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**Quantum mechanics on the noncommutative plane and sphere.** (English) Zbl 0977.81046  
*Phys. Lett., B* 505, No. 1-4, 267-274 (2001).

Summary: We consider the quantum mechanics of a particle on a noncommutative plane. The case of a charged particle in a magnetic field (the Landau problem) with a harmonic oscillator potential is solved. There is a critical point with the density of states becoming infinite for the value of the magnetic field equal to the inverse of the noncommutativity parameter. The Landau problem on the noncommutative two-sphere is also solved and compared to the plane problem.

**MSC:**

**81R60** Noncommutative geometry in quantum theory

Cited in **1** Review  
Cited in **85** Documents

**Keywords:**

Landau problem; infinite density of state; critical point

**Full Text:** [DOI](#) [arXiv](#)

**References:**

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