"Gauging" Non-on-site Symmetries and Symmetry Protected Topological Phases[1] CHANG-TSE HSIEH, GIL YOUNG CHO, SHINSEI RYU, Univ of Illinois - Urbana — We gauge non-on-site symmetries, such as parity symmetries, for a general (1+1)D conformal field theory (CFT) which is the boundary of (2+1)D symmetry protected topological (SPT) phases. This provides an efficient method to diagnose stability of SPT phases with the discrete non-on-site symmetries. To gauge the non-on- site symmetries, we are naturally led to consider field theories defined on a non-orientied manifold, such as Klein bottle. The partner states of the "vortices" (or twist operators) of the gauged non-on-site symmetries, the so-called crosscap states, provide information about the classification of the corresponding SPT phases. Our method also provide a way to gauging time-reversal symmetry, which is "topologically" related to parity symmetry by CPT theorem.

Chang-Tse Hsieh
Univ of Illinois - Urbana

Electronic form version 1.4