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Conformal Vertex Algebras and Borcherds algebras

Conformal vertex algebras and vertex operator algebras are algebraic structures that play a central role in various areas of mathematics and theoretical physics, including representation theory, conformal field theory, and moonshine phenomena. This talk will provide an introduction to these important concepts, presenting their precise definitions and illustrating them with key examples.

Particular emphasis will be given to the famous FLM moonshine module, which exhibits deep connections between the monster group and modular functions. The examples of lattice vertex algebras associated to even lattices will be covered. Additionally an overview of constructing Borcherds algebras from specific examples will be covered.