

Abstract Submitted
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Measuring symmetry fractionalization in topological orders: application to Z_2 spin liquids on kagome lattice YUAN-MING LU, Ohio State Univ - Columbus, MICHAEL ZALETEL, Station Q, Microsoft Research - Santa Barbara, ASHVIN VISHWANATH, University of California - Berkeley — Mounting numerical evidence for a gapped Z_2 spin liquid in the kagome Heisenberg model urges us to develop methods to measure the global and space group symmetry properties of fractional excitations. We show that the universal symmetry characterization of fractional quasiparticles, the projective symmetry group (PSG), can be measured by a dimensional reduction scheme, which relates two-dimensional (2d) symmetric topological orders to 1d symmetry protected topological phases. This general framework allows us to unify Z_2 spin liquids in different slave-particle (parton) constructions on the kagome lattice. It is also directly applicable to numeric results obtained in 2d DMRG studies.

Yuan-Ming Lu
Ohio State Univ - Columbus

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