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Ko-Wei Lih* (makwlih@sinica.edu.tw), Institute of Mathematics, Academia Sinica, Nankang, 115 Taipei, Taiwan, and **Wei-Fan Wang** (wwf@zjnu.cn), Department of mathematics, Zhejiang Normal University, 321004 Jinhua, Zhejiang, Peoples Rep of China. *On the sizes of graphs embeddable in surfaces of nonnegative Euler characteristic and their applications to edge choosability.*

We establish upper bounds on the sizes of graphs that are embeddable in a surface of nonnegative Euler characteristic and contain no cycles of specified lengths. Some of these bounds are used to confirm the List Edge Coloring Conjecture if any of the following conditions holds, in which $\Delta(G)$ denotes the maximum degree of the graph G .

- (a) $\Delta(G) \geq 7$ and G contains neither 4-cycles nor 5-cycles.
- (b) $\Delta(G) \geq 9$ and G contains no 4-cycles.
- (c) $\Delta(G) \geq 9$ and G contains no intersecting 3-cycles.
- (d) $\Delta(G) \geq 11$ and G contains no adjacent 3-cycles.
- (e) $\Delta(G) \geq 11$ and G contains no 5-cycles. (Received September 19, 2005)