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The s-Hamiltonian index. (English) Zbl 1223.05166

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Summary: For integers k, s with $0 \leqslant k \leqslant s \leqslant |V(G)| - 3$, a graph G is called s-Hamiltonian if the removal of any k vertices results in a Hamiltonian graph. For a simple connected graph that is not a path, a cycle or a $K_{1,3}$ and an integer $s \geqslant 0$, we define $h_s(G) = \min\{m : L^m(G)$ is s-Hamiltonian $\}$ and $l(G) = \max\{m : G$ has a divalent path of length m that is not both of length 2 and in a $K_3\}$, where a divalent path in G is a non-closed path in G whose internal vertices have degree 2 in G. We prove that $h_s(G) \leqslant l(G) + s + 1$.

MSC:

05C45 Eulerian and Hamiltonian graphs

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