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Probability Theory, Stochastic Processes

We study the problem of disorder chaos in the spherical mean-_field model. It concerns the behavior of the overlap between two independently sampled spin configurations from two Gibbs measures with the same external parameters. The prediction states that if the disorders in the Hamiltonians are slightly decoupled, then the overlap will be concentrated near a constant value. Following Guerra‘s replica symmetry breaking scheme, we establish this at the levels of the free energy and the Gibbs measure.