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Effects of the Generalized Uncertainty Principle on Quantum Mechanics

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Abstract

We show that the Generalized Uncertainty Principle (GUP), predicted by various theories of quantum gravity, influences all non-relativistic and relativistic quantum Hamiltonians. Thus, it predicts corrections to various quantum phenomena. We analyse a few such phenomena and compute the GUP corrections to them. We also comment on whether some of these predictions can be verified in the laboratory.