

Abstract Submitted
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Gauging and Orbifolding Topological Phases¹ XIAO CHEN, UIUC, ABHISHEK ROY, Institute for Theoretical Physics, University of Cologne, JEFFREY TEO, Department of Physics, University of Virginia, Charlottesville, VA 22904 USA — Topological phases of matter in $(2 + 1)$ D are commonly equipped with global symmetries, such as electric-magnetic duality in gauge theories and bilayer symmetry in fractional quantum Hall states. *Gauging* these symmetries into local dynamical ones is one way of obtaining exotic phases from conventional systems. We study this using the bulk-boundary correspondence and *orbifolding* the $(1 + 1)$ D edge described by a conformal field theory (CFT). Our procedure puts twisted boundary conditions into the partition function, and predicts the fusion, spin and braiding behavior of anyonic excitations after gauging. We demonstrate this for the twofold-symmetric Z_N gauge theory and the S_3 -symmetric $so(8)_1$ state.

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