

Institute for Applied Mathematics, Bonn University

## Oberseminar Stochastik

Thursday, 04 May 2023, 16:30

Lipschitz-Saal (LWK 1.016)

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## Limit theorems for Gibbs functionals via disagreement coupling

I will begin with a brief introduction to Gibbs processes and define a disagreement coupling for finite Gibbs processes with different boundary conditions. We will then see how disagreement couplings can be used to couple a functional of a Gibbs process with its reduced Palm version. Using Stein's method, this will lead to a Poisson approximation result if we assume that the underlying Gibbs process is dominated by a Poisson process with subcritical Boolean model. The convergence rate depends on second-order quantities of the Gibbs functional and one-arm probabilities from continuum percolation. In the last part of the talk, I will explain how a similar approach can be used to obtain normal approximation for Gibbs functionals. This talk is based on a joint article with Günter Last (Karlsruhe) and on an ongoing project with Christian Hirsch (Aarhus) and Anne Marie Svane (Aalborg).