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Continuous phase transition between Néel and spin liquid states with topological order YANG QI, Institute for Advanced Study, Tsinghua University, ZHENGCHENG GU, California Institute of Technology — It is well known that on square lattice Néel and valence bond solid states are connected by a continuous phase transition, and the critical theory consists fractionalized spinons and an emergent U(1) gauge field. Motivated by recent numerical works revealing Néel and gapped spin liquid states in J_1-J_2 model on square lattice, we study other phases that can be obtained after destroying the Néel order. We show that by condensing fields that carry both electric charge and magnetic flux of the emergent gauge field, one can obtain spin liquid phases with topological order and no lattice symmetry breaking.

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