Speaker: David Zywina

Title: Torsion points of a fixed abelian variety with varying field

Abstract: Consider an abelian variety A over a number field K. For a finite extension L/K, the cardinality of the group $A(L)_{tors}$ of torsion points in $A(L)$ can be bounded polynomially in terms of the degree $[L : K]$. We describe the smallest real number γ_A such that for any finite extension L/K and $\varepsilon > 0$, we have $|A(L)_{tors}| \leq C[L : K]^{\gamma_A + \varepsilon}$, where the constant C depends only on A and ε. Assuming the Mumford-Tate conjecture for A, our constant γ_A agrees with the conjectured optimal exponent of Hindry and Ratazzi. We will discuss what is known concerning the images of the ℓ-adic Galois representations associated to A.