

Speaker: **Ryan Johnson**
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Thursday, October 29, 2015
3:30 pm
Room: 125 DeBartolo Hall

Title: An invariant that distinguishes Tambara-Yamagami categories

Abstract:

In this talk, we investigate the higher Frobenius-Schur indicator introduced by Ng and Schauenburg and prove that it is a strong enough invariant to distinguish between any two Tambara-Yamagami fusion categories. Our method of proof is based on computation of the Frobenius-Schur indicators as Gauss sums for certain quadratic forms on finite abelian groups and relies on the classification of quadratic forms on finite abelian groups due to Wall. As a corollary to our work, we show that the state-sum invariants of 3-manifolds associated with Tambara-Yamagami categories determine the category as long as we restrict to Tambara-Yamagami categories coming from groups G whose order is not a power of 2. Turaev and Vainerman proved this result under the assumption that G has odd order and they conjectured that a similar result should hold for Tambara-Yamagami categories coming from even-order groups. Their proof used the state-sum invariant of lens spaces $L_{k,1}$. We provide an example showing that the state-sum invariants of lens spaces is not enough to distinguish all Tambara-Yamagami categories.