

1026-05-68

**Steven B Horton\*** ([steve.horton@usma.edu](mailto:steve.horton@usma.edu)), Department of Mathematical Sciences, USMA, West Point, NY 10996, **Jean R. S. Blair**, Department of Electrical Engineering and, Computer Science, USMA, West Point, NY 10996, and **Raluca Gera**, Department of Applied Mathematics, Naval Postgraduate School, Monterey, CA 93943. *Dynamic Domination in Graphs*. Preliminary report.

In this paper we introduce and examine the topic of dynamic domination in graphs. A *dynamic dominating set* is a dominating set  $S \subseteq V(G)$  such that for every  $v \in S$ , either  $S - \{v\}$  is a dominating set, or there exists a vertex  $u \in (V(G) - S) \cap N(v)$  such that  $(S - \{v\}) \cup \{u\}$  is a dominating set. We present computational complexity results and bounds on the size of dynamic dominating sets in arbitrary graphs. We also give a polynomial time algorithm to find minimum dynamic dominating sets for trees. (Received February 12, 2007)