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IMPROVED SUFFICIENT CONDITIONS FOR HAMILTONIAN PROPERTIES

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Abstract

In 1980 Bondy [2] proved that a $(k+s)$-connected graph of order $n \geq 3$ is traceable ($s = -1$) or Hamiltonian ($s = 0$) or Hamiltonian-connected ($s = 1$) if the degree sum of every set of $k+1$ pairwise nonadjacent vertices is at least $((k+1)(n+s-1)+1)/2$. It is shown in [1] that one can allow exceptional $(k+1)$-sets violating this condition and still implying the considered Hamiltonian property. In this note we generalize this result for $s = -1$ and $s = 0$ and graphs that fulfill a certain connectivity condition.

Keywords: Hamiltonian, traceable, Hamiltonian-connected.

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