Algebra
Seminar

Irrational points on random hyperelliptic curves

Jackson Morrow
Emory University

Abstract: We consider genus g hyperelliptic curves over $\mathbb{Q}$ with a rational Weierstrass point, ordered by height. If $d < g$ is odd, we prove there exists B_d such that a positive proportion of these curves have at most B_d points of degree d. If $d < g$ is even, we similarly bound degree d points not pulled back from points of degree $d/2$ on the projective line. Furthermore, one may take $B_2 = 24$ and $B_3 = 114$.

Our proofs proceed by refining recent work of Park, which applied tropical geometry methods to symmetric power Chabauty, and then applying results of Bhargava and Gross on average ranks of Jacobians of hyperelliptic curves. This is joint work with Joseph Gunther.

Tuesday, January 30, 2018, 4:00 pm
Mathematics and Science Center: W304

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