

1172-18-241

Marcel Bischoff and **Corey Jones*** (cormjones88@gmail.com). *Computing fusion rules for G -extensions of fusion categories.*

G -extension theory of fusion categories has become an important tool for the application of fusion categories to topologically ordered phases of matter. While extension theory has been applied with great success to classification problems, it can be computationally difficult to determine the finer structure of a G -graded extension. For G -extensions of a pseudo-unitary fusion category \mathcal{C} , we provide a method for recovering the fusion rules of an extension in terms of the associated braided categorical action of G on the center of \mathcal{C} . We then apply this to find closed formulas for the fusion rules of extensions of some group theoretical categories and of cyclic permutation crossed extensions of modular categories. (Received August 30, 2021)