Number Theory Seminar

Elliptic modules and Frobenius endomorphisms

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Abstract: Given a finite Galois extension L/K of global fields and a conjugacy class C of Gal(L/K), a fundamental problem is that of describing the (unramified) primes p of K for which the conjugacy class of the Frobenius at p is C. The Chebotarev Density Theorem provides the density of these primes, while, in general, the characterization of the primes themselves is a finer and deeper question. We focus on unraveling this question for the division fields of a generic Drinfeld module. For Drinfeld modules of rank 2, we obtain an explicit global description of the Frobenius. We apply this description to derive a criterion for the splitting modulo primes of a class of non-solvable polynomials and to study the frequency with which the reductions of Drinfeld modules have small endomorphism rings. We also generalize some of these results to higher rank Drinfeld modules and prove CM-lifting theorems for Drinfeld modules. This is joint work with Mihran Papikian (Pennsylvania State University, USA).

The seminar ends at 12:30.

Tuesday, September 9 at 11:00 AM in SEO 427