

Time: Wednesday May 4th, 2011 4:30pm
Location: Buchanan A202

A Deformed Commuting Variety
Andrew Morrison, University of British Columbia

What is the probability that two randomly chosen matrices (A, B) , over the finite field F_q , commute? That is to say, can we count the number of pairs (A, B) such that $[A, B] = 0$?

In the 60's Feit and Fine provided the answer to this question in the form of a rational q -series $\prod_{i \geq 0, j \geq 1} (1 - q^{1-j} x^i)^{-1}$, where the x^n coefficient gives the number of such $n \times n$ pairs.

We discuss a "deformed" problem, insisting that the pair commute up to a scalar multiple, and provide a similar product formula.