Review of: "The quantum origins of gravity"

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Potential competing interests: No potential competing interests to declare.

The authors have presented an interesting review of **Quantum Origins of Gravity.** They have given an explanation based on the deflection of photons when they pass nearby a massive object due to changes in the **electric permittivity of matter free-space**. It is true that a steep variation of electric permittivity slows the speed of photons inside a medium and that a gradient in the electric permittivity of a medium deflects them. So, gravity originates due to the space-time distortion of the **electric permittivity of matter free-space**. It also suggests that all matter particles should be composed of photons of the appropriate energy, making two revolutions per wavelength. This leads to high-frequency alternating electric fields, causing variation in the electric permittivity of free-space. However, huge numbers of nucleons are required to make small changes to the electric permittivity of the space around a massive object. So, they conclude that changing electric permittivity generates gravity.

The review is presented in a clear way, the model and accompanying equations are presented in sufficient detail, and the results are communicated in a straightforward way. Nevertheless, significant modifications of the text would be necessary for the review to be fit for publication. My comments are as follows:

1. How do particles generate changes in the electric permittivity of matter free space?

2. It also suggests that all matter particles should be composed of photons of the appropriate energy, making two revolutions per wavelength. Why two? This context is not presented clearly in the review. Too much time is devoted to small changes in the electric permittivity to deflect photons.

3. Large numbers of nucleons are required to make small changes to the electric permittivity of the space around a massive object. This statement needs to be justified as we talk about matter free-space.