1106-VN-78 **H. Kierstead**, **A. Kostochka**, **T. Molla** and **E. Yeager*** (`yeager2@illinois.edu`). *Disjoint Cycles and Equitable Coloring.*

In 1963, Corrádi and Hajnal famously proved the following: If a graph has minimum degree at least $2k$, and at least $3k$ vertices, then it contains a set of k vertex-disjoint cycles. The degree bound is sharp, but has been improved by considering Ore-type conditions. That is, by bounding the minimum degree sum of nonadjacent vertices, instead of bounding the minimum degree.

An *equitable coloring* of a graph is a proper vertex coloring where no two color classes differ in size by more than one. The most obvious relation between equitable coloring and the problem of finding disjoint cycles is this: A graph G on $3k$ vertices contains a set of k disjoint cycles if and only if the complement of G is equitably k-colorable. Chen, Lih, and Wu conjectured in 1994 that a connected graph G is $\Delta(G)$-equitably colorable if it is different from K_m, C_{2m+1}, and $K_{2m+1,2m+1}$ for every $m \geq 1$. We discuss an Ore-type analog to this conjecture: that every k-colorable graph G with maximum degree sum of adjacent vertices at most $2k+1$ is equitably k-colorable unless it contains $K_{1,2k} + K_{k-1}$; $K_{c,2k-c} + K_k$ for odd c; or a third graph in the case $k = 3$. (Received July 03, 2014)