Large-Scale Application of Extremal Optimization

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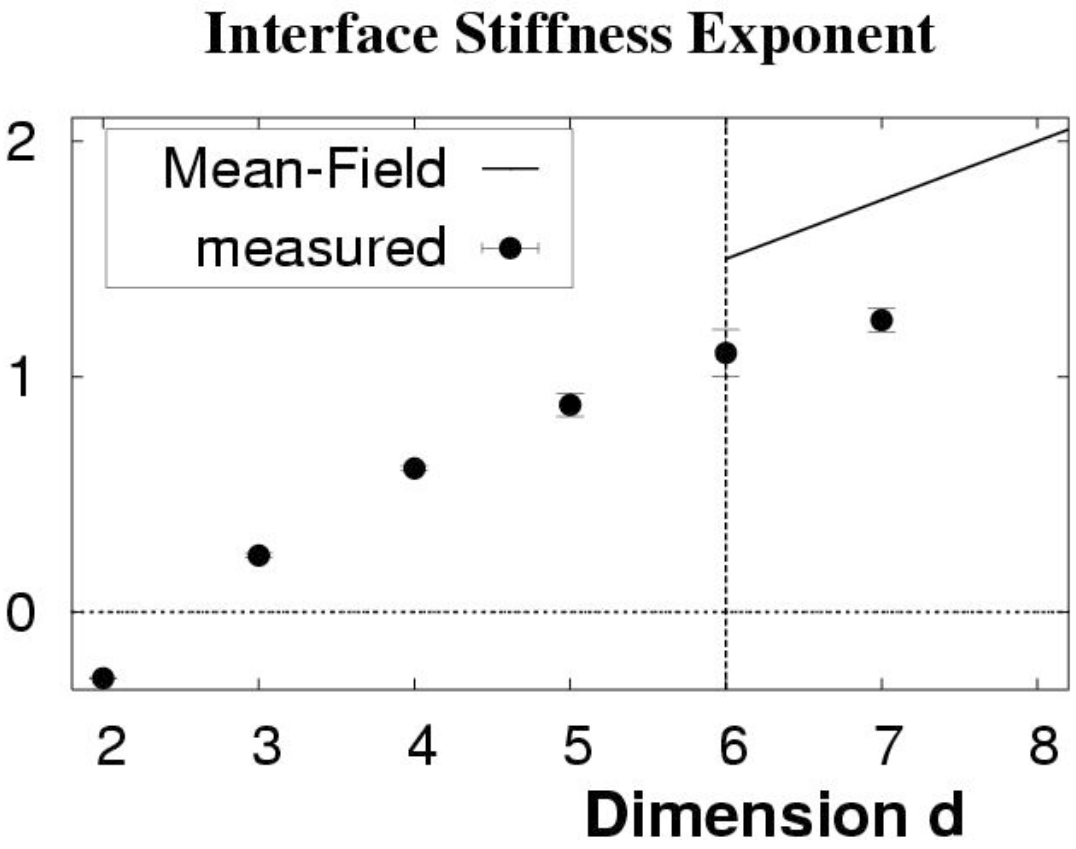
Real disordered Materials seem to be less complex than Mean Field Theory suggests.

Using the *Extremal Optimization* Heuristic on the archetypical Ising Spin-Glass Model of disorder, we find that Mean-Field predictions[1] are inconsistent with numerical results, at least for T→0 energy fluctuations. Simulations of large, hyper-cubic Lattices[2] allow for the first direct comparison with Mean-Field Theory above the upper critical dimension d_c=6.



[1]PRL**90**,127202(2003)
[2]EPL**67**,453(2004)