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On graphs with adjacent vertices of large degree. (In English)

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Let $\mathfrak{G}(n,m)$ be the class of finite, loopless graphs G without multiple edges on n vertices and m edges. An important problem in extremal graph theory is the determining the maximum m such that $\mathfrak{G}(n,m)$ contains at least one graph G which has no subgraph isomorphic to any given graph on n or fewer vertices. Continuing these previous investigations the authors of this paper get to the following results with respect to the degree of adjacent vertices:
Let be $m = \alpha n^2$, then holds
- $G \in \mathfrak{G}(n,m)$ contains a pair of adjacent vertices each having degree (in G) at least f(α). n and the best possible value of $f(\alpha)$ is determined (Theorem 1);
- In the case $\alpha > \frac{1}{4}^G$ obtains a triangle with a pair of vertices satisfying the degree restriction of theorem 1 (Theorem 2).
Finally are discussed two further open problems.

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Classification:
05C35 Extremal problems (graph theory)
05C75 Structural characterization of types of graphs

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adjacent vertices of large degree in the class of simple graphs