

Joint IAS/PU Number Theory Seminar

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Goren-Oort Stratification of Hilbert Modular Varieties mod p and Tate Conjecture

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Date & Time: Thu, 03/07/2013 - 16:30 - 17:30

Location: Fine Hall 214

In this talk, I will report on an on-going joint project with David Helm and Yichao Tian. Let p be a prime unramified in a totally real field F . The Goren-Oort strata are defined by the vanishing locus of the partial Hasse-invariants; it is an analog of the stratification of modular curve mod p by the ordinary locus and the supersingular locus. We give explicit global description of the Goren-Oort stratification of the special fiber of the Hilbert modular variety for F .

An interesting application of this result is that, when p is inert of even degree, certain generalization of the strata considered by Goren-Oort contribute non-trivially as Tate cycles to the cohomology of the special fiber of the Hilbert modular varieties. Under some mild conditions, they in fact generate all the Tate cycles.

If time permits, I will briefly mention the generalization of this construction to the case of PEL type Shimura varieties, which is an on-going project in its early stage.

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terms:

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