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Suil O and **Douglas B. West*** (west@math.uiuc.edu). *The Chinese Postman Problem in regular graphs of odd degree.*

The Chinese Postman Problem in a graph is the problem of finding a shortest closed walk traversing all the edges. In a $(2r + 1)$ -regular graph, the problem is equivalent to finding a smallest spanning subgraph in which all vertices have odd degree. For a 3-regular graph with n vertices, we prove that there is always such a subgraph with at most $(2n - 5)/3$ edges, and this is sharp. We characterize the graphs where equality holds. The family extends to a construction for general r , which we conjecture is also optimal. (Received August 21, 2011)