Bollobás, Béla; Brightwell, Graham
Long cycles in graphs with no subgraphs of minimal degree 3. (English) Zbl 0676.05051

A graph G of order n is said to be degree k-critical if it has exactly $n(k - 1) - \binom{k}{2} + 1$ edges and no proper subgraph of minimal degree k. Define $f_k(n)$ to be the minimum, over all degree k-critical graphs of order n, of the length of the longest cycle. P. Erdős, R. Faudree, A. Gyárfás and R. H. Schelp proved that $\lfloor \log_2 n \rfloor \leq f_3(n) \leq cn^{1/2}$ for some constant c. [Ars Comb. 25B, 195-201 (1988; Zbl 0657.05048)].

The authors prove that $f_3(n) = 4 \log_2 n + O(\log_2 \log_2 n)$. Identical techniques can be extended to the case of general k.

Reviewer: Feng Tian

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Keywords:
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References:

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