
SHONDA GOSSELIN, University of Winnipeg

The metric dimension of circulant graphs

A pair of vertices x and y in a graph G are said to be resolved by a vertex w if the distance from x to w is not equal to the distance from y to w . We say that G is resolved by a subset of its vertices W if every pair of vertices in G is resolved by some vertex in W . The minimum cardinality of a resolving set for G is called the metric dimension of G . The problem of determining the metric dimension of a graph is known to be NP-hard (Khuller et al 1994). The metric dimension of a graph has applications in network discovery and verification, combinatorial optimization, chemistry, and many other areas, and consequently this graph parameter has received a great deal of attention from researchers recently, the main goal being to determine the metric dimension of certain classes of graphs. In this talk, we consider the metric dimension of circulant graphs, which are Cayley graphs on cyclic groups that were recently shown to be a class of graphs with bounded metric dimension (Grigoriu et al 2014). We present some background on the problem and some new results. This is joint work with my student Kevin Chau.