

Random walks and typical distances in Ramanujan graphs, and the overhang problem.

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We determine precisely the mixing time of Random walk on optimal d -regular expanders (Ramanujan graphs.) As a consequence, we obtain the distance between a pair of typical nodes in these graphs. (Joint work with Eyal Lubetzky, GAFA 2016; <http://arxiv.org/abs/1507.04725>).

In the last part of the talk I will describe an unrelated application of random walk to the overhang problem: Given n blocks supported on a table, how far can they be arranged to extend beyond the edge of the table without falling off?

(Joint work with M. Paterson, M. Thorup, P. Winkler and U. Zwick).