

Embedding of trees with bounded maximum degree in dense graphs

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Given a tree T_k with k edges, a typical question in extremal graph theory is to determine which conditions a graph G has to satisfy in order to contain a copy of T_k . There are several conjectures related to this problem. For instance, a well-known conjecture of Erdős and Sós states that a graph with average degree greater than $k - 1$ contains every tree with k edges. In the same spirit, a recent conjecture (due to Havet, Reed, Stein and Wood) says that any graph with minimum degree at least $2k/3$ and maximum degree at least k will contain every tree with k edges.

In this talk we will discuss which conditions on the minimum and maximum degree are sufficient to ensure a copy of every tree T_k with k edges and maximum degree bounded by $k^{1/c}$, for some constant $c > 0$. We also study applications to the Erdős-Sós conjecture and to the $2k/3$ -conjecture.