ASAF FERBER, MIT

Spanning universality property of random graphs

A graph G is called *universal* with respect to a family of graph F, if it contains all members of F as (not nec. induced) subgraphs. In this talk we are interested in finding p as small as possible for which $G(n,p)$ is F-universal where F is the family of all graphs on n vertices with max degree D. Currently, the best known p is due to Dellamonica, Kohayakawa, Rödl and Ruciński and is $p = \Omega(n^{-1/\Delta}\log^c)$. The conjectured bound is $n^{-2/(D+1)}\log^c$ which is much smaller.

Even though a better bound is known for the almost spanning case (due to Conlon, Ferber, Nenadov and Skoric), the spanning case seems much harder. In this talk we survey this problem and show that $n^{-1/(D-1/2)}\log^c$ is enough for all $D \geq 3$ and that the conjectured p is correct for $D = 2$.

Based on a joint work with Rajko Nenadov, and a work with Gal Kronenberg and Kyle Luh.