1047-05-374 **Fan Chung**, **Paul Horn** and **Linyuan Lu*** (lu@math.sc.edu), Department of Mathematics, University of South Carolina, 1501 Greene Street, Columbia, SC 29208. *Diameter of random spanning trees in a given graph.*

We show that a random spanning tree formed in a general graph G (such as a power law graph) has diameter much larger than the diameter of G. We show, with high probability the diameter of a random spanning tree of G is shown to be between $c\sqrt{n}$ and $c'\sqrt{n}\log n$, where c and c' depend on the spectral gap of G and the ratio of the moments of the degree sequence. For the special case of regular graphs, this result improves the previous lower bound by Aldous by a factor of $\log n$. (Received February 02, 2009)