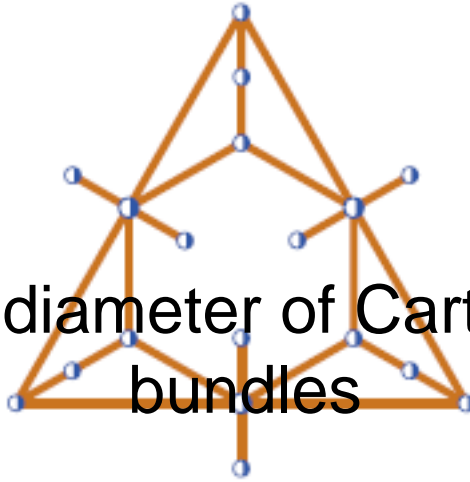


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Mixed fault diameter of Cartesian graph bundles



Content :

Mixed fault diameter $D_{\{(p,q)\}}(G)$ is the maximum diameter among all subgraphs obtained from graph G by deleting p vertices and q edges.

A graph is (p,q) -connected if it remains connected after removal of any p vertices and any q edges.

Mixed connectivity is a generalization of a vertex and an edge connectivity, and mixed fault diameter generalizes both vertex fault diameter and edge fault diameter.

Cartesian graph bundles are graphs that generalize Cartesian graph products.

Let F be (p,q) -connected graph and $B \neq K_2$ be a connected graph.

Upper bounds for the mixed fault diameter of Cartesian graph bundle G with fibre F are given.

We prove that if $q > 0$, then $D_{\{(p+1,q)\}}(G) \leq D_{\{(p,q)\}}(F) + D(B)$,

and if $q = 0$ and $p > 0$, then $D_{\{(p+1,0)\}}(G) \leq \max \{ D_{\{(p,0)\}}(F),$

$D_{\{(p-1,1)\}}(F) \} + D(B)$.

In case when $p = q = 0$ the fault diameter is determined exactly.

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