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The essentials of Monstrous Moonshine.

Groups and combinatorics—in memory of Michio Suzuki, 347–353, *Adv. Stud. Pure Math.*, 32, *Math. Soc. Japan, Tokyo*, 2001.

This expository paper provides a very quick exposure to the essentials of Monstrous Moonshine with an emphasis on replicable functions. Monstrous Moonshine is the remarkable connection, first observed by McKay, between the conjugacy classes of the finite simple Monster group and certain modular functions. These functions allow for a replication power operator corresponding to the group power map. Replicable functions are those functions satisfying suitable replication axioms. They generalize the elliptic modular function $j(\tau)$. This paper formally defines the basic terms, and discusses some of the remarkable consequences of these definitions. A characterization of the (rational) replicable functions is conjectured. Potentially useful connections to differential Schwarz equations and differential dynamical systems are also mentioned.

Reviewed by *Christopher S. Simons*

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