1046-05-1400   **Fan Chung** and **Paul K Horn*** (`phorn@math.ucsd.edu`), 9500 Gilman Drive # 0112, La Jolla, CA 92093-0112, and **Linyuan Lu**. *The diameter of random spanning trees in a given graph.*

We study the diameter of a uniform spanning tree in a general graph with bounded spectral gap of the normalized Laplacian. In the case of complete graphs, this problem has been well studied with Rényi and Szekeres showing that the height has order $\sqrt{n}$ with high probability. Aldous later studied the problem for d-regular graphs. Here, we consider general graphs with no regularity assumptions. We show the diameter of a random spanning is between $c\sqrt{n}$ and $c'\sqrt{n}$ with c depending on the spectral gap and moments of the degree sequences. Furthermore, in the lower bound we improve the bound of Aldous for regular graphs by a factor of $\log n$. (Received September 15, 2008)

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