Stanford University
Departments of Mathematics and Statistics

PROBABILITY SEMINAR

4pm, Monday, November 12, 2018
Sequoia Hall Room 200
Refreshments served at 3:30pm in the Lounge.

Speaker: Pascal Maillard, Université Paris-Sud

Title: The algorithmic hardness threshold for continuous random energy models

Abstract:
I will report on recent work with Louigi Addario-Berry on algorithmic hardness for finding low-energy states in the continuous random energy model of Bovier and Kurkova. This model can be regarded as a toy model for strongly correlated random energy landscapes such as the Sherrington–Kirkpatrick model. We exhibit a precise and explicit hardness threshold: finding states of energy above the threshold can be done in linear time, while below the threshold this takes exponential time for any algorithm with high probability. I further discuss what insights this yields for understanding algorithmic hardness thresholds for random instances of combinatorial optimization problems.