

Abstract Submitted
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Two Step Restoration of $SU(2)$ Symmetry in a Frustrated Quantum Magnet ANDREAS LÄUCHLI, IRRMA, EPF Lausanne, Switzerland, J.C. DOMENGE, C. LHUILLIER, P. SINDZINGRE, LPTL, Université Paris 6, Paris, France, M. TROYER, ETH Hoenggerberg, Zürich, Switzerland — We demonstrate the existence of a spin-nematic, moment-free phase in a quantum four-spin ring exchange model on the square lattice. This unusual quantum state is created by the interplay of frustration and quantum fluctuations which lead to a partial restoration of $SU(2)$ symmetry when going from a four- sublattice orthogonal biaxial Néel order to this exotic uniaxial magnet. A further increase of frustration drives a transition to a fully gapped $SU(2)$ symmetric valence bond crystal.

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