

Connectivity Properties of Generalized Hypercubes

Joshua Brudnak*, László Lipták, Oakland University

We consider the class of generalized hypercubes constructed recursively from the graph K_4 by repeatedly taking two copies of such a graph with a perfect matching added in between. We show that all graphs obtained this way have very good connectivity properties. They are all maximally connected and even when linearly many vertices are deleted, the remaining graph will have a large connected component with only a few vertices in other components. We also show examples of how many vertices we can delete in certain graphs in this class to get the largest component to have certain sizes, including the case when we get two components of equal size. We conjecture that these examples are best possible.

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