1038-05-77 **H. A. Kierstead** (kierstead@asu.edu), Arizona State University, Tempe, AZ 85287, and **A. V Kostochka*** (kostochk@math.uiuc.edu), University of Illinois at Urbana-Champaign, Urbana, IL 61801. *A fast algorithm for equitable coloring.*

A proper vertex coloring of a graph is *equitable* if the sizes of color classes differ by at most one. The celebrated Hajnal-Szemerédi Theorem states: For every positive integer r, every graph with maximum degree at most r has an equitable coloring with $r+1$ colors. We show that this coloring can be obtained in $O(rn^2)$ time, where n is the number of vertices. (Received January 29, 2008)