

# GRAPHS IN WHICH THE DIFFERENCE BETWEEN THE MAXIMUM DEGREE AND THE MAXIMUM CLIQUE NUMBER IS BOUNDED BY A CONSTANT

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For every  $k \in \mathbb{N}_0$ , we consider graphs in which for every induced subgraph,  $\Delta \leq \omega - 1 + k$  holds, where  $\Delta$  is the maximum degree and  $\omega$  is the maximum clique number of the subgraph. We give a finite forbidden subgraph characterization for every  $k$ .

As an application, we find some results on the chromatic number  $\chi$  of a graph. For example, if we limit our result to the case  $k \leq 3$ , we find the following: In [2], Reed stated the conjecture that for every graph,  $\chi \leq \lceil \frac{\Delta + \omega + 1}{2} \rceil$  holds. Since this inequality is fulfilled by graphs in which  $\Delta \leq \omega + 2$ , our results provide a hereditary graph class for which the conjecture holds.

**Keywords:** maximum clique, maximum degree, structural characterization of families of graphs, coloring of graphs.

**AMS Subject Classification:** 05C69, 05C75, 05C15.

## References

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- [2] B. Reed, OMEGA, DELTA and CHI, Journal of Graph Theory 27 (1998) 177-212