

Abstract Submitted
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Vison Condensation and Bond Density Wave Order in the Cuprates AAVISHKAR PATEL, ANDREA ALLAIS, DEBANJAN CHOWDHURY, SUBIR SACHDEV, Harvard Univ — We consider Z_2 spin liquids on the square lattice. These can undergo a confinement transition to a valence bond solid (VBS) phase via the condensation of vortex excitations carrying Z_2 magnetic flux (visons) [1]. The resulting condensed phase is described by a fully frustrated Ising model (FFIM) on the dual square lattice, with additional couplings allowed by symmetries. We argue that such a model can also apply to confinement transitions out of the fractionalized Fermi liquid (FL*) states of doped antiferromagnets. We study the low energy states of such a model and discuss their implications for the incommensurate d-form factor bond density wave order observed in several recent experiments on the cuprate superconductors. [1] R. Jalabert and S. Sachdev, Phys. Rev. B 44, 686 (1991).

Aavishkar Patel
Harvard Univ

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