

“There are three types of mathematicians, those that can count and those that cannot.”

- The Internet?

The Trivial Notions Seminar
Proudly Announces

To count or not to count

A talk by
Jerry Wang

Abstract

One major area of research in number theory is the study of rational points on a curve C and its Jacobian J . In 1928, Weil proved what is now known as the Mordell-Weil theorem: $J(\mathbb{Q})$ is finitely generated as an abelian group. One important step in the proof is the finiteness of $J(\mathbb{Q})/nJ(\mathbb{Q})$ for positive integers n . This finiteness is established by embedding $J(\mathbb{Q})/nJ(\mathbb{Q})$ inside another finite but easier to understand group called the n -Selmer group $\text{Sel}_n(J, \mathbb{Q})$. The program of n -descent is precisely the study of $J(\mathbb{Q})$ via a study of the n -Selmer group. Recently Manjul Bhargava and his collaborators have computed the average sizes of some of these Selmer groups, thereby obtaining unconditional bounds on the average ranks of $J(\mathbb{Q})$. In this talk, I will explain the counting technique developed by Bhargava and how it is used to obtain average sizes for the Selmer groups of elliptic curves over \mathbb{Q} and for the Selmer groups of Jacobians of hyperelliptic curves with a marked point.

Thursday March 28th, at 1:00 pm
Science Center 310