

Rainbow Connectivity in Certain Cayley Graphs

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The (strong) rainbow connection number of a connected graph G , denoted $(s)rc(G)$, is the smallest number of colors needed to color the edges of G so that for each pair of vertices of G there is a (geodesic) rainbow path with those vertices at its ends. We give results on rainbow connectivity in the connected Hamming graphs, which are Cayley graphs based in the abelian groups $(\mathbf{Z}_q)^n$. For instance, for $q = 2$ we have the mother of all Hamming graphs, the n -cube, Q_n , about which it is easy to see that $src(Q_n) = rc(Q_n) = diam(Q_n) = n$. This raises questions about Cayley graphs in general.