Adjacent vertices fault tolerance hamiltonian laceability of star graphs

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ABSTRACT

Let Sn be an n-dimensional Star graph. In this paper, we show that Sn ?F is Hamiltonian laceable where F is the set of f ?(n?4) pairs of adjacent faulty vertices, Sn?F is Hamiltonian where F is the set of f ?(n?3) pairs of adjacent faulty vertices. We also show that Sn ?F is hyper-Hamiltonian laceable where F is the set of f ?(n ?4) pairs of adjacent faulty vertices. Applying these results, we also construct the fault-free cycle with length n! ?2f + 2 in Sn ?F ’ where F ’ is the faulty vertices set with at least a black vertex and a white vertex for |F ’ | = f ?n?2 and the fault-free path with length n! ?2f+ 1 for any two different color vertices in Sn?F ’ where F ’ is the faulty vertices set with at least a black vertex and a white vertex for |F'| = f ?n?3 and n!?2f for any two same color vertices in Sn ?F ′ where F ′ is the faulty vertices set for |F'| = f ?n?3

Keywords : Sn ; Hamiltonian laceable ; hyper-Hamiltonian laceable. ; Star graph ; Hamiltonian

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