

Institut für Optimierung und Diskrete Mathematik

Vortrag

am 15.05.2012 um 11:15

SR C307

The decimation process in random k-SAT

PACHON ANGELICA

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(jointly with Amin Coja-Oghlan) Let Φ be a uniformly distributed random k-SAT formula with n variables and m clauses. Non-rigorous statistical mechanics ideas have inspired a message passing algorithm called 'Belief propagation guided decimation' for finding satisfying assignments of Φ . This algorithm can be viewed as an attempt at implementing a certain thought experiment that we call the decimation process. In this paper we identify a variety of phase transitions in the decimation process and link these phase transitions to the performance of the algorithm.

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