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THEORETICAL
SCIENCES

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Special Colloquium

Title : Thresholds in Recovery of Sparse Stochastic Block Models

Speaker : Allan Sly, Princeton University

Date : Wednesday, February 13, 2019

Time : 3:00 PM

Venue : Madhava Lecture Hall, ICTS Campus, Bangalore

Abstract : The stochastic block model is an inhomogeneous random graph used to model networks with community structure. I will discuss the threshold for approximately and exactly detecting communities and the role played by models in statistical mechanics. In particular there exists a threshold below which the block model is contiguous with respect to the Erdos–Renyi random graph and above which it is possible to recover an approximation to the blocks. We relate this threshold to the extremality threshold of the Ising model on a branching process tree and to the spectra of certain random matrices. Based on joint work with Elchanan Mossel and Joe Neeman.