Master's Defense

Deligne's Exceptional Series and Modular Linear Differential Equations

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Abstract: In 1988, Mathur, Mukhi, and Sen studied rational conformal field theories in terms of differential equations satisfied by their characters. These differential equations are modular invariant, and the solutions they obtain for order 2 equations have relationships with certain Lie algebras. In fact, the Lie algebras in the Deligne Exceptional series appear, whose study is motivated by uniformities which appear in their representation theory. This thesis studies the Deligne Exceptional Series from these two perspectives, and gives a sequence of finite groups which has analogies with the Deligne series.

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Mathematics and Computer Science

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