1030-05-69 **Benny Sudakov** and **Jan Vondrak*** (`jvondrak@math.princeton.edu`). *Nearly optimal embeddings of trees.*

In this paper we show how to find nearly optimal embeddings of large trees in several natural classes of graphs. The size of the tree T can be as large as a constant fraction of the size of the graph G, and the maximum degree of T can be close to the minimum degree of G. For example, we prove that any graph of minimum degree d without 4-cycles contains every tree of size ϵd^2 and maximum degree at most $d - 2\epsilon d - 2$. As there exist d-regular graphs without 4-cycles of size $O(d^2)$, this result is optimal up to constant factors. We prove similar nearly tight results for graphs of given girth, graphs with no complete bipartite subgraph $K_{s,t}$, random and certain pseudorandom graphs. These results are obtained using a simple and very natural randomized embedding algorithm, which can be viewed as a "self-avoiding tree-indexed random walk". (Received July 16, 2007)