The Hamiltonian properties for faulty pancake graphs

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ABSTRACT

The use of pancake and star networks as an interconnection network has been studied by many researchers. The fault tolerance for Hamiltonian networks is also an important issue. In this thesis, we prove that an n-dimensional faulty pancake graph contains a Hamiltonian cycle with n-3 faults. (including faulty nodes and faulty edges). Furthermore, there exist Hamiltonian paths between two arbitrary but distinct nodes in a faulty pancake graph with n-4 faults. A graph G is a strongly k-Hamiltonian graph if "v ?(V-F) there exist k+2-|F| edges incident to v such that every pair of these edges is on some Hamiltonian cycle of G-F, for all F ? (V?E) and |F| ? k. We also prove that the pancake graphs are strongly (n-3)-Hamiltonian graphs.

Keywords : pancake graph ; fault tolerance ; interconnection network ; k-Hamiltonian ; k-Hamiltonian connected ; strongly k-Hamiltonian

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