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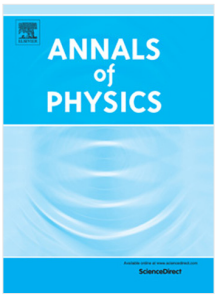

Generalized uncertainty principle and angular momentum

Pasquale Bosso, Saurya Das

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Generalized Uncertainty Principle and Angular Momentum

Pasquale Bosso* and Saurya Das†

Theoretical Physics Group and Quantum Alberta,
Department of Physics and Astronomy, University of Lethbridge,
4401 University Drive, Lethbridge,
Alberta, Canada, T1K 3M4

Abstract

Various models of quantum gravity suggest a modification of the Heisenberg's Uncertainty Principle, to the so-called Generalized Uncertainty Principle, between position and momentum. In this work we show how this modification influences the theory of angular momentum in Quantum Mechanics. In particular, we compute Planck scale corrections to angular momentum eigenvalues, the hydrogen atom spectrum, the Stern-Gerlach experiment and the Clebsch-Gordan coefficients. We also examine effects of the Generalized Uncertainty Principle on multi-particle systems.

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*pasquale.bosso@uleth.ca
†saurya.das@uleth.ca

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