1164-05-89 **Guantao Chen*** (gchen@gsu.edu), Department of Mathematics and Statistics, Georgia State University, Atlanta, GA 30303, and **Yanli Hao** and **Guoning Yu**. *On the Linear Arboricity Conjecture.* Preliminary report.

A *linear forest* is a union of vertex-disjoint paths, and the *linear arboricity* of a graph G, denoted by $la(G)$, is the minimum number of linear forests needed to partition the edge set of G. Let G be a graph with maximum degree $\Delta(G)$. Clearly, $la(G) \geq \lceil \Delta(G)/2 \rceil$. On the other hand, the famous *Linear Arboricity Conjecture* (LAC) due to Akiyama, Exoo, and Harary from 1981 asserts that $la(G) \leq \lceil (\Delta(G)+1)/2 \rceil$. The conjecture has been verified for very special graphs such as planar graphs and graphs with maximum degree up to 6, and 8 and 10.

A graph G is k-*degenerate* for a positive integer k if it can be reduced to a trivial graph by successive removal of vertices with degree $\leq k$. We prove that for any k-degenerate graph G, $la(G) = \lceil \Delta(G)/2 \rceil$ if $\Delta(G) \geq 2k^2 - k$.

In conjunction with Lovász's classic result on partitioning edge set of a graph into paths, we define a stronger version of linear forest partition and prove it holds for 2-degenerated graphs and a.a.s. for random graphs $G_{n,p}$ with a constant $p \in (0,1)$. (Received January 14, 2021)