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Erdős, Paul; Gallai, Tibor; Tuza, Zsolt

Covering the cliques of a graph with vertices. (In English)

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Here all graphs have order n and isolated vertics are not counted as cliques. The central problem studied is that of estimating the cardinality $\tau_c(G)$ of the smallest set that shares a vertex with each clique of G. Among other results it is shown that $\tau_c(G) \leq n - \sqrt{2n} + \frac{3}{2}$ and a linear time (in the number of edges) algorithm for achieving this bound is proposed. Four associated problems are presented. For example, it is asked if $\tau_c(G) \leq n - r(n)$ for all graphs G where $r(n)$ is the largest integer such that every triangle-free graph contains an independent set of $r(n)$ vertices. Also, how large triangle-free induced subgraphs does a K_4-free graph G contain.

R.C.Entringer (Albuquerque)

Classification:
05C70 Factorization, etc.
05C35 Extremal problems (graph theory)
05C85 Graphic algorithms

Keywords:
covering; cliques; linear time algorithm; triangle-free graph