

Speaker: Céline Maistret

Title: Arithmetic invariants and parity of ranks of abelian surfaces

Abstract: Let K be a number field and A/K an abelian surface. By the Mordell-Weil theorem, the group of K -rational points on A is finitely generated and as for elliptic curves, its rank is predicted by the Birch and Swinnerton-Dyer conjecture. A basic consequence of this conjecture is the parity conjecture: the sign of the functional equation of the L-series determines the parity of the rank of A/K . Under suitable local constraints and finiteness of the Shafarevich-Tate group, we prove the parity conjecture for principally polarized abelian surfaces. We also prove analogous unconditional results for Selmer groups.