



Department of
Theoretical Physics

THE QUANTUM SPACETIME SEMINAR SERIES

An invitation to moonshine

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Date: Apr 30, 2019

Time: 11.30 am

Venue: A-304, TIFR



I will review the appearance of moonshines associated with the Mathieu Groups in the counting of BPS states in $N=4$ supersymmetric string theory. Moonshine refines the the second-quantised elliptic genus of $K3$ and implies a product formula to a closely related Siegel modular form. These Siegel modular forms in certain cases are related to Lie algebras whose root lattices emerge from the walls of marginal stability of quarter-BPS dyons. We argue for the existence of a new class of Lie algebras that arise for particular $N=4$ supersymmetric string theories. If time permits, I will discuss examples from Umbral moonshine that non-trivially extends Mathieu moonshine.