

SPEAKER: David Rohrlich

TITLE: A potential application of the Fontaine-Mazur conjecture

ABSTRACT: An elliptic curve over the rationals gives rise via its Tate modules to a strictly compatible family of integral ℓ -adic representations of the absolute Galois group of the rational numbers, and more than thirty years ago Lang and Trotter asked whether the families so obtained could be characterized by some simple representation-theoretic properties. Reformulating their question slightly, one can ask whether these are precisely the families of weight one and dimension two. In principle, an affirmative answer should follow from the two-dimensional Fontaine-Mazur conjecture, a large part of which has now been proved by Kisin and Emerton, but a problematic issue remains: Are "classically ordinary" primes ordinary?