Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Symmetry protected topological phases for 1-dimensional spin-1 antiferromagnets ZHENG-XIN LIU, Tsinghua university, XIE CHEN, XIAO-GANG WEN, Massachusetts Institute of Technology — Symmetry protected topological phases for 1-dimensional S=1 antiferromagnets respecting D2+T symmetry (D2 is a point group and T is the time reversal symmetry) are studied. There are 15 different nontrivial topological phases, all of them are non-symmetry-breaking. One of these phases is the usual Haldane phase, and the others are new. We find that four of the nontrivial SPT phases can be realized in spin-1 chains and the rest can be realized in spin-1 ladders. We propose experimental methods to distinguish all of these phases.

Zheng-Xin Liu
Institute of advanced study, Tsinghua university

Date submitted: 07 Nov 2011 Electronic form version 1.4