

Institute for Applied Mathematics, Bonn University

Oberseminar Stochastik

Thursday, 23 November 2023, 16:30

Lipschitz-Saal (LWK 1.016)

Adrien Schertzer

Bonn

AMP Algorithms and Stein's method: Understanding TAP equations with a new method

We propose a new iterative construction of solutions of the classical TAP equations for the Sherrington-Kirkpatrick model, i.e. with finite-size Onsager correction. The algorithm can be started in an arbitrary point, and converges up to the AT line. The analysis relies on a novel treatment of mean field algorithms through Stein's method. As such, the approach yields also weak convergence of the effective fields at all temperatures towards a centered Gaussians, and can be applied, upon proper alterations, to all models where TAP-like equations and a Stein-operator are available. This is a joint work with Stephan Gufler and Marius A. Schmidt.