Seminar on Combinatorial Computing
May 4, Wednesday, 6:30 p.m.
Room 6417, Graduate Center
365 Fifth Avenue, New York

Boosted sampling and minimum spanning trees

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Abstract

Motivated by applications in stochastic optimization, we are interested in the distribution of minimum spanning trees (MST) for random subgraphs of a graph with fixed edge weights. We prove that the MST's are concentrated on a small subset of edges, namely there are $O(n \log n)$ edges which contain the MST of a random subgraph with high probability. The proof relies on a "boosting lemma" for monotone events. If time permits, I will describe other consequences of this approach, concerning unions of MSTs for all subgraphs of a given size, minimum-weight bases in matroids, and algorithmic applications.

Joint work with Michel Goemans.

For further information contact Janos Pach at pach@cims.nyu.edu,
or visit our website
http://www.math.nyu.edu/~pach/public_html/combinatorics_seminar.html