
Zbl 318.05110**Bollobás, Béla; Erdős, Paul; Simonovits, M.***On the structure of edge graphs. II.* (In English)**J. London Math. Soc., II. Ser. 12, 219-224 (1976).**

Denote by $G(n, m)$ a graph with n vertices and m edges and by $K_d(t)$ the complete d -partite graph with t vertices in all classes. The following theorem is proved: (a) There is an absolute constant $\alpha > 0$ such that if $0 < c < 1/d$ and $m > (1 - 1/d + c)n^2/2$, then every $G(n, m)$ contains a $K_{d+1}(t)$, where

$$(1) \quad t = \left\lceil \frac{\alpha \log n}{d \log(1/c)} \right\rceil.$$

(b) Given an integer $d \geq 1$ there exists a constant $\epsilon_d > 0$ such that if $0 < c < \epsilon_d$ and $n \geq n(d, c)$ is an integer then there exists a graph $G(n, m)$ satisfying (1) which does not contain a $K_{d+1}(t)$ with

$$t = \left\lceil 5 \frac{\log n}{\log(1/c)} \right\rceil.$$

This is a sequel to the article of *B. Bollobás* and *P. Erdős* in Bull. London math. Soc. 5, 317- 321 (1973; Zbl 277.05135).

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Classification:

05C35 Extremal problems (graph theory)