

Institut für Diskrete Mathematik

Vortrag im Seminar für Kombinatorik und Optimierung

Dienstag 21.2.2017, 15:00

Seminarraum AE06, Steyrergasse 30, Erdgeschoss

Random Factor Graph Models: The Replica Symmetric Phase

TOBIAS KAPETANOPOULOS

(Goethe-Universität Frankfurt)

We proved the absence of extensive long-range correlations throughout the *replica symmetric phase*, i.e. below the condensation threshold, for a wide class of random factor graph models, including the p-spin Potts antiferromagnet, random k-NAESAT, random k-XORSAT (for even k), etc. This is done by using Janson's technique of *Small Subgraph Conditioning* to nail down the precise limiting distribution of the free energy in this phase. As an application we show that in the replica symmetric phase the random graph model is statistically indistinguishable from the so-called "planted model". This result allows us to verify a general conjecture about the reconstruction phase transition in random factor graph models, which deals with the extent of point-to-set correlations. Additionally, we derive a version of the well-known *Kesten-Stigum* bound for general factor graph models.

Joint work with Amin Coja-Oghlan, Charilaos Efthymiou, Nor Jaafari and Mihyun Kang

Mihyun Kang