

abstract

COMPUTER SCIENCE/DISCRETE MATH I

Topic:

Speaker:

Affiliation:

Date:

Time/Room:

For a graph G , let $t(G)$ denote the maximum number of vertices in an induced subgraph of G that is a tree. We study the problem of bounding $t(G)$ for graphs which do not contain a complete graph K_r on r vertices. This problem was posed twenty years ago by Erdos, Saks, and Sos. Substantially improving earlier results of various researchers, we prove that every connected triangle-free graph on n vertices contains an induced tree of order $n^{\{1/2\}}$. When $r > 3$, we also show that $t(G) > (\log n)/(4 \log r)$ for every connected K_r -free graph G of order n . Both of these bounds are tight up to small multiplicative constants, and the first one disproves a recent conjecture of Matousek and Samal.

Joint work with Po-Shen Loh and Benny Sudakov.