

On the Strong Menger Connectivity

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Abstract

Vertex connectivity is an important parameter in interconnection networks. In this thesis we start this thesis by introducing Menger's Theorem and strongly Menger connected property. Then we extend strongly Menger connected property in n -dimensional hypercube-like networks and matching composition networks. First, we show that all graphs in the class of n -dimensional hypercube-like networks have some strongly Menger-connected property, even if these graphs are with $n-2$ fault vertices. Furthermore, if we restrict some conditions for each vertex having at least two fault-free adjacent vertices, the class of hypercube-like networks have the strongly Menger-connected property, even if these graph are with $2n-5$ fault vertices. Last, we show that a more general class of graphs, called Matching Composition Networks, satisfying some conditions can have strongly Menger-connected property.