

Speaker: Tony Várily-Alvarado

Title: Probabilistic approaches to rational points on algebraic surfaces

Abstract. The Brauer group of a del Pezzo or a K3 surface over a number field is thought to govern the existence of rational points. A large piece of this group is determined by the Galois-module structure on the geometric Picard group of a surface. I will present work in progress that, given equations for a low-degree del Pezzo or K3 surface, determines its algebraic Brauer group with a high degree of confidence. I will also indicate how effective versions of the Chebotarev density can certify probabilistic results, under GRH. Technology permitting, I will show a live demo.

N.B. This is joint work with Austen James.