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Properties of the Abrikosov Lattice in the symmetric gauge

PIET VAN ISACKER, Grand Accelérateur National d'Ions Lourds, France, OLEG VOROV, UNC at Charlotte — The structure of Abrikosov state (AS) in the type-II superconductors shares many properties of other physical systems, such as electron gases in the regime of the Quantum Hall Effect and the rotating atoms in magnetic traps. Usually, is described using Landau gauge for the magnetic field. We employ the symmetric gauge to reveal deep analogies between the Abrikosov lattice and other systems that can be described in terms of vortices, and derive new analytic results for the vortex lattice. The work was supported by NSF and CEA (France).
1. O.K. Vorov and P. Van Isacker, to be subm. to Phys. Rev. B, in preparation.

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