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Comparing Extremal and Hysteretic Optimization on the Satisfiability Problem[1] BRUNO GONÇALVES, Emory University, STEFAN BOETTCHER, Emory University — We apply physically inspired optimization methods to the classical combinatorial Satisfiablity problem. Treating the usual boolean variables as Ising spins and each clause as a p-spin interaction we can use the pre-existing physical intuition about spin glasses and magnetic systems to find the optimal solution for this problem (the ground state energy). We compare the performance of Extremal Optimization[2] (τEO) and Hysteretic Optimization[3] (HO) and determine the parameter values that provide the best results. Comparisons with previously published results on well known benchmarks[4] are also made.

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[2]PRL 23:5211, 2001
[3]PRL 89:150201, 2002
[4]DIMACS 35:393, 1997

Bruno Gonçalves
Emory University

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