1056-05-1636 **Karin R. Saoub*** (`saoub@roanoke.edu`), Roanoke College, 221 College Lane, Salem, VA 24153, and **H. A. Kierstead**, Arizona State University, Tempe, AZ 85287. *First-Fit coloring of p-tolerance graphs.*

There has been extensive study on the First-Fit coloring of interval graphs. Kierstead proved in 1988 that $\chi_{FF}(G) \leq 40\omega(G)$ for any interval graph, which was later improved to $26\omega(G)$ by Kierstead and Qin [1992]. Using a brilliant new technique, Pemmaraju, Raman, and Varadarajan lowered the upper bound to $10\omega(G)$ [2004]. By a slight modification Narayanaswamy and Babu, and independently Brightwell, Kierstead, and Trotter, were able to reduce the upper bound to $8\omega(G)$.

In trying to extend these results to tolerance graphs, we introduce a new class of bounded tolerance graphs, p-tolerance graphs, in which the ratio between the length of an interval and the tolerance is at most p. We show that if G is a p-tolerance graph with $\omega(G) = \omega$ then $\chi_{FF}(G) = \Theta\left(\lceil \frac{1}{1-p} \rceil \omega\right)$. In particular, by modifying the technique from Pemmaraju et. al, we show that $\chi_{FF}(G) \leq 8\lceil \frac{1}{1-p} \rceil \omega(G)$. We will also note that this cannot be extended to all bounded tolerance graphs as Kierstead constructed bounded tolerance graphs with arbitrarily large First-Fit chromatic number and clique size 2 [1991]. (Received September 22, 2009)