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On the lower bounds of the maximum genus of graphs. (Chinese. English summary)

Summary: This paper mainly considers the lower bounds on the maximum genus of 2-edge-connected and 3-edge-connected graphs, generalizes the main result in [J. Chen, D. Archdeacon, and J. L. Gross, Discrete Math. 149, No. 1-3, 19-29 (1996; Zbl 0843.05019)], and proves that \( \frac{1}{3} \beta(G) \) is a lower bound on the maximum genus of any 3-edge-connected and some special 2-edge-connected graphs. In addition, the method used here provides the simple proof for the main results of J. Chen, D. Archdeacon and J. L. Gross [op. cit.].

MSC:
05C10 Planar graphs; geometric and topological aspects of graph theory

Keywords:
maximum genus