



Algebra and Number Theory Seminar

Title: Drinfeld modular forms, Galois representations and Hecke characters

Speaker: Gebhard Boeckle (University of Duisburg-Essen)

Date: Mon 27th April 2009 at 4:00PM

Location: Mathematical Sciences Seminar Room

Abstract: Work of Eichler-Shimura and Deligne attaches to any classical Hecke eigenforms of weight at least two, a strictly compatible systems (SCS) of Galois representations. Using a cohomological theory of Pink and myself, an analogous construction can be given for cuspidal Drinfeld Hecke eigenforms. Unlike in the classical situation, the representations are 1- and not 2-dimensional. This is a consequence of the Eichler-Shimura relation in characteristic p and is suggested by the generating function for Hecke operators in characteristic p . The latter had motivated Serre to ask whether the Hecke eigenvalue system would arise from a Hecke character. Goss reemphasized the question from the Galois representation perspective. Adapting to the function field setting a correspondence of Khare between SCS of mod p Galois representations and Hecke characters, we answer the question in the affirmative. I shall give an introduction to Drinfeld modular forms, explain the meaning of the above statements and indicate some recent results on ramification properties of the Galois representations obtained. It turns out that ramification is also linked to good non-ordinary reduction of Drinfeld modular curves.