

BOSTON UNIVERSITY NUMBER THEORY SEMINAR

Mod-2 dihedral Galois representations of prime conductor

Anna Medvedovsky
Boston University

Monday, October 1 at 4:15 pm
111 Cummington Mall, MCS B21
Tea and cookies in MCS 144 at 4:00 pm

Abstract: For which primes N does 0 or 1 appear as the mod-2 reduction of an eigenvalue of the Hecke operator T_2 acting on the space of weight-2 modular forms of level N ? In this talk we will partially explain our observations (based on data computed for primes N up to 500,000) in terms of dihedral mod-2 Galois representations and class field theory. As a byproduct, we obtain some nonexistence results on elliptic curves and modular forms with certain mod-2 reduction types, extending prior results of Setzer, Hadano, and Kida. Time-permitting, we will discuss some conjectures and partial results about the generalized multiplicities of these eigenvalues. This talk is based on joint work with Kiran Kedlaya.