Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Enhanced superconductivity due to inhomogeneous bond order in a doped Mott insulator JUN LIU, JOERG SCHMALIAN, Iowa State University, NANDINI TRIVEDI, Ohio State University — At half filling, the ground state of SrCu2(BO3)2, a half filled Mott insulator on the Shastry-Sutherland lattice, is exactly described by a valence bond wave function. Using a resonating valence bond wavefunction for the doped system, that includes the correct limit at half-filling, we find that the doped quantum magnet shows long ranged superconducting order. The superconductivity is boosted by the spontaneous emergence of a checker board pattern of the pairing strength on the bonds. We further find a strong asymmetry between hole and electron doping.

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Date submitted: 20 Nov 2006 Electronic form version 1.4