1077-05-1886 **Micaela Harris**, **Ruth Haas**, **Kristina Martin*** (rhaas@smith.edu), **Shira Polster** and **Julie Woods**. *The Rainbow Domination Number of a Graph.* Preliminary report.

Let $G = (V, E)$ be a graph and $c : V \to \{1, 2, \ldots, k\}$ be a (not necessarily proper) $k-$ coloring of the vertices of G that uses all k colors. A set $S \subset V$ is an *rainbow dominating set* for G if i) Every vertex in S is assigned a different color; and ii) S is a dominating set, that is, every vertex in $V(G)/S$ is adjacent to a vertex of S. We define the *rainbow domination number* of a graph to be the least number k such that every onto k coloring of G has a Rainbow domination number. We determine the rainbow domination number for certain graphs. (Received September 21, 2011)