

Institut für Diskrete Mathematik

## Advanced Topics in Discrete Mathematics

Freitag 7.10.2016, 10:30 (Coffee Break 10:00-10:30)

Seminarraum 2 Geometrie, 4. Stock, Kopernikusgasse 24

## The Strange Logic of Galton-Watson Trees

JOEL SPENCER

(Courant Institute, New York University)

The classic analysis of the probability that the Galton-Watson tree is infinite gives an equation with two solutions. What about other properties. For first order properties we show that the equation system has a unique solution. When conditioning on the tree being infinite the probabilities of first order properties are particularly nice. More generally we consider properties defined by tree automata. These are associated with Monadic Second Order Logic. There is then a natural equation system. Sometimes the system has rogue solutions, meaning solutions with no interpretation. This area combines structural combinatorics, probabilistic combinatorics and logic. (Joint work with Moumanti Podder.)

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