Exact Green's Function for 2D Dirac Oscillator in Constant Magnetic Field

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The propagator of two-dimensional Dirac oscillator in the presence of a constant magnetic field is presented by means of path integrals, where the spin degree-of-freedom is described by odd Grassmannian variables and the gauge invariant part of the effective action has the form of the standard pseudoclassical action given by Berezin and Marinov. Then the path integration is carried out and the problem is solved exactly. The energy spectrum of the electron and the wave functions are extracted. – PACS numbers: 03.65.Ca, 03.65.Db, 03.65.Pm, 03.65.Ge.