

Unlikely Intersections Seminar

The Quadratic Manin-Peyre conjecture for del Pezzo surfaces

Jenn Park (Ohio State)

Abstract: This work is joint with Francesca Balestrieri, Kevin Destagnol, Julian Lyczak, and Nick Rome. Manin-Peyre conjecture has been the subject of intense research in the past few decades, and it has been studied from various perspectives including algebra, arithmetic, analytic, and logic. We provide a general framework for the Manin-Peyre conjecture for the symmetric square of any del Pezzo surface X , and prove the conjecture for the infinite family of nonsplit quadric surfaces. Previously, there were only two examples in the literature: P^2 and $P^1 \times P^1$. In order to achieve the predicted asymptotic, we show that a type II thin set of a new flavour must be removed. A key tool we develop and that can be applied to further examples is a result for summing multiplicative functions and Euler products over quadratic extensions. To establish our counting result for the specific family of quadric surfaces, we improve existing lattice point counting results in the literature and make crucial use of a novel form of lattice point counting.

Tuesday, November 26 at 2:00 PM in 636 SEO