Thursday, March 7, 2019
4:30–5:20 p.m.
SAS 2102

The Ramanujan congruences for partitions

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The remarkable **Ramanujan's congruences** for the partition function $p(n)$ will be presented. Here is Ramanujan's own account:
"I have proved a number of arithmetic properties of $p(n)$...in particular that

$$p(5n + 4) \equiv 0 \pmod{5},$$
$$p(7n + 5) \equiv 0 \pmod{7}.$$

... I have since found another method which enables me to prove all of theses properties and a variety of others, of which the most striking is

$$p(11n + 6) \equiv 0 \pmod{11}.$$

There are corresponding properties in which the moduli are powers of $5, 7$ or 11...It appears that there are no equally simple properties for any moduli involving primes another than these three."

In this talk, we will discuss Ramanujan's ingenious proofs, his insights and the interesting history behind the account above. This talk should be **accessible to all undergraduates**.

NCSU Society for Undergraduate Mathematics

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Mathematics and pizza!