

Classifying Symmetry-Protected Topological Order by Group Cohomology

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Abstract:

With the acquaintance of the topological field theory and group cohomology, we will then review the classification of symmetry-protected topological by the equivalence relation of quantum circuit evolutions. It turns out that this classification scheme can be fitted nicely into the framework of cohomology theory, and the symmetry-protected topological phases are classified by the group cohomology. This can be seen as the discrete version of the above field theory results.