

Review of: "Possible connections between relativity theory and a version of quantum theory based upon theoretical variables"

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Potential competing interests: No potential competing interests to declare.

Review of the paper: Possible connections between relativity theory and a version of quantum theory based upon theoretical variables

The author tries to formulate gauge theories to unify general relativity and quantum mechanics. The motivation in my opinion is based on the success of standard model of particle and forces. Then he went on further to discuss about statistics, information and entropy to discuss entanglement in black hole physics. The use of density matrix at this point of the paper seems ignored or not fully treated. Consideration of other research seemingly giving a *geometric nature* of entanglement is fully discussed although the Einstein-Rosen bridge is briefly mentioned.

In both topics, only conceptual ideas are thrown in, through what a concept of theoretical variables, accessible and inaccessible. However, it is not clear why non-commuting variables are inaccessible, when these have quantum distributions and have expectation values using density matrix formalisms. The author seems to only adhere to theory based on wavefunctions.

In my opinion, the so-called conceptual ideas given are really rooted in contemporary theoretical physics. At best the paper looks like a reinterpretation of gauge theory of standard model and information theory of Shannon and von-Neuman. The author has not made a convincing argument that the presented conceptual ideas would be revolutionary in unifying GR and QM.

This paper needs revision to address some of the points raised above.