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Erdős, Paul; Faudree, Ralph J.; Gyárfás, A.; Schelp, R.H.

Cycles in graphs without proper subgraphs of minimum degree 3. (In English)

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Let $G(n,m)$ denote the set of graphs with n vertices and m edges. It is well-kown that each $G \in G(n, 2n-2)$ contains a subgraph of minimum degree 3 but there is a $G \in G(n, 2n-3)$ with no subgraph of minimum degree 3. Furthermore, each $G \in G(n, 2n-1)$ contains a proper subgraph of minimum degree3 but there is a $G \in G(n, 2n-2)$ without this property. Here the authors primarily study cycle lengths of graphs in $G^*(n, 2n-2)$, where $G^*(n, 2n-2)$ is the set of graphs with n vertices, $2n-2$ edges, and no proper subgraph with minimum degree 3. it is shown, for example, that if $G \in G^*(n, 2n-2)$ and $n \geq 6$, then G contains a C_m for $m = 3, 4, 5$. Such graphs also contain "long" cycles. It is shown that if $G \in G^*(n, 2n-2)$ then G contains a cycle of length at least $\lfloor \log n \rfloor$.

L.Lesniak

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