

Ramanujan congruences for m -regular partition functions

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Abstract. S. Ramanujan proved that the unrestricted partition function has the remarkable property that it is always congruent to 0 modulo 5 in the arithmetic progression $5n + 4$, to 0 modulo 7 in the progression $7n + 5$, and to 0 modulo 11 in the progression $11n + 6$. Recently K. Ono showed that there exist “Ramanujan congruences” modulo every prime that is at least 5.

In this talk we focus on m -regular partition functions, which count those partitions none of whose parts are divisible by m . In particular, for certain values of m the m -regular partition function satisfies Ramanujan-type congruences. We will also discuss some interesting connections to other number theoretic objects, including elliptic curves and K3 surfaces.

