1145-VP-2573 **Daniel McGinnis** (daniel.mcginnis15@ncf.edu), 5800 Bay Shore Road, Sarasota, FL 34243, **Peter Gardner*** (psgardner1@wcu.edu), 157 Altaview Dr, Apt# 1D, Cullowhee, NC 28723, and **Tess Baren**, **Michael Corey**, **Mia Friedberg**, **Riley Waechter**, **James Hammer**, **Joshua Harrington** and **Tony Wong**. *On the Domination Number of Permutation Graphs and an Application to Strong Fixed Points.* Preliminary report.

A *permutation graph* G_π is a simple graph with vertices corresponding to the elements of π and an edge between i and j when i and j are inverted in π. A set of vertices D is said to *dominate* a graph G when every vertex in G is either an element of D, or adjacent to an element of D. The *domination number* $\gamma(G)$ is defined as the cardinality of a minimum dominating set of G. A *strong fixed point* of a permutation π of order n is an element k such that $\pi^{-1}(j) < \pi^{-1}(k)$ for all $j < k$, and $\pi^{-1}(i) > \pi^{-1}(k)$ for all $i > k$. In this article, we count the number of connected permutation graphs on n vertices with domination number 1 and domination number $\frac{n}{2}$. We further show that for a natural number $k \leq \frac{n}{2}$, there exists a connected permutation graph on n vertices with domination number k. We find a closed expression for the number of permutation graphs dominated by a set with two elements, and we find a closed expression for the number of permutation graphs efficiently dominated by any set of vertices. We conclude by providing an application of these results to strong fixed points, proving some conjectures posed on the OEIS. (Received September 25, 2018)