

## **abstract**

ANALYTIC AND GEOMETRIC NUMBER THEORY MINI-COURSE

Topic:

Speaker:

Affiliation:

Date:

Time/Room:

---

We describe how various fundamental algebraic structures (involving, for example, number fields, class groups, and algebraic curves) can be parameterized via the orbits of appropriate group representations. By developing techniques to count such orbits, we can then use these parameterizations to prove analytic density theorems about the corresponding algebraic objects.

In this series of talks, we discuss several recent such results (as well as the techniques behind them), and in particular, we lead up to a proof that the average rank of all elliptic curves (when ordered by their heights) is bounded. [In fact, it is bounded by 1.5.]