> process, in which case one would expect the decay to
> produce either two or three photons depending on the
> angular momentum of the bound state. However, the two
> gamma lifetime for the singlet parapositronium is 125ps
> while the triplet orthopositronium has a three gamma
> lifetime of 142ns, so that in practice most
> orthopositronium states convert to parapositronium and
> decay by two photon emission."

This source was relating to nuclear decay. This is not always initiated by interaction with an initial gamma photon. So I suspect that the three photon decays were initated by gamma photons, and the two photon decays were not.

> > > > > If the particles
> > > > > arrive from Elsewhere, then the gamma must go Elsewhere.
> > > > > Why should this be (either of) the same Elsewhere(s) that the
> > > > > particles came from?
> > > > >
> > > > If (note I am saying "if") they come the same elsewhen,
> > > > namely the far distant infinitely diffuse future, there
> > > > can be no problems with causality violation. There is
> > > > no causality. There is no future.
> > >
> > > I wasn't talking about causality. I was talking about
> > > complications to your scenario. A gamma HERE must go
> > > elsewhere if it is replaced by a fully−existing QBPair.
> > > If both parts of the pair originated at a single place,
> > > and the gamma went directly to that place, then the
> > > gamma has to become the result of an annihilation at
> > > that origin, and consequently cannot persist as a single
> > > gamma (since annhiliations always yield multiple gammas).
> > > On another hand, if the parts of the QBPair came from
> > > different places, then there is no reason why the
> > > disappearing gamma cannot end up in a third place.
> > > I would say that trying to keep track of these
> > > possibilities would be too cumbersome to be worth
> > > bothering. Not to mention trying to verify them!
> >
> > I think I have now covered this, although not perhaps to
> > your satisfaction. We'll have to see.
>
> You probably saw more questionings on my part. :)

No, I saw your intent and hope in getting feedback on your own stuff.

...
*> > > > I'll not be offended. This *is* your thread!*
> > >

> > > Thanks, but if your ways are erroneous, you need to
> > > see that. And ditto for me and my ways. We could snip
> > > a whole lot, and you could start trashing my T.O.E.
> > > essays, if you wish. For now, I'm still trying to
> > > find out why you think such complications should
> > > be pursued (though I do see a possible answer farther
> > > down).
> >
> > We have separate existance. There is no reason we need
> > to have 1 philosophy.
>
> Yes and no. Communication requires various things known to
> be the same, between any two who wish to communicate. I
> can't say "infrared photon" and have you think "2 electron−
> volts of energy" (because I.R. is rather less than that).
> When talking Science, different ways of thinking about the
> same thing are allowed (see list of Interpretations of
> Quantum Mechanics), and those may count as "philosophies",
> but they are all about the SAME thing. Differing views
> that don't match Nature (Einstein's "hidden variables")
> get thrown out. Can you devise a test which will support
> your FTL QBP hypothesis more than the Standard view?

No. Nor do I see an need to "collapse the probablities" just yet. If you are more comfortable with the Standard model, proceed.

> <snip>
> > > For some of my ideas that are 'way wilder than yours, see:
> > > http://www.holisticjunction.com/displayarticle.cfm?ID=1851
> > > (There is also a linked pseudo−story, wilder yet.)
> >
> > I don't want to drag you into my madness further. No, I see
> > no evidence of Free Will in this Play. Our current struggle
> > was written in, as well. If we do eventually develop FTL,
> > that too is written in. But the Play is the
> > thing. The Parts are for students, the maleable.
>
> Not to worry; I have my own mad ideas about such things.
> Think of the Universe as being like a movie, at Planck−
> scale resolution and playing at 10^33 frames per second.
> Every part that HAS BEEN VIEWED is fixed and cannot be
> changed. Every other part is maleable by Free Will.
> For example, we cannot prevent the giant meteor that
> wiped out the dinosaurs, but we COULD (if other Laws
> allow it) go back in time and PUT that meteor on its
> collision course (the cause has not been Viewed, see?).

I see what you are saying, but I disagree about your expectation of the maleability of the future, or of the past. I cannot provide a convincing argument (other than convincing to me), so we can move on.

> > > > > <snip>
> > > > Actually, I think more in terms of conservation. Minimalism.
> > > > Duality. Think the Tao symbol. Our Universe empties into the
> > > > other, and it empties into ours. I'm not sure if the various
> > > > axes can be "torqued" around in only two steps... It might take
> > > > three. But I don't believe an infinite number will be required.
> > >
> > > So Perpetual Motion is allowed, now? (OK: "a singularity violates
> > > all the laws of Physics") But I do wonder.
> >
> > What motion, when Spacetime is a single entity? Motion is
> > described by separating space/time, right?
>
> Motion can also be described by "closing" (the opposite of
> separating) space/time. But why do you ignore motion WITHIN
> space/time? The pendulum of a clock moves with no change
> of space/time necessary. Now I do see that as a WHOLE, a
> universe (or a linked pair of them) can retain a certain
> total mass/energy/space/time. But so does, for example, an
> ingot of gold. INSIDE that ingot there is thermal equilbrium,
> and WITHIN that environment, the Second Law of Thermodynamics
> rules ("energy cannot be extracted from a uniform heat sink").
> Well, INSIDE the observed universe we have a non−uniform
> energy situation, which gradually grows ever−more−uniform,
> per Entropy. A naked singularity may be able to restore some
> nonuniformity −− but any hidden by an event horizon CANNOT.

I do not see the pendulum as moving. I see it as having a path. The path started with some event−series, like winding the clock, and displacing the pendulum.

> > > > It could fold around in four, but I'd expect a prime number.
> > >
> > > And what makes the prime number 17 better than (or not as good
> > > as) 101 (or any other prime)?
> >
> > Minimum mass, minimum energy. In this Universe we see
> > duality, and half of our duals (antimatter) are missing.
> > This hints at one more, where our matter violates CP−Symmetry.
> > If it is even a product in the "adjacent" Universe.
>
> Our matter DOES violate CP−Symmetry. That's why we have a
> preponderance of it here, and no significant antimatter!
> And that's why, if there was another Universe full of
> antimatter, we would expect it to violate CP−Symmetry, too
> −−just in the opposite way as here.

OK.

> > > That same postulate you desire might completely prevent the
> > > kind of FTL QBPs that we have been discussing. After all,

> > > the Standard View works just fine without the FTL part,
> > > except for entangled particles −− but THOSE are generally
> > > not QBPs. (And on the other hand, my first T.O.E. essay
> > > DOES mention entangled QBPs....)
> >
> > The spacetime created by Jupiter, orbits with Jupiter.
> > Likewise with the Sun. So the line of action between
*> > the Sun and Jupiter points to their position *now*.*
> > FTL communication, because . space . isn't . real.
>
> I thought we covered this some time ago. The Sun can be
> portrayed as radiating virtual gravitons in all directions
> (Jupiter too). So wherever Jupiter is about−to−be in its
> orbit, the Solar gravitons with which it must interact, to
> stay in orbit, are already there, passing by in front,
> there to be intercepted.
>
> Now I do know that the speed of Gravitation is subject to
> argumentation, and values as high as 30000x light−speed
> have been proposed, in opposition to the Standard view
> of light−speed. I suspect −− only suspect −− that
> gravitons can exist FTL because of this reasoning
> (paraphrased from my second T.O.E. essay):
> 1. For QM to match GR's claim that a gravity field is
> energy that is also a source of gravitation, then virtual
> gravitons must be able to emit more virtual gravitons.
> 2. If virtual gravitons can EMIT their own kind, then it
> follows that they can also ABSORB their own kind.
> 3. So, how do virtual gravitons get out of a black hole,
> to then interact with everything being dragged inward?

Then we will discuss it when we get to your T.O.E.s.

>
> <snip>
> > > > Space is filled with EM radiation. That has no size.
> > > > So some of it will press your plates together. If you
> > > > can evoke a magnetic moment in latex balls with a laser,
> > > > Casimir is not far off.
> > >
> > > Sorry; I think you are going to lose this one big time.
> > > You can perform the Casimir experiment inside a Faraday
> > > cage, and get the same result. (I can't cite a specific
> > > reference to that variant test, but I am confident.)
> > > −−And, what makes you think that EM radiation has no size?
> > > Those little holes in the metal plate on the door of
> > > any microwave oven are there because they are big enough
> > > to let light through, and small enough to keep the
> > > microwaves confined.
> >
> > You are thinking of the 99.99999999% of the bell curve of

> > the location of each photon.
>
> The paltry few that get through a Faraday cage will be FAR
> too insufficient to account for the observed force in a
> Casimir experiment.

You missed my point. They ALL "get through" the Faraday cage. Because their "birth" and "death" occurred inside the cage, doesn't mean that no part of them exists outside that cage between those two events. No matter what size the cage.

> > For any given distribution,
> > I'd bet you could rig a diffraction setup outside the
> > microwave, and detect a variance in the distribution
*> > *somewhere* inside the microwave. Even though they "don't*
> > ever get out". I submit that they are ever only "mostly in".
>
> Well, most microwave ovens have those hole−filled doors
> because people want to see what's going on inside.
> Such is not essential to the experimenter, who might
> want a thick solid metal box, to ensure the microwaves
> ARE contained.

Only their "birth" and "death".

> > I believe this has been done with an interferometer, and a
> > photon that wasn't really emitted... Somehow they could
> > detect if one path had been blocked even without sending
> > light down its length.
>
> Well, remember that you wrote something somewhere around
> here about photons constantly interacting with virtual
> photons. I'm sure it would be THOSE that "know" what
> paths are available (all possible paths are full of them).
> But, sorry, you can't have it that way. Your FTL QBP
> hypothesis will stretch too much trying to provide that
> many "virtual" photons. The Standard view, of course,
> has no problem.

We'll see.

> > Space . is . an . illusion. Here and not−here is all
> > a quantum event requires.
>
> Two varieties of those quantum events are the Strong
> and Weak Nuclear Forces. For them, there is definitely
> a limit to interaction−distance, because the mediating
> particles possess mass, unlike photons/gravitons.
> Space matters! When Uncertainty allows mass−possessing
> Force−mediating particles to Burp, even if they move at
> nearly light−speed, they can only travel so far before

> Time catches up with them, and so much of their borrowed
> energy must be repaid, that they can no longer exist as
> those Force−mediating mass−possessing particles. Your
> FTL QBP hypothesis would place no limit on the distance
> allowed by the Nuclear Forces −− or at least a limit
> that does not necessarily match measurements. For
> example, consider a Weak interaction that involves a
> W boson. This particle has a mass of more than 80
> times a proton, and for Uncertainty to provide it, it's
> lifespan is going to be extremely short, something like
> 10^−26sec, and at near−lighspeed, its interaction
> range will be roughly 10^−15cm. But if a REAL existing
> W−boson is used to explain the interaction, courtesy of
> an FTL QB, well, its natural lifespan happens to be
> maybe 10^−13 sec, so its range of interaction can be
> about 10^−2 cm. That makes your hypothesis not match
> Reality by a factor of ten trillion or so.

If this is the Standard model, then perhaps we will have diffculty in discussion afer all. Time will tell.

...
> > > > Nah. Your job is to attract answerers.
> > >
> > > Heh. Two different jobs. Original and current, with respect
> > > to this Thread. With a third possibly upcoming, if you
> > > decide to assault my T.O.E. essays.
> >
> > Would that be your wish?
>
> We can devote a whole Thread to it! Thanks!

When you are ready.

> > > > Before you poo−poo my "crap" too much, remember that once
> > > > a black hole is "hotter" than the Unvierse et al, it start
*> > > > losing mass. They only way *I* can figure that it can do*
> > > > that is if the mass in no longer localizable, namely a condensate.
> > >
> > > Ignoring Hawking radiation of mass−possessing particles by
> > > a small hole, a large hole might be expected to emit very
> > > long EM waves (arbitrarily low energy, yet equivalent to a
> > > loss of mass). So, all ORDINARY mass ends up in a hole,
> > > and gradually gets converted to low−frequency EM, and thus
> > > Entropy is maximized. Even an electrically neutral black
> > > hole could emit EM, thanks to a variant of Hawking radiation
> > > involving particles interacting at the event horizon, with
> > > EM being the result, instead of mass−possessing particles.
> >
> > But even the large hole will evaporate... eventually. And
> > pairs of photons do possess rest mass... just not charge.

> *>*
> *> I'm not arguing the evaporation of the hole; just the*
> *> mechanism. And that's "rest mass equivalent". :) See,*
> *> a big−enough black hole can be TOO big, for ANY ordinary*
> *> mass−possessing particle (including neutrinos) to escape.*
> *> This means a mechanism using only photons is necessary.*
> *> Photonic energies can approach zero arbitrarily closely, and*
> *> still be greater than zero. Hawking radiation for mass−*
> *> possessing particles has a cut−off point, because for a big*
> *> enough BH, Uncertainty cannot provide enough energy to*
> *> yield an escapee mass−possessing particle.*
> *> Hmmmmm...I wonder if anyone has taken the recent determination*
> *> of neutrino mass, and applied to to the rate at which an*
> *> ordinary BH can evaporate...seems to me the BH might have*
> *> a surprisingly shorter lifespan.*

OK.

> *> > > Sorry, but now I am again missing something. Are not*
> *> > > propagating photons the same as the ordinary ones we*
> *> > > see? Or are they something else? Are they retarded*
> *> > > waves or advanced waves? Or are they merely virtual*
> *> > > photons indicating where a given ordinary photon MIGHT*
> *> > > have gone, instead of where it actually went?*
> *> >*
> *> > You brought up virtual photons. See above. Do you feel*
> *> > that virtual photons propagate? Because that is not the*
> *> > Standard definition. A virtual photon is essentially a*
> *> > placeholder for its two endpoints... charged particle*
> *> > interaction.*
> *>*
> *> Interesting! I regard a virtual photon as being*
> *> identical to a real photon, EXCEPT that its energy*
> *> "drains" incessantly, the farther it travels. (The*
> *> graph of that energy content curve is the same shape*
> *> as the function 1/X.) Uncertainty can provide it with*
> *> megajoules when it first pops into existence, but the*
> *> longer−it−lives/farther−it−goes, the more of that*
> *> borrowed energy must be given back. Whatever it has*
> *> left when it gets absorbed, THAT specifies the amount*
> *> of potential energy that gets converted into kinetic*
> *> energy (which is what virtual−particle interactions*
> *> basically do for any Force), in that particular EM*
> *> event. For more details, see my first T.O.E. essay.*
> *> −−I should amend the preceding to say that interactions*
> *> between virtual and real photons are trickier, since*
> *> photons are their own antiparticles. Also regarding*
> *> the preceding, the inverse−square law applies because*
> *> the number of interactions per second is a factor in*
> *> describing an overall Force, and THAT depends on*
> *> chance, distance and geometry.*

I see some problems with this, in respect to the Standard model, but only time will tell if I can place my finger on them.

...
> > > I would
> > > say that IF a neutrino has a magnetic moment, then a beam of
> > > them can be caused to bend. We CAN make pretty intense beams
> > > at our particle accelerators. Just set up a detector in a
> > > straight line with the output, and (1) with accelerator OFF,
> > > measure ambient neutrino count; (2) measure again with
> > > accelerator ON; (3) move the detector around and make more
> > > ambience measurements; (4) add the magnetic−bender and see
> > > if you can detect fewer neutrinos at the step2 site and more
> > > at one of the step3 sites.
> > > >
> > > > Neutrinos have the energy/mass of 1eV. They take more than
> > > > the density of the Earth to stop them (it does manage to
> > > > stop a few). Not as simple as you might think.
> > >
> > > Oh, I know full well about the difficulty of detecting
> > > neutrinos. What I described above is a long−term experiment,
> > > so that averages can be obtained, and then compared. I think
> > > the main comparison would simply see if the count of (2) goes
> > > down after turning the bender on. Involving (3) just lets us
> > > maybe measure how much magnetic moment there was. But the
> > > value at (2) would let us know whether or not it existed.
> >
> > Aeons!
>
> NOT. Over in Japan they had an accelerator−and−neutrino−detector
> combination (something like 200km apart) that worked just fine to
> detect neutrino oscillations. That means they detected reasonable
> quantities of neutrinos, which they knew were coming from the
> accelerator. Can that quantity be altered by adding many magnetic
> benders along that separation distance?

I would think that had the entire 200 km been shielded, yes. Otherwise I'd think the orientations would be near random.

> <snip>
> > > > As to repulsion, I am talking attraction as a
> > > > minimum−energy−configuration. The only way I can see
> > > > repulsion is through a decrease in the intensity of
> > > > the EM bath. I am not talking about a paramagnetic
> > > > behaviour, but a diamagnetic one. On the particle
> > > > (or more correctly two−particle) level.
> > > >
> > > > > Suppose, instead of seeking an explanation of gravity,
> > > > > I first asked you to explain just how ordinary electric
> > > > > ATTRACTION works, between charged particles. Heh heh heh...
> > > > > CONSIDER: An electron emits a virtual photon.

> > > >
> > > > *Why "emit"? Why not "emblazoned across all space with 13*
> > > > *Gy to establish its place"?*
> > > > >
> > > > > *Oh. That's just because in simple QM interactions, you*
> > > > > *only need a few particles at at time. I don't object to*
> > > > > *the idea that a First particle is announcing itself in*
> > > > > *all directions, but a single interaction with a Second*
> > > > > *particle is only going to involve ONE direction, from*
> > > > > *the first particle to the second.*
> > > >
> > > > *Sounds contrived.*
> > >
> > > *That particular contrivance, for Quantum ElectroDynamics, is*
> > > *the most accurately measured/matched theory in Physics. By*
> > > *a margin of >6 significant figures! And that contrivance is*
> > > *extendable, after a fashion. Astronomers and spaceflight*
> > > *engineers use−it/extend−it all the time, because we have no*
> > > *general solution to the Three Body Problem of Gravitation.*
> >
> > *I don't accept the "Second particle" bit above. QED doesn't*
> > *describe that, at least not the way you presented it.*
>
> *I wrote: "... a single interaction with a Second particle is*
> *only going to involve ONE direction, from the first particle*
> *to the second." I thought that a simple QED interaction was*
> *a virtual photon travelling from the First particle to the*
> *Second? The interaction−description does not care how many*
> *virtual photons are radiated by the First in all OTHER*
> *directions, than toward the Second particle.*
>
> *What part of that is wrong?*

Allowing the first particle free range of the Universe, but not the second.
I believe the "charge cloud" from each charge interpenetrates the entire
Universe. It has certainly had long enough to do this. I am not arguing
about specific interactions...

> > *Who triggers the "preening" of the cuticles of the T.O.E.s,*
> > *you when you have time, or me?*
>
> *Suppose you take your time studying/demolishing one of them,*
> *and then posted it, and then emailed me that you posted*
> *it? Maybe I can get some work done until then.*

I have marked your webpage that links to all "five" as a favorite. I'll
get to it when I can. Until then...
Over and Out.

David A. Smith