Joint Meeting of Unione Matematica Italiana and American Mathematical Society

Session 25 – ARITHMETIC ALGEBRAIC GEOMETRY

June 13 2002, Pisa

ORGANIZERS:
Alan Adolphson (University of Stillwater)
Francesco Baldassarri (Università di Padova)
Massimo Bertolini (Università di Padova)
Steven Sperber (University of Minneapolis)
Douglas Ulmer (University of Arizona at Tucson)

Fabrizio Andreatta (Università di Roma "La Sapienza")

Hilbert modular forms mod p

ABSTRACT: In this talk I will present joint work with E. Goren (McGill) concerning the theory of Hilbert modular forms in characteristic p. I will describe the kernel and the image of the q-expansion map and prove the existence of filtration for Hilbert modular forms. I will define operators U, V and Θ_χ and study the variation of the filtration under these operators. In particular, I will prove that every ordinary eigenform has filtration in a prescribed box of weights. Our methods are geometric – comparing holomorphic Hilbert modular forms with rational functions on a moduli scheme with level-p structure, whose poles are supported on the non-ordinary locus.