1025-05-17   **H. A. Kierstead**, AZ , and **A. V. Kostochka*** (`kostochk@math.uiuc.edu`), Dept. of Mathematics, 1409 W. Green St., Urbana, IL 61801. *Equitable colorings of graphs with bounded vertex degrees.*

A proper coloring of vertices of a graph is equitable if its color classes differ in size by at most one. We discuss several conjectures strenthening the classical Hajnal-Szemerédi Theorem on equitable colorings and prove some partial results towards them. In particular, we describe all graphs G with $d(x) + d(y) \leq 6$ for every edge $xy \in E(G)$ that do not admit an equitable coloring with 3 colors. (Received December 05, 2006)