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* **UCLA Combinatorics Colloquium** *

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Date: Thursday, April 9, 15.00-15.50 in Room 6627

(**Note unusual time and place!**)

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Recent results in average case analysis of the satisfiability problem

Abstract

The Boolean satisfiability problem, one of the most central computational problems in Computer Science, is known to be notoriously hard, both theoretically and practically. Yet, the hardness results usually refer to the rather pessimistic worst case analysis, while typical instances are frequently rather accessible computationally. In order to explain and to investigate this phenomenon, researchers usually implement the notion of a typical instance by drawing a formula from some appropriately defined probability space. This approach is called the average case analysis of Boolean satisfiability. In this talk I will discuss recent progress in analyzing typical structural and algorithmic properties of random Boolean formulas, underlying principles, common paradigms and mathematical tools involved.