

## On Strong Metric Dimension of Diametrically Vertex Uniform Graphs

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### Abstract

A pair of vertices  $u, v$  is said to be strongly resolved by a vertex  $s$ , if there exist at least one shortest path from  $s$  to  $u$  passing through  $v$ , or a shortest path from  $s$  to  $v$  passing through  $u$ . A set  $W \subseteq V$ , is said to be a strong metric generator if for all pairs  $u, v \in W$ , there exist some element  $s \in W$  such that  $s$  strongly resolves the pair  $u, v$ . The smallest cardinality of a strong metric generator for  $G$  is called the strong metric dimension of  $G$ . The strong metric dimension (metric dimension) problem is to find a minimum strong metric basis (metric basis) in the graph. In this paper, we solve the strong metric dimension and the metric dimension problems for the circulant graph  $C(n, \pm\{1, 2, \dots, j\})$ ,  $1 \leq j \leq \lfloor n/2 \rfloor$ ,  $n \geq 3$  and for the hypercubes. We give a lower bound for the problem in case of diametrically uniform graphs. The class of diametrically uniform graphs includes vertex transitive graphs and hence Cayley graphs.

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