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Spin liquid and Mott transition in organics with triangular lattice

KAZUSHI KANODA, Department of Applied Physics, University of Tokyo

The layered organics, k-(ET)2X, are model systems for the study of strongly correlated half-filled-band electrons. The Mott insulator k-(ET)2Cu2(CN)3 has a nearly isotropic triangular lattice and is a model system of frustrated quantum spins. The 1H and 13C NMR experiments show no indication of magnetic ordering down to 30 mK in spite of an exchange interaction of 250 K deduced from the susceptibility analysis. The spins are in the quantum liquid state. Under magnetic fields, an anomalous inhomogeneous spin state appears. Under pressure, it undergoes Mott transition to a Fermi liquid which shows superconductivity at low temperatures. The phase diagram and the nature of the superconductivity emerging from the spin liquid are also discussed.