

To Quantize or Not to Quantize: Fact and Folklore in Quantum Gravity

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Abstract

Does the need to find a quantum theory of gravity imply that the gravitational field must be quantized? Physicists working in quantum gravity routinely assume an affirmative answer, often without being aware of the metaphysical commitments that tend to underlie this assumption. The ambition of this article is to probe these commitments and to analyze some recently adduced arguments pertinent to the issue of quantization. While there exist good reasons to quantize gravity, as this analysis will show, alternative approaches to gravity challenge the received wisdom. These renegade approaches do not regard gravity as a fundamental force, but rather as effective, i.e. as merely supervening on fundamental physics. I will urge that these alternative accounts at least prove the tenability of an opposition to quantization.

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