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Note

HAMILTONIAN CYCLE PROBLEM IN STRONG k-QUASI-TRANSITIVE DIGRAPHS WITH LARGE DIAMETER

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Abstract

Let k be an integer with $k \geq 2$. A digraph is k-quasi-transitive, if for any path $x_0x_1 \ldots x_k$ of length k, x_0 and x_k are adjacent. Let D be a strong k-quasi-transitive digraph with even $k \geq 4$ and diameter at least $k+2$. It has been shown that D has a Hamiltonian path. However, the Hamiltonian cycle problem in D is still open. In this paper, we shall show that D may contain no Hamiltonian cycle with $k \geq 6$ and give the sufficient condition for D to be Hamiltonian.

Keywords: quasi-transitive digraph, k-quasi-transitive digraph, Hamiltonian cycle.

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