

On the uniqueness of the moonshine vertex operator algebra

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Abstract: The Frenkel-Lepowsky-Meurman's construction of the moonshine vertex operator algebra is not only important in Borcherds' proof of the McKay-Thompson-Conway-Norton's moonshine conjecture, but also fundamental in shaping the theory of vertex operator algebra. It was conjectured by FLM in 1988 that the moonshine vertex operator algebra can be characterized by certain canonical conditions. In this talk I will present some basics on vertex operator algebras and the monstrous moonshine, and report recent progress on proofs of the conjecture. I will also discuss how this conjecture is related to the classification of holomorphic vertex operator algebras with central charge 24.