

Speaker: Michael Magee

Title: Counting and dynamics of the Markoff-Hurwitz variety

Abstract: I'll discuss two results on the Markoff-Hurwitz Diophantine equation. First, we establish a true asymptotic formula for the number of integer points of bounded height on the Markoff-Hurwitz variety in at least 4 variables. The previous best result here was by Baragar (1998) that gives a rough polylogarithmic rate of growth with somewhat mysterious exponent of growth that is not in general an integer. We also give a new interpretation of this exponent in terms of 'conformal measures'. This is joint work with Gamburd and Ronan. Time permitting, I'll also report on work on the dynamics of a fixed 'pseudo-Anosov' automorphism of the points on the Markoff surface over finite fields. This special automorphism is related to Arnold's cat map, and perhaps more surprisingly, a 1-D lattice Schrodinger operator with a quasiperiodic potential. This is joint work with the undergraduates Cerbu, Gunther and Peilen.