



AMERICAN UNIVERSITY
W A S H I N G T O N , D C

THE DEPARTMENT OF MATHEMATICS AND STATISTICS COLLOQUIUM

Generating Elliptic Curves with High Rank

Edward Eikenberg

National Security Agency and The University of Maryland

eve@math.umd.edu

3:30 p.m. on Tuesday, November 19th

Ward 303

Abstract: It is well known that the rational points of an elliptic curve form a finitely generated abelian group. The points of finite order in this group are called the torsion points, and the rank is defined as the number of generators of this group that have infinite order. It is a current conjecture that elliptic curves can have arbitrarily large rank. However, most elliptic curves have rank 0 or 1, and curves of large rank are very rare. When restricting to curves that have non-trivial torsion, large rank is even more difficult to find.

In this talk, I will discuss some of the techniques used to find elliptic curves with high rank, focusing on some clever yet simple polynomial techniques that generate entire families of curves with high rank. I will also examine some twists of these techniques that generate families of elliptic curves with a fixed torsion group and high rank.

Presented by

THE AU MATH/STAT DEPARTMENT AND THE AU CHAPTER OF SIGMA XI

For additional information, contact

Richard Brown (brown@american.edu) or

Alex White (whiteale@american.edu)

Next Colloquium:

Tuesday, November 26, 2002 Ward 303

Sudenshna Basu, Howard University
Ball Generated Properties on Banach Spaces
