Stanford University
Departments of Mathematics and Statistics

Probability Seminar

4pm, Monday, September 25, 2017
Sequoia Hall Room 200

Refreshments served at 4pm in the Lounge.

Speaker: Yinon Spinka, *Tel-Aviv University*

Title: A condition for long-range order in discrete spin systems

Abstract:

We present a new condition for the existence of long-range order in discrete spin systems, which emphasizes the role of entropy and high dimension. The condition applies to all symmetric nearest-neighbor discrete spin systems with an internal symmetry of "dominant phases". Specific applications include a proof of Kotecký's conjecture (1985) on anti-ferromagnetic Potts models, a strengthening of results of Lebowitz–Gallavotti (1971) and Runnels–Lebowitz (1975) on Widom–Rowlinson models and of Burton–Steif (1994) on shifts of finite type, and a significant extension of results of Engbers–Galvin (2012) on random graph homomorphisms on the hypercube. No background in statistical physics will be assumed and all terms will be explained thoroughly.

Based on joint work with Ron Peled.