

# Chiral algebras with exceptional finite symmetry groups

*Monday, 31 May 2021 12:00 (1h 15m)*

The classification of finite simple groups is a remarkable theorem of modern mathematics which says that every such group either a) belongs to one of three infinite families, or b) is one of 26 exceptional cases, which are called the sporadic groups. Of these 26 outliers, 20 of them appear as subquotients inside of the largest, which is called the monster. It is natural to ask what objects these groups act on by symmetries. In the case of the monster, it is a cherished result of mathematical physics that it arises as the automorphism group of a certain meromorphic conformal field theory of central charge 24: the moonshine module. We show that the method of coset conformal field theory can be effectively used to obtain chiral algebras which furnish several of the other sporadic groups as their symmetries. Moreover, these chiral algebras embed into one another in the same way as do their automorphism groups; that is to say, we have discovered a functorial assignment of subalgebras of the moonshine module to certain privileged subgroups of the monster.

**Presenter:** RAYHAUN, Brandon (Stanford U.)