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Variational Monte Carlo study of chiral spin liquid in quantum antiferromagnet on the triangular lattice WENJUN HU, Rice University, SHOUSHU GONG, Florida State University, DONNA SHENG, California State University, Northridge, DONNA SHENG TEAM — We investigate the Heisenberg model with chiral coupling on the triangular lattice by using Gutzwiller projected fermionic states and the variational Monte Carlo technique. As the chiral coupling grows, a gapped spin liquid with non-trivial magnetic fluxes and nonzero chiral order is stabilized. Furthermore, we calculate the topological Chern number and the degeneracy of the ground state, both of which lead us to identify this flux state as the chiral spin liquid with $C = 1/2$ fractionalized Chern number. Finally, we add spatial anisotropy in the model to study the effects for the chiral order.

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