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1003-05-471 **Michael J. Fisher** (michael_fisher@csufresno.edu), Mathematics Department, California State University, Fresno, 5245 N. Backer M/S PB108, Fresno, CA 93740-8001, and **Victor Kostyuk** and **Darren A. Narayan*** (dansma@rit.edu), Department of Mathematics and Statistics, 85 Lomb Memorial Drive, Rochester Institute of Technology, Rochester, NY 14623-5603.
Ordered Achromatic Numbers of Paths, Cycles, and Trees.

Given a graph G , a coloring $f : V(G) \rightarrow \{1, 2, \dots, k\}$ is called an ordered k -coloring (or k -ranking) of G if $f(u) = f(v)$ implies that every $u - v$ path contains a vertex w such that $f(w) > f(u)$. An ordered k -coloring is *minimal* if decreasing any label larger than 1 results in a labeling that is not an ordered k -coloring. The ordered achromatic number of a graph (or *arank number*) of G is the maximum k for which G has a minimal ordered k -coloring. We investigate properties of minimal ordered k -colorings for paths, cycles, and trees. In particular we determine new results involving ordered achromatic numbers and explore necessary conditions for deciding whether a given ordered k -coloring is minimal. (Received September 15, 2004)