Title: Growth of ranks of elliptic curves in Galois extensions of number fields

Abstract: Suppose E is an elliptic curve defined over a number field k, K/k is a quadratic extension, and F is a Galois extension of k containing K. The Parity Conjecture gives a lower bound for the rank of $E(F)$ that sometimes can be quite large. For example, if F/k is dihedral and the rank of $E(K)$ is odd, then under mild assumptions the rank of $E(F)$ should be at least $[F : K]$. In this talk I will discuss recent joint work with Barry Mazur, where we prove some lower bounds of this type when p is an odd prime, F/K is a p-extension, and with "rank" replaced by "p-Selmer rank".