

Abstract Submitted
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Symmetric and nematic Z_2 quantum spin liquids: applications to the J_1 - J_2 Heisenberg model YIFAN JIANG, Institute for Advanced Study, Tsinghua University, Beijing, FAN YANG, School of Physics, Beijing Institute of Technology, HONG YAO, Institute for Advanced Study, Tsinghua University, Beijing — We classify symmetric and nematic Z_2 quantum spin liquid states on the square lattice by analyzing bosonic PSG. We then compute the energies of various symmetric and nematic Z_2 spin liquid states for the J_1 - J_2 square Heisenberg model by doing variational Monte Carlo simulations. The connections of our variational Monte Carlo studies with the recent DMRG results on the same model will also be discussed.

Yifan Jiang
Institute for Advanced Study, Tsinghua University, Beijing

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