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On the maximal number of strongly independent vertices in a random acyclic directed graph. (In English)

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In a random digraph on $\{1, \dots, n\}$ the arcs from i to j occur independently for $1 \leq j < i \leq n$ with a common probability p . Two vertices are strongly independent if there is no directed path between them. It is shown that the size S_n of the largest strongly independent subset of $\{1, \dots, n\}$ satisfies $S_n/\sqrt{\log n} \rightarrow \sqrt{2}/\sqrt{\log 1/(1-p)}$ with probability tending to 1 as $n \rightarrow \infty$.

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Classification:

05C20 Directed graphs (digraphs)

05C80 Random graphs

60C05 Combinatorial probability

60F20 Zero-one laws

Keywords:

independent vertices; random digraph