The Study of Edge Fault-Tolerance for Hamiltonian Cycles and Hamiltonian Paths Passing through Prescribed Edges of Star

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ABSTRACT

The star graph is a famous interconnection network. In this thesis, we discuss the edge fault tolerance for Hamiltonian cycle and Hamiltonian path passing through prescribed edges for star graph. Let F_e be the set of faulty edges of S_n and E_0 be the edge set of some pairwise vertex-disjoint paths of S_n. At first, we prove all edges of E_0 lie on a Hamiltonian cycle of S_n-F_e, if $|F_e| ? n?3$, $|E_0| ? 2n?5?2|F_e|$ and lie on a Hamiltonian path $P(u, v)$ where $d(u, v)$ is odd, $|F_e| ? n?3$, $|E_0| ? 2n?7?2|F_e|$. After, we improve the result of more prescribed edges, we show lie on a Hamiltonian path $P(u, v)$ where $d(u, v)$ is odd, $|F_e| ? n?3$, $|E_0| ? 2n?6?2|F_e|$.

Keywords : star graph   fault tolerance   Hamiltonian cycle   Hamiltonian path   prescribed edges

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