THE UNLIKELINESS OF BEING COVERED

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We will show that the probability that a simple random walk will cover a finite, bounded degree graph in linear time is exponentially small.

More precisely, for every D and C, there exists $\alpha = \alpha(D, C) > 0$ such that for any graph G, with n vertices and maximal degree D, the probability that a simple random walk, started anywhere in G, will visit every vertex of G in its first Cn steps is at most $e^{-\alpha n}$.

Joint work with Itai Benjamini and Ben Morris.