1077-05-2127 **Bonnie C. Jacob** and **Jobby Jacob*** (jxjsma@rit.edu). *From sum optimal to max optimal graph rankings.*

Given a graph G, and a non-negative integer a, a function $f : V(G) \to \{a, a+1, \ldots, b\}$ is an $[a,b]$-ranking of G if for $u, v \in V(G)$, $f(u) = f(v)$ implies that every uv path contains a vertex w such that $f(w) > f(u)$. That is, f is an $[a,b]$-ranking of G if and only if the function defined by $g(v) = f(v) - a + 1$ is a k-ranking of G.

We use this generalization of k-rankings to explore l_p norm optimality for all positive integers p and for $p = \infty$. The l_∞ optimality produces the rank number of a graph when $a = 1$. We will discuss the effect of different l_p norms on optimal rankings of graphs. (Received September 21, 2011)