1146-05-63 **Linda Eroh**, **Cong X. Kang** and **Eunjeong Yi*** (yie@tamug.edu). *The connected metric dimension at a vertex of a graph.*

The metric dimension is a well-studied notion in graph theory. We begin a local analysis of this notion by introducing *the connected metric dimension of* G *at a vertex* v: a set of vertices S of a graph G is a *resolving set* if, for any pair of distinct vertices x and y of G, there is a vertex $z \in S$ such that the distance between z and x is distinct from the distance between z and y in G. We say that a resolving set S is *connected* if S induces a connected subgraph of G. The *connected metric dimension of* G *at a vertex* v, denoted by $\text{cdim}_G(v)$, is the minimum of the cardinalities of all connected resolving sets of G which contain the vertex v. The *connected metric dimension of* G, denoted by $\text{cdim}(G)$, is $\min\{\text{cdim}_G(v) : v \in V(G)\}$. In this talk, we will consider, among others, the following aspects of the connected metric dimension: 1) the existence of a pair (G, v) such that $\text{cdim}_G(v)$ takes all positive integer values from $\dim(G)$ to $|V(G)| - 1$, as v varies in a fixed graph G; 2) the characterization of graphs G and their vertices v satisfying $\text{cdim}_G(v) \in \{1, |V(G)| - 1\}$; 3) the planarity implication of the condition $\text{cdim}(G) = 2$. (Received January 06, 2019)