Rankings and generalizations

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For a graph G, a function $f : V(G) \to \{1, 2, \ldots, k\}$ is a (vertex) k-ranking, if $f(u) = f(v)$ implies that every $u - v$ path contains a vertex x such that $f(x) > f(u) = f(v)$. The rank number, (also known as the tree-depth), of a graph G is the minimum value of k such that G has a k-ranking. Rankings of many classes of graphs have been studied. In 2011, Jamison and Narayan generalized the concept of ranking using the l_1 norm (sum norm).

In this talk, we will look at generalizations of vertex rankings based on l_p norms for $1 \leq p < \infty$. We will compare rank numbers based on l_p norms for $1 \leq p < \infty$ to the traditional rank number for some classes of graphs.

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