CASSIOPEIA'S ToE

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Inflation and Expansion of Space

What is it that is expanding? This question is closely related to the Inflation period that immediately followed the Big bang.

The length of wormholes is important
High energy corresponds to short wormholes
As energy drops wormholes get longer, skipping closer intermediate quanta
This can look like expansion of space
Can visualize inflation
QUESTION - can this happen in one Field and not in others?
Does the connections between Fields inhibit this expansion?
What exactly is it that is expanding in the wormhole view?
What caused inflation?

So after the gravity always existed, along comes the Higgs scalar field and causes inflation. It is a sea of random energy ... like the waves in a choppy sea it is constantly cresting in spots then dropping back. This is the source of energy in the uncertainty principle. Occasionally this sea which has zero quantum numbers forms pairs of particles that extend into the other webs. We see this as vacuum pair production. If nothing happens to give permanent energy to them, they disappear back into the Higgs web. But they also interact in their webs of creation while they exist. These interactions can give them permanent stability

Dark Energy and the Cosmological Constant

Cosmological Constant Problem perusing
Field Theory assumes that the vacuum behaves as if there is a quantum harmonic oscillator at every "point" in space. This leads to an infinite energy density and a huge cosmological constant. The observed cosmological constant suggests that the actual vacuum energy density is on the order of 10^{-9} joules per cubic meter (equivalent to about 10,000 electrons per cubic meter). So what does a quantized space say about this?

Each harmonic oscillator has a lowest possible energy given by

$$E = \frac{1}{2}h\nu$$

and h = 6.6×10^{-34} joule·second

So if we have N such harmonic oscillators in a cubic meter, then
N *E* = ½ N (6.6×10^{-34}) * frequency = 10^{-9} joules/m^3

If we set the frequency = 1, then N = 10^{25}
In order to get N = 10^{99} or so (order of a Planck Length cubed)
The frequency would have to be 10^{-74} / sec -- or thereabouts, one beat every 10^{74} seconds is ridiculous – there have only been 10^{17} seconds since the Big Bang.

Alternatively, N = 10^{25} may be the correct number of oscillators for "empty vacuum". That is to say, that without a positive energy contribution from real particles, the average number of wormholes in a cubic meter could be 10^{25} at any given time. And we assume that each quantum harmonic oscillator needs 2 space quanta and a connecting wormhole.

Another interpretation is that this value of N is a count of the number of GRAVITY-PLEXUS wormholes at any given time. And further that only the Gravity-Plexus harmonic oscillators affect the Cosmological Constant calculation.

Addendum thought…
So in the absence of particles, the random coming and going of Fields due to the uncertainty principle results in wormholes that connect space quanta that are about 10^{-9} meters apart compared to a similar measurement with matter present.

Dark Matter

Almost all of the interaction, detection, and discovery of the physical universe around us is done through Electromagnetic phenomena. We see the stars because of photons, we study chemistry and electrons and protons when their electric charges produce photons. Many neutrino detectors are based on Cherenkov detectors and photomultipliers – again – photons. The recent observation of gravity waves used laser interferometry – photons – as the actual detection medium.

In our wormhole view, then, almost ALL of our interaction with the distant universe is through the EM Field. So anything that doesn't couple to the EM Field goes largely undetected or at least only detected indirectly. Dark Matter produces changes in gravitational orbits and galaxy formation, etc. So it interacts with the Gravity Field. But since we cannot "see" it, it is safe to say it doesn't couple strongly to the EM Field. Anything that couples to the Higgs Field but not the EM-Field is a possibility as well. Is ti possible that the scalar field of the Higgs Field is not as uniformly distributed as believed? Could it respond to or couple to the Gravity Field?

Dark Matter -- is matter that exists ONLY in the Gravity Field (or Higgs Field too)

Since neutrinos only interact weakly and gravitationally. Left-Chiral neutrinos that do NOT interact Weakly only interact with gravity… if they exist they could be DARK MATTER