

Hamiltonian Paths and Cycles Passing through Prescribed Edges in the Balanced Hypercubes

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Abstract : The n -dimensional balanced hypercube BH_n ($n \geq 1$) has been proved to be a bipartite graph. Let P be a set of edges whose induced subgraph consists of pairwise vertex-disjoint paths. For any two vertices u, v from different partite sets of V (BH_n). In this paper, we prove that if $|P| \leq 2n - 2$ and the subgraph induced by P has neither u nor v as internal vertices, or both of u and v as end-vertices, then BH_n contains a Hamiltonian path joining u and v passing through P . As a corollary, if $|P| \leq 2n - 1$, then the BH_n contains a Hamiltonian cycle passing through P .

Keywords : interconnection network, balanced hypercube, Hamiltonian cycle, prescribed edges

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