

Towards the optimal experiment of gravity-induced quantum entanglement

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Recently, various experiments have been proposed to verify quantum entanglement induced by Newtonian gravitational interactions. However, no feasible setup has yet been found that is certainly achievable with existing techniques. To search for an optimal setup, we compute the logarithmic negativity of two oscillators with arbitrary quadratic potential and coupled by gravity. We find that unstable inverted oscillators generate gravity-induced entanglement most quickly and are most resistant to decoherence from environmental fluctuations. As such an example, we propose an experiment of optical levitation of mirrors using the anti-spring effect.

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