

Institut für Diskrete Mathematik

Combinatorics Seminar (Updated topic)

Friday 18th November 14:15 (Note : Old time)

AE06 Steyrergasse 30, EG / Webex

On the cover time of random walks on graphs

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(University of Vienna)

How long does it take for a random walk to cover all the vertices of a graph? And what is the structure of the uncovered set (the set of points not yet visited by the walk) close to the cover time? We show that on vertex-transitive graphs of bounded degree, this set is decorrelated (it is close to a product measure) if and only if a simple geometric condition on the diameter of the graph holds. In this case, the cover time has universal fluctuations: properly scaled, the cover time converges to a Gumbel distribution. To prove this result we rely on recent breakthroughs in geometric group theory which give a quantitative form of Gromov's theorem on groups of polynomial growth. We also prove refined quantitative estimates showing that the hitting time of any set of vertices is (irrespective of its geometry) approximately an exponential random variable.

Meeting link:

<https://tugraz.webex.com/tugraz/j.php?MTID=m44797227fd680cc7956ebb840b6f033a>

Meeting number: 2730 500 3129

Password: vQydpG372D4

Joshua Erde, Mihyun Kang, Michael Misethan