1080-05-241 **Timothy D. LeSaulnier** and **Douglas B. West***, Mathematics Department, University of Illinois, Urbana, IL 61801-2975. *Rainbow edge-coloring and rainbow domination.*

Let $G$ be an edge-colored graph with $n$ vertices. A *rainbow subgraph* is a subgraph whose edges have distinct colors. The *rainbow edge-chromatic number* of $G$, written $\hat{\chi}'(G)$, is the minimum number of rainbow matchings needed to cover $E(G)$. An edge-colored graph is *$t$-tolerant* if it contains no monochromatic star with $t+1$ edges. If $G$ is $t$-tolerant, then $\hat{\chi}'(G) < t(t+1)n\ln n$, and examples exist with $\hat{\chi}'(G) \geq \frac{t}{2}(n-1)$. The *rainbow domination number*, written $\hat{\gamma}(G)$, is the minimum number of disjoint rainbow stars needed to cover $V(G)$. For $t$-tolerant edge-colored $n$-vertex graphs, we generalize classical bounds on the domination number: (1) $\hat{\gamma}(G) \leq \frac{1+\ln k}{k}n$ (where $k = \frac{\delta(G)}{t}+1$), and (2) $\hat{\gamma}(G) \leq \frac{t}{t+1}n$ when $G$ has no isolated vertices. We also characterize the edge-colored graphs achieving equality in the latter bound. (Received January 28, 2012)