Review of: "On the Origins of Mass"

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Potential competing interests: No potential competing interests to declare.

There are many attractive ideas in this paper, yet, to my understanding, the presentation is left incomplete. Careful definitions of many symbols are not provided. I sympathize with the fact that all missing parts are somewhat trivial for the authors. All the same, an average reader, just like myself, needs more to grasp the details. In this sense, I invite the authors to revise their article and, if they can, add Supplementary Materials with derivations.

All of their claims should be concretized.

I like the idea of discretized probabilities. I do not understand, though, how the authors claim they do not need quantum mechanics. They should discuss this fundamental point in their paper. Along this line, I would like to invite them to check the following papers:
https://www.researchgate.net/publication/304658147_Scalar_Quantum_Field_Theory_on_a_Discrete_Spatial_Lattice,
https://arxiv.org/abs/1610.07877.

The authors claim delibarately that “Entropy is assumed to constitute a fundamental force underlying physically observable reality”. However, these two quantitites already dimension-wise differ from each other. Such statements make it even more difficult to interrelate the reader with the depths of the article.

I would like the authors to take a look at this article:
https://www.sciencedirect.com/science/article/pii/S2211379718312117, where entropy is quantized, and the Boltzmann Law is replaced by another law, as implied by quantum mechanics.

Eq.(11) is, as the authors underline, not derived, but proposed. Why? What makes them assume this equation?

The authors state that, “Mass is perceived as something solid”. Why do they have to claim this, for matter can exist in the liquid or gas forms, and even in plasma form. And it well has a mass in all of these forms.

Photons are claimed to have zero mass, delibarately. However, there are very many scholars, starting with de Broglie and Vigier, who postulated that photons may well have a massive kernel. Without assuming this, no matter whether the Standard Model would deny it, one is bound to introduce an incompatibility with Quantum Mechanics.

Protons are claimed to have to be stable, yet sincerely I do not see how this happens, following the reasoning of the authors.

A liaison is established between the framework of the article and dark matter, but it appears not to be founded on anything the authors bring up.

The above list can be prolonged.

All in all, I find this article much too incomplete, despite some attractive ideas. All dark points must be clarified. Precise definitions of all the symbols introduced in the paper must be provided.

My name can be made open to the authors.

Best.

Cordially…

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