

Aizenman, M.; Holley, R.

Rapid convergence to equilibrium of stochastic Ising models in the Dobrushin Shlosman regime. (English) [Zbl 0621.60118](#)

Percolation theory and ergodic theory of infinite particle systems, Proc. Workshop IMA, Minneapolis/Minn. 1984/85, IMA Vol. Math. Appl. 8, 1-11 (1987).

[For the entire collection see [Zbl 0615.00015](#).]

We show that, under the conditions of the Dobrushin Shlosman theorem for uniqueness of the Gibbs state, the reversible stochastic Ising model converges to equilibrium exponentially fast on the L^2 space of that Gibbs state. For stochastic Ising models with attractive interactions and under conditions which are somewhat stronger than Dobrushin's, we prove that the semi-group of the stochastic Ising model converges to equilibrium exponentially fast in the uniform norm. We also give a new, much shorter, proof of a theorem which says that if the semi-group of an attractive spin flip system converges to equilibrium faster than $1/t^d$ where d is the dimension of the underlying lattice, then the convergence must be exponentially fast.

Reviewer: Abstract

MSC:

60K35 Interacting random processes; statistical mechanics type models; percolation theory

Cited in **2** Reviews
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Keywords:

[Dobrushin Shlosman theorem](#); [stochastic Ising model](#); [Gibbs state](#); [attractive spin flip system](#)