

Abstract Submitted  
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**Comparing Extremal and Hysteretic Optimization on the Satisfiability Problem**<sup>1</sup> BRUNO GONÇALVES, Emory University, STEFAN BOETTCHER, Emory University — We apply physically inspired optimization methods to the classical combinatorial Satisfiability 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<sup>2</sup> ( $\tau EO$ ) and Hysteretic Optimization<sup>3</sup> ( $HO$ ) and determine the parameter values that provide the best results. Comparisons with previously published results on well known benchmarks<sup>4</sup> are also made.

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<sup>2</sup>PRL 23:5211, 2001

<sup>3</sup>PRL 89:150201, 2002

<sup>4</sup>DIMACS 35:393, 1997

Bruno Gonçalves  
Emory University

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