

1035-05-83

W. D. Wallis* (wduwallis@math.siu.edu), Department of Mathematics, Southern Illinois University, Carbondale, IL 62901-4408. *Graphs with Champions*. Preliminary report.

Suppose G is any graph. The order k *locality statistic* of a vertex is the number of edges in the subgraph induced by the distance k closed neighborhood of that vertex. The order k *scan statistic* of a graph is the maximum over its vertices x of G of the order k locality statistic. We consider the situation where the order h locality statistics are approximately equal when $h < k$ but there is a unique vertex whose order k locality statistic is significantly larger than all others. Such a vertex is called a *champion*. (Received July 18, 2007)