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Colleen Delaney*, cdelaney@math.ucsb.edu. *Topological quantum computation with symmetry defects.*

A topological quantum computer would operate by braiding and measurement of anyons, particle-like excitations of a 2+1 dimensional topological phase of matter. In the presence of a global symmetry group G of the phase, extrinsic defects associated with the elements of G can also be used to perform computation. The algebraic theory of these symmetry defects is given by a G -crossed braided tensor category, which extends the unitary modular tensor category modeling the anyons. The computational power of anyon models can be enhanced by incorporating symmetry defects, so it is of practical importance to analyze the quantum gates that can be built from a G -crossed braided tensor category. (Received July 18, 2016)