

STANFORD PROBABILITY SEMINAR

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Monday, 17 April 2006

4:15pm (Refreshments at 4pm in the 1st Floor Lounge)

Sequoia Hall, Room 200

Rigorous Results for Relaxation Times in Kinetically Constrained Spin Models for Glasses

Abstract. We expose rigorous results for the density and size dependence of relaxation times (the inverse of the spectral gap) for kinetically constrained spin models, both cooperative and non cooperative ones. These have been proposed as models of strong (FA1f, East) or fragile (FAf > 1) glasses and more generally of systems undergoing jamming transitions (Knight models).

After a brief introduction of the physical issues, we explain our proof in detail on the east model, and then how it extends to models in higher dimension as the north-east or FA2f.

It follows that in the infinite volume limit the relaxation of the spin-spin auto-correlation function is exponential. This excludes the stretched exponential relaxation which was derived by numerical simulations.