Speaker: A. Raghuram

Title: Special values of automorphic L-functions and congruences

Abstract: Hida proved in 1981 that if a prime p divides the algebraic part of the value at $s = 1$ of the adjoint L-function of a holomorphic cusp form f, then there is another cusp form g such that f is congruent to g modulo the prime p. This result was generalized to Hilbert modular forms by Eknath Ghate and Mladen Dimitrov, and to certain cusp forms on GL(2) over an imaginary quadratic field by Eric Urban, and recently to cusp forms on GL(2) over any number field by Namikawa. In this talk, I will discuss further generalizations of this phenomenon to the context adjoint L-values for cohomological cuspidal automorphic representations of GL(n) over any number field. This is a report of joint work with Baskar Balasubramanyam. In Part 1, I will introduce the students/postdocs to the general topic of special values of L-functions and show, with some GL(2) examples, how one tries to study the arithmetic of L-functions. In the colloquium style research talk I will give a overview of my project as above but without any proofs, and in the concluding part I hope to sketch some proofs.