

SPACETIME OR QUANTUM PARTICLES: THE ONTOLOGY OF QUANTUM GRAVITY?

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Abstract

The domains of quantum theory and general relativity overlap in situations where quantum mechanical effects cannot be ignored. In order to deal with this overlap of theoretical domains, there has been a tendency to apply the rules of quantum field theory to the classical gravitational field equations and without much regard for the implications of the whole enterprise. The gravitational version of the asymmetric ageing of identical biological specimens shows that (geometrically interpreted) curved spacetime is not dispensable. This result is used to conclude that the particle-based interpretations of quantum gravity are not acceptable.

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