Department of Mathematics and Statistics Colloquium

How To Count Abelian Varieties Using Matrix Groups

Abstract: Elliptic curves and their higher dimensional analogues have proven to be interesting, powerful, and enigmatic objects of study; on the one hand elliptic curves are often a topic in an undergraduate number theory course, yet on the other there are large open problems that arise from simple questions about their structure. I want to tell you about an exciting new relationship between an enumeration problem over finite fields and conjugacy classes in matrix groups, but I will begin by giving some background information about elliptic curves and explain some of their uses within and outside of mathematics. Then, after introducing their generalization to dimension two, we will look at how this enumeration problem is connected to the distribution of Frobenius elements in a matrix group.

The speaker is a candidate for an open position in the Department of Mathematics and Statistics. For reasons of confidentiality, the speaker's name and institutional affiliation have been suppressed.

Monday, January 30 at 4:00 in Roop 103

refreshments at 3:45