PROBABILITY
AND
MATHEMATICAL STATISTICS
Vol. 2, Fasc. 2 (1982), pp. 193–195

ON THE NUMBER OF k-TREES IN A RANDOM GRAPH

Michał Karoński

Abstract: Let $K_{n,p}$ denote a random graph obtained from a complete labelled graph K_n on n vertices by independent deletion of its edges with the prescribed probability $q = 1-p,\ 0 < p < 1$. Moreover, let $p = p(n)$ and let $X_{n,r}^{(k)}$ denote the number of r-vertex subgraphs $(r \geq k+1)$ of a random graph $K_{n,p}$ being k-trees. In this paper we prove that, under some conditions imposed on probability $p(n)$ as $n \to \infty$, the random variable $X_{n,r}^{(k)}$ has asymptotically the Poisson or normal distribution. We generalize earlier results of Erdös and Rényi [2] dealing with the distribution of the number of trees (i.e. random variable $X_{n,r}^{(1)}$) as well as the results of Schürger [7] on the number of cliques in $K_{n,r}$ (i.e. random variable $X_{n,k+1}^{(k)}$).

2000 AMS Mathematics Subject Classification: Primary: -; Secondary: -;

Key words and phrases: -

THE FULL TEXT IS AVAILABLE HERE