1082-05-97 **Michael Hallaway**, **Cong X. Kang** and **Eunjeong Yi*** (`yie@tamug.edu`), Galveston, TX 77553. *On Metric Dimension of Permutation Graphs.* Preliminary report.

The *metric dimension* $\dim(G)$ of a graph G is the minimum number of vertices such that every vertex of G is uniquely determined by its vector of distances to the set of chosen vertices. Let G_1 and G_2 be disjoint copies of a graph G, and let $\sigma : V(G_1) \to V(G_2)$ be a permutation. Then, a *permutation graph* $G_\sigma = (V, E)$, in the sense of Chartrand and Harary, has the vertex set $V = V(G_1) \cup V(G_2)$ and the edge set $E = E(G_1) \cup E(G_2) \cup \{uv \mid v = \sigma(u)\}$. We show that $2 \le \dim(G_\sigma) \le n - 1$ for any connected graph G of order $n \ge 3$. We give examples showing that neither is there a function f such that $\dim(G) < f(\dim(G_\sigma))$ for all pairs (G, σ), nor is there a function g such that $g(\dim(G)) > \dim(G_\sigma)$ for all pairs (G, σ). Further, we characterize permutation graphs G_σ satisfying $\dim(G_\sigma) = n - 1$ when G is a complete k-partite graph, a cycle, or a path on n vertices. (Received June 28, 2012)