

# Superluminal Dark Spacetime Domain

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## Abstract

What if vacuum free space is actually a totally different thing from what it appears to be? What if dark energy and dark matter are not the only hidden things in our universe but a whole different dark spacetime dimension sector that is hidden and made not directly observable to us? In this scenario dark energy and dark matter would reside in the special case of a physical de Sitter spacetime which would be entangled and in superposition with our normal Einsteinian luxons spacetime. This unknown dark spacetime sector or domain we claim is what appears to us as vacuum free space and as “nothing” although the exact opposite is true. Our current ongoing research shows that, what we observe as vacuum free space is actually a type and unknown phase of superluminal vibration energy by an omnipresent non-tachyonic graviton condensate that is the basic substrate upon all quantum fields come to existence in our normal spacetime. Why we cannot observe this hidden *dark spacetime* is because its intrinsic superluminal nature that makes it to be out of phase from our *light spacetime*.

*Keywords: dark energy, quantum gravity, vacuum energy, cold graviton, superluminal, dark spacetime*

## Discussion



*Fig 1. Image conceptual art created by DALL-E based on the research presented*

According to our research so far [1-10], matter and light moving inside the vacuum manifest our light Einsteinian spacetime but there is another totally distinct second and hidden Dark spatime sector out here in which the source dark energy and dark matter resides and is manifested in our luxions spacetime as what we used to call vacuum free space.

These two distinct spacetimes are in superposition occupying the same Cartesian space and also entangled gravitationally and by the ZPE of the vacuum that we claim is an energy evaporation product of the Dark Energy residing in the dark spacetime into our light spacetime sector. Still, most of the dark is residing in the dark sector and only a relative tiny fraction of energy is leaked slowly into our spacetime in the form of ZPE.

There are now two major general conclusions we can reach from this research IMO:

First, assuming now that the ZPE of the vacuum is the background and source of all quantum fields responsible for the three known quantum forces the SF, WF and EM and also taking into account our previous conclusion that ZPE sources out from the hidden dark spacetime sector by the slowly evaporating hidden dark energy residing there, we then can deduce logically that all of the known three quantum forces SF, WF and EM that are responsible for all matter and light in our luxions spacetime, actually originate from the dark spacetime sector and hidden dark energy.

Second, as I have described, our known luxions Einsteinian spacetime sector consists of Lorentz-invariant luminal energy that we observe in two prime energy phases as matter and light. which as I described are all fluctuations, excitations and condensations of the same and single ZPE vacuum field that sources out from the dark sector. However, in contrast, the dark spacetime domain consists exclusively only of an omnipresent non Lorentz-invariant thus according to this research a "superluminal vibrating non-tachyonic cold graviton condensate" the characteristics we have described previously in our research. This quantum condensate consists of bare massless spin-2 cold gravitons which as we describe are the carriers of both the superluminal dark energy hidden in the dark spacetime sector and also quantum gravity. Finally, opposite to the SF, WF and EM forces that are mediated to our spacetime from the dark sector due to its superluminal dark energy's evaporation into our known vacuum ZPE and spacetime, in contrast gravity is mediated and communed directly from the dark spacetime sector to our luxions (i.e. photons) spacetime.

To clarify further here is an energy flowchart of the above described concepts and ideas:

## Dark Sector Entanglement with Light Spacetime and Energy Flowchart

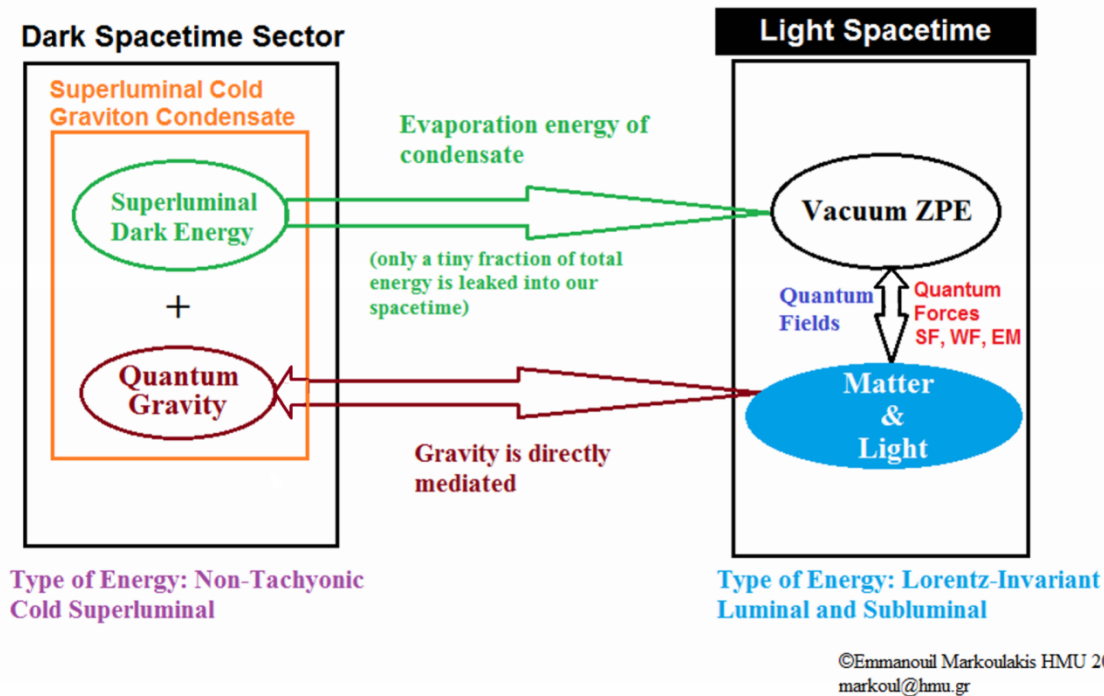


Fig. 2 Dark Sector Coupling with our normal light spacetime

Notice the arrow in the illustration connecting the matter-light and the vacuum ZPE is bi-directional meaning the coherent matter and light energy can again become incoherent and return back to vacuum ZPE.

But the model does not allow the transition of luminal energy to superluminal thus the transition of liminal vacuum ZPE from our spacetime back to the dark sector. Therefore, once superluminal energy is transformed to luminal it cannot transition back to superluminal because that would violate the 2nd law of thermodynamics which is obeyed by both spacetime. Energy flows always from high to low.

Of course this also means that the vacuum ZPE in my opinion cannot contain any superluminal component and is entirely Lorentz-invariant.

As shown in fig. 2 the two spacetimes are only bi-directional gravitationally coupled since gravity is directly mediated and communed between the two spacetime discrete and entangled domains.

## Conclusion

A novel explanation of our cosmos are given were it consists of two entangled discrete spacetime domains the dark and light spectrums. The dark domain is the source of dark energy and gravity whereas the light spacetime contains matter and light. Interactions of the two spacetimes are outline described.

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18 Nov 2023

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