Discrete Mathematics Seminar

Time: Friday, 15 October 2010, 12:30–1:30 PM

Location: 238 Derrick Hall

Title: The Fractional Metric Dimension of Graphs

Speaker: Dr. S. Arumugam, National Centre for Advanced Research in Discrete Mathematics
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Abstract:

A vertex x in a connected graph G is said to reslove a pair $\{u,v\}$ of vertices of G if the distance from u to x is not equal to the distance from v to x. A set S of vertices of G is a resolving set for G, if every pair of vertices are resolved by some vertex of S. The smallest cardinality of a resolving set for G, denoted by $dim(G)$, is called the metric dimension of G. For the pair $\{u,v\}$ of vertices of G the collection of all resolving vertices is denoted by $R\{u,v\}$ and is called the resolving neighborhood for the pair $\{u,v\}$. A real valued function $g : V(G) \to [0,1]$ is a resolving function of G if $g(R\{u,v\}) \geq 1$ for all distinct pair $u,v \in V(G)$. The fractional metric dimension of G is defined as $dim_f(G) = min\{|g| : g$ is a minimal resolving function of $G\}$, where $|g| = \sum\limits_{v \in V} g(v)$. In this paper, we initiate a study of this parameter.