



Fall Colloquium Series

An Accessible guide to Uniform Bounds of Twists

Dr. Bianca Thompson
Harvey Mudd College

Abstract:

The study of discrete dynamical systems boomed with the start of the age of computing. We could suddenly compute high iterates of functions and look at their behavior over time. We could create the beautiful fractal, the Mandelbrot Set, via iterating 0 in the function z^2+c and allowing c to vary. This gives mathematicians a wealth of questions to explore. One question tied to the Mandelbrot set is how many rational points have iterates that end in a cycle as we allow c to vary? Is this number of rational points uniformly bounded as c varies? It turns out that this is a hard question to answer. Instead we will explore places where this question can be answered; special families of rational functions, twists.

Key Words: Number Theory, Discrete Dynamical Systems

Wednesday, Oct. 4, 1:05 - 1:50pm in 3-1637