## The orbifolds of lattice VOAs

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## Abstract:

There is an ever-deepening relationship between VOAs and tensor categories. In particular, VOA orbifold theory corresponds to G-crossed braided categories and the extension theory of Etingof-Nikshych-Ostrik. In my talk I'll explain the practical implications of the category theory to VOA orbifold theory, in particular in extending beyond the G cyclic (or abelian) case. I'll prove conjectures of Mason-Ng describing the orbifolds  $V^G$  of lattice theories where the group G fixes all V-modules. The other extreme, where G acts fixed-point-freely on the V-modules, will also be discussed (when G=Z/2 this reduces to the familiar Tambara-Yamagami categories, but there is no need to limit to abelian G). This is joint work with Andrew Riesen.