

Admissible Representations of $GL(2, F)$: p-adic case

Math 290 Number Theory Seminar

Winter 2007

This seminar will serve as an introduction to the theory of representations of p-adic groups, focusing primarily on the case of $GL(2, F)$, where F is a local field. Topics will include (but are not limited to):

- the Iwasawa decomposition
- smooth representations
- admissible representations
- the principal series representation
- the Hecke algebra
- smooth modules for the Hecke algebra
- the Jacquet module of a smooth representation
- the Jacquet functor
- the contragredient representation
- smooth functionals on a smooth representation
- matrix coefficients of a smooth representation
- supercuspidal representations
- Whittaker functionals for an admissible representation
- Kirillov models for an admissible representation
- spherical Hecke algebra
- the Cartan decomposition
- unramified irreducible admissible representations

Some of results we intend to cover are the admissibility of the principal series, the Frobenius reciprocity theorem, the admissibility of the Jacquet module of an admissible representation (Jacquet's theorem), Harish-Chandra's theorem on matrix coefficients of admissible representations, the local functional equation, and the Satake transform. The course will be based on some notes by Prof. Rogawski of the same title.

We plan to have an organizational meeting on Monday, January 8, 2006 at 3:30pm in a location TBA to finalize the course meeting times.