Contribution Title:	GLAUBER DYNAMICS FOR SPIN SYSTEMS AT HIGH AND CRITICAL TEMPERATURES
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Invited speaker:	Topical session
YRS seminar:	NO

Recent results on the heat-bath Glauber dynamics for the mean-field Ising and Potts models have led to the following intuition on its behavior for lattices. For some critical-inverse temperature β_c, the inverse-spectral-gap of the continuous-time dynamics is exponential in the surface-area when $\beta > \beta_c$ and polynomial in it at the critical $\beta = \beta_c$. At high temperatures ($\beta < \beta_c$), the inverse-gap is uniformly bounded, and furthermore, the mixing time is sharply concentrated (determining the asymptotic number of steps needed to sample from the Gibbs distribution in this regime). This later property (abrupt convergence of the Markov chain to equilibrium) is in general extremely challenging to establish.

We will survey the recent progress in confirming this picture for various underlying geometries (e.g., tori, Bethe lattices) and spin system models.

Talk based on joint works with J. Ding, Y. Peres and A. Sly.