

Wojciech Samotij (Tel Aviv University)

The lower tail for triangles in random graphs

Let X denote the number of triangles in the random graph $G_{n,p}$. The problem of determining the asymptotics of the logarithmic lower tail probability of X , that is, the function $f_c(n, p) = -\log \mathbb{P}(X \leq c\mathbb{E}[X])$, for $c \in [0, 1)$, has attracted considerable attention of both the combinatorics and the probability communities. We show that if $p \gg n^{-1/2}$, then $f_c(n, p)$ can be expressed as the solution to a natural combinatorial optimisation problem that generalises Mantel's / Turán's theorem. This is joint work with Gady Kozma.