



THE UNIVERSITY OF  
CHICAGO

Department of Statistics  
STATISTICS COLLOQUIUM

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Optimization and Sampling from  
Random Quadratic Potentials

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Via Zoom

### ABSTRACT

Optimizing non-convex functions and sampling from non-log-concave distributions in high dimension are two computationally challenging yet fundamental tasks with a large number of applications. While these problems are intractable from a worst case perspective, they are routinely solved in practice with a variety of heuristics. Seeking to understand the difficulty of these tasks on typical instances, I will focus on the simple case of a random quadratic potential on the hypercube, famously known in probability theory and statistical physics as the Sherrington-Kirkpatrick model. I will describe some recent advances for computing approximate optima and sampling from the associated Boltzmann at high temperature.

This talk is based on joint work with Andrea Montanari and Mark Sellke.

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For further information and inquiries about building access for persons with disabilities, please contact Jonathan Rodriguez at 773.702.8333 or send him an email at [jgrodriquez@galton.uchicago.edu](mailto:jgrodriquez@galton.uchicago.edu). If you wish to subscribe to our email list, please visit the following website:  
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