



Prof. Dr. Stefan Boettcher

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“Optimization with Extremal Dynamics”

Extremal Optimization (EO), a new general-purpose heuristic for the approximation of hard combinatorial problems is introduced. EO is motivated by the far-from-equilibrium dynamics of extremally driven systems, such as the Bak-Sneppen model. In this co-evolutionary process, worst-adapted variables are forced to change, driving the system into a self-organized critical state featuring large fluctuations and frequent returns to highly adapted (low energy) configurations. Early experiments on partitioning and coloring problems established EO as a state-of-the-art alternative. Recent work on spin glasses has yielded a quite accurate ($<0.1\%$) confirmation of ground-breaking theoretical calculations for finite connected Bethe lattices. Paired with a new technique of tracing out most spins, we can now tackle finite-dimensional spin glasses with 10^4 - 10^5 variables to address some long-standing questions about low-temperature excitations.

Dienstag, 17. November 2009, 14.00 c.t.

Gebäude E2 6, Seminarraum E.04

Alle Interessenten sind herzlich eingeladen.

Die Sprecher des Graduiertenkollegs
Manfred Lücke und Ludger Santen

**Strukturbildung und Transport
in komplexen Systemen**