

1065-05-54

Seog-Jin Kim* (skim12@konkuk.ac.kr), Department of Mathematics Education, Konkuk University, Seoul, 143-701, South Korea, **Alexandr Kostochka**, Department of Mathematics, University of Illinois at Urbana-Champaign, Urbana, IL 61801, **Douglas B. West**, Department of Mathematics, University of Illinois at Urbana-Champaign, Urbana, IL 61801, **Hehui Wu**, Department of Mathematics, University of Illinois at Urbana-Champaign, Urbana, IL 61801, and **Xuding Zhu**, Department of Mathematics, Zhejiang Normal University, Jinhua, Peoples Rep of China. *Decomposition of Sparse Graphs into Forests and a Graph with Bounded Degree*. Preliminary report.

Say that a graph with maximum degree at most d is d -bounded. For $d > k$, we prove a sharp sparseness condition for decomposability into k forests and a d -bounded graph. Consequences are that every graph with fractional arboricity at most $k + \frac{d}{k+d+1}$ has such a decomposition, and (for $k = 1$) every graph with maximum average degree less than $2 + \frac{2d}{d+2}$ decomposes into a forest and a d -bounded graph. When $d = k + 1$, and when $k = 1$ and $d \leq 6$, the d -bounded graph in the decomposition can also be required to be a forest. When $k = 1$ and $d \leq 2$, the d -bounded forest can also be required to have at most d edges in each component. (Received August 20, 2010)