1035-05-236 Sarah Novotny* (novotnys@sacredheart.edu), Department of Mathematics, Academic Building, SC, Sacred Heart University, Fairfield, CT 06825, Juan Ortiz (jortiz@clunet.edu), Department of Mathematics, 60 West Olsen Rd, Mail Code 3750, California Lutheran University, Thousand Oaks, CA 91360, and Darren A Narayan (dansma@rit.edu), Department of Mathematics, LeConte College, 1523 Greene Street, University of South Carolina, Columbia, SC 29208. Minimal $k$-rankings and the rank number of $P_{n}^{2}$.

A $k$-ranking of a graph $G$ is a labeling of the vertices using integers between 1 and $k$ inclusive such that whenever two vertices have the same label, every path between those vertices contains a vertex with a higher label. A $k$-ranking is minimal if the reduction of any label greater than 1 violates the described ranking property. We prove that the minimum $k$ appearing in a minimal ranking of the square of the path equals the maximum $k$ appearing in a minimal ranking of a path on vertices. (Received August 22, 2007)

