

Interplay of topological order and symmetry breaking

We consider the string-net model on the honeycomb lattice for Ising anyons in the presence of different string tensions.

The resulting phase diagram includes several phases, including phases harboring Abelian and non-Abelian anyons as well as different topologically trivial phases.

We investigate the location and critical properties of phase transitions between these phases by means of high-order series expansions and exact diagonalizations.

Different phase transitions are found, including different second-order transitions out of the non-Abelian topological phase.