

Title: Random directed graphs are robustly Hamiltonian

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Abstract: Let n be a sufficiently large integer and let $p = \omega(\log n/\sqrt{n})$. Let $D \in \mathcal{D}(n, p)$ be a random directed graph. We show that, for every fixed $\alpha > 0$, with high probability D is such that any subdigraph D' of D which satisfies $\deg_{D'}(u) \geq (3/4 + \alpha) \deg_D(u)$ for every $u \in V(D)$ is Hamiltonian. Moreover, with high probability there exists a non-Hamiltonian subdigraph D' of D for which $\deg_{D'}(u) \geq (3/4 - \alpha) \deg_D(u)$ holds for every $u \in V(D)$.

Based on joint work with Angelika Steger and Benny Sudakov.