Stanford University
Departments of Mathematics and Statistics

PROBABILITY SEMINAR

4:15pm, Monday, October 8, 2012
Sequoia Hall Room 200
Cookies served at 3:45pm, 1st floor Lounge.

Speaker: Persi Diaconis, Stanford University

Title: Basic arithmetic, probability and additive combinatorics

Abstract:
When adding a list of numbers, carries occur along the way. For typical numbers, these carries produce interesting stochastic processes — Markov chains that also appear in card shuffling problems and determinantal point processes. Previous analysis of these problems is based on the usual digits. In joint work with Shao and Soundararajan we show that “balanced digits” are better and indeed achieve the best possible. This requires an excursion into “additive combinatorics,” the growing mathematical subject that proves that the primes have arithmetic progressions of arbitrary length. Many problems remain.