

The Klein-Gordon and the Dirac Oscillators in a Noncommutative Space

B. Mirza^{1,2} and M. Mohadesi¹

¹ Department of Physics, Isfahan University of Technology, Isfahan 84154, Iran

² Institute for Studies in Theoretical Physics and Mathematics, P.O. Box 5746, Tehran 19395, Iran

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Abstract: We study the Dirac and the Klein-Gordon oscillators in a noncommutative space. It is shown that the Klein-Gordon oscillator in a noncommutative space has a similar behaviour to the dynamics of a particle in a commutative space and in a constant magnetic field. The Dirac oscillator in a noncommutative space has a similar equation to the equation of motion for a relativistic fermion in a commutative space and in a magnetic field, however a new exotic term appears, which implies that a charged fermion in a noncommutative space has an electric dipole moment.

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