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Title: Quantum spin liquids induced by electron-phonon coupling: a numerically-exact quantum Monte Carlo study

Abstract: Quantum spin liquids (QSL) are exotic quantum phases of matter that support fractionalized excitations and also provide a promising route to realize high-temperature superconductivity (SC) after doping. Here we explore whether electron-phonon coupling (EPC) could provide a new mechanism of realizing QSL. Indeed, by employing the numerically-exact sign-problem-free quantum Monte Carlo simulations, we show that electron-phonon coupling can induce a gapped 2D QSL phase. Our finding sheds new light on microscopic mechanisms of QSL in correlated quantum systems.