Stanford University
Departments of Mathematics and Statistics

PROBABILITY SEMINAR

4pm, Monday, October 30, 2017
Sequoia Hall Room 200
Refreshments served at 3:30pm in the Lounge.

Speaker: Persi Diaconis, Stanford Mathematics and Statistics

Title: The mathematics of spatial mixing

Abstract:
People “mix” things like cards or dominoes or mah jongg tiles by sliding them around on the table with their two hands and, in the case of cards, gathering them up into a pile at the end. Such mixing is standard in California poker rooms and ESPN tournaments, as well as in Monte Carlo baccarat. Natural questions arise such as how long to mix and, if mixing isn’t thorough, why not?

In joint work with Soumik Pal we have a model which captures some aspects of spatial mixing and permits analysis. The analysis introduces a new proof technique — the method of shadow permutations — which seems generally useful. There is also a novel limiting diffusion which seems of independent interest. Finally, I will review available data of actual “smooshing” and many open problems.