
Zbl 529.05053**Erdős, Paul; Palmer, Edgar M.; Robinson, Robert W.***Local connectivity of a random graph.* (In English)**J. Graph Theory 7, 411-417 (1983). [0364-9024]**

The authors investigate the probability that a random graph is locally connected. A graph is called locally connected if for each vertex v of degree ≥ 2 , the subgraph induced by the vertices adjacent to v is connected. Appropriate probabilities $p(n)$ for an edge of a graph of order n are assumed, and for $n \rightarrow \infty$ the limiting distribution of a graph to be locally connected is evaluated. It turns out that $p_1(n) = 2 \times n^{-3/2}$, $x > 0$, is a lower sharp threshold function and $p_2(n) = ((3/2 + \varepsilon_n) \log n/n)^{1/2}$, where $\varepsilon_n = (\log \log n + \log(3/8) + 2x)/(2 \log)$, is an upper sharp threshold function. A probability below $p_1(n)$ causes almost all graphs to consist of only isolated edges and vertices, a probability above $p_2(n)$ causes almost all graphs to be locally connected.

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Classification:

05C80 Random graphs

05C40 Connectivity

60C05 Combinatorial probability

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local connectivity; induced subgraph; neighbourhood connected; threshold function