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*Bounding the circumference of 3-connected cubic graphs.*

Jackson solved a conjecture of Bondy by showing that every 3-connected cubic graph of order  $n$  has a cycle of length  $\Omega(n^{0.694})$ . Bilinski et al. improved this lower bound to  $\Omega(n^{0.753})$ . In this paper, we further improve this lower bound to  $\Omega(n^{0.8})$ . This is done by obtaining more structural information, considering cycles through two given edges, and distinguishing the cases whether these edges are adjacent or not. We also show that every 3-edge-connected graph of order  $n$  contains an Eulerian subgraph of size  $\Omega(n^{0.8})$ . (Received July 31, 2011)