

abstract

JOINT IAS/PU NUMBER THEORY SEMINAR

Topic:

Speaker:

Affiliation:

Date:

Time/Room:

The subject of partition theory has long been an excellent source of combinatorial hypergeometric q -series that are also automorphic forms. The forms that are associated with even the simplest examples (such as the generating function of the partition function $p(n)$) have nontrivial levels, characters, and poles at the cusps, and the techniques needed to fully understand the coefficients were long in development. Quite recently, real analytic harmonic Maass forms have also been employed to understand Ramanujan's mysterious mock theta functions and new classes of hypergeometric series.

I will discuss a number of results that illustrate the use of techniques from the theory of automorphic forms in proving linear congruences, asymptotics, and exact formulas for several famous partition functions (including Dyson's crank and rank) along with other, newer examples of combinatorial hypergeometric series.