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Is gravity quantised?

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There are models of classical (non-quantum) gravity that reconcile it with quantum mechanics [1] by simulating gravitational interaction along the lines of local operations with classical communication (LOCC). However, a way to prove that gravity necessarily is quantised would be to carry out an experiment in which gravity generates entanglement between quantum systems, since this is not possible only by means of LOCC. We here describe a simple candidate for such an experiment based on the equivalence principle, and discuss in its context the role of acceleration/gravity as cause of entanglement.

Apply to be considered for a student ; award (Yes / No)?

Yes

Level for award;(Hons, MSc, PhD, N/A)?

PhD

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