

The Universe in Two Pages

Imagine the universe with virtual particles wall to wall. First thing to realize is that virtual particles may be temporary but they have exactly the same life cycle as real particles. They are created in pairs, they can interact with other particles, and then they are destroyed in particle pair annihilations.

The only real difference between virtual and real pair annihilations is that a virtual particle annihilation produces a zero energy result, that is if virtual particle 'va' meets virtual antiparticle 'vb' then $va+vb=0$. In contrast, if a real particle 'ra' meets real particle 'rb' then $ra+rb=c$, where c is some positive number of joules. My point is that both virtual pair annihilation and real pair annihilation is the exact same process with only a slightly different energy budget.

Notice when a virtual particle lives long enough to have interactions with other particles, which changes its total amount of energy, then the particle will violate the zero energy premise at the end of the particles lifetime.

If one considers that virtual particles are continuously being created and annihilated then it becomes clear that virtual particles are not virtual at all. As an analogy, consider that a university can exist indefinitely but each member has a finite existence. Students and professors are replaced as needed; but the university still exists over many years. Both professors and students are temporary, but their roles they perform are permanent.

For any volume of space, there will always be a number of virtual particles fulfilling the role of occupying that volume of space. An existing particle is temporary, but the role of occupying volume is permanent. Long story short, all particles obey the same rules no matter what their virtual, temporary, or real status. A particle pair is created, a series of interactions occurs, and then sooner or later the members of the pair are annihilated.

Now, if there are always a number of particles fulfilling the role of occupying a volume of space; then that suggests the creation and destruction of particle pairs should be pretty uniform averaged over the volume of the universe. For each pair created, on average another pair is annihilated otherwise the energy budget of the universe is changing, which would be contrary to the Big Bang theory. A particle will carry foreign energies from its other interactions to its final annihilation. If a series of local virtual particle lifetime interactions can produce a nonzero energy result, then we must look for a larger system to balance out the accounting. The universe is the largest system.

Not only should there be a correlation between creation and annihilation of particle pairs throughout the universe, but if any particle carries foreign energies into an annihilation event, then a deterministic viewpoint of the universe implies the extra energy has to be conserved for some future creation event. If this was not the case then information and/or energy gained during the particles lifetime would be lost at each annihilation event.

In other words, creation and annihilation of particles throughout the universe must be linked together; otherwise energy and information could be lost during every creation and annihilation events. I do not mean that locally there can not be creation/annihilation imbalances, but overall the universal system has to balance itself out; otherwise it is not a conservative system.

The next question is what factors effect a particle pair's lifetime. My conjecture is that virtual particles adjacent to atoms have a much shorter average lifetime than virtual particles in deep space. I think the lifetime of a virtual particle depends on three main parameters. The distance to the nearest atom, the atomic number of the atom, and the temperature of the local system which contains the atom.

Most likely these three parameters are not linear but taken together, a simple axiom is suggested, that atoms act as catalysts accelerating the annihilation rate of virtual particles. This also leads to the thought that deep cold space is a good environment for a surplus of virtual particles and objects of hot matter, such as the earth and sun are lacking the same density of virtual particles. The volume of an atom is denied to virtual particles.

Let's tie it all together. First a disclaimer, this two page document and 50 cents might get you a cup of coffee. It is just one possible framework to understand our world. Apply a simple gas model to all the matter particles in the universe, and then apply the same gas model to all the anti-matter particles in the universe. The resulting model of the combined matter/antimatter gases can be used to understand both the gravity and EM forces.

Gravity is not a force; it is just depletion of virtual particles. Positive and Negative Coulomb affects are not forces; they are just volumes of poorly mixed matter/antimatter gases leading to different annihilation rates for different type virtual particles. Light is the universal energy accounting system that balances out annihilation and creation events.

I will use a short poem to save space and share my thoughts. - M. Snyder 2009 -

Look how simple.
The quantum medium is a gas cloud of matter and antimatter virtual particles.
Charge is just virtual particles flowing from one charged particle to another.
It is the displacement winds of the quantum medium.
Magnetism is the circulation of virtual particles.
It is the twisting curl of the quantum medium.
Gravity is the paired annihilation of virtual particles.
It is the mortality rate of the quantum medium.
Light is the result of particle pair annihilation.
It is the birth rate of the quantum medium.
When the medium flows in a line, it is Charge.
When the medium flows in a circle, it is Magnetism.
When the medium disappears, it is Gravity.
When the medium appears, it is Light.
It is simple.
