

abstract

JOINT IAS/PU NUMBER THEORY SEMINAR

Topic:

Speaker:

Affiliation:

Date:

Time/Room:

Among the bounty of brilliancies bequeathed to humanity by Srinivasa Ramanujan, the circle method and the notion of mock theta functions strike wonder and spark intrigue in number theorists fresh and seasoned alike. The former creation was honed to perfection for its original purpose of counting partitions by Hans Rademacher. The latter ingenuity, despite receiving considerable scrutiny, remained largely enigmatic for decades. In 2002 Sander Zwegers ascertained the essential properties characterizing Ramanujan's mock theta functions. This breakthrough has triggered an avalanche of activity (in mathematics and physics) associated with mock automorphic forms. In 1968 Douglas Niebur, acting upon a suggestion made originally by Atle Selberg, uncovered a natural generalization of automorphic forms. His work resolved a question that was addressed initially by his advisor Marvin Knopp. Although Niebur's functions arose from within a completely different context, it turns out that they are related rather closely to mock theta functions. This talk will recount the research of the Rademacher school (including the speaker) pertaining to Niebur integrals, and it will expose their connection with mock automorphic forms and harmonic Maass forms.