

Counting r -transitive orientations of $G(n, p)$

Maurício Collares (UFMG), Yoshiharu Kohayakawa, Robert Morris, Guilherme O. Mota

Resumo/Abstract:

We study the number of orientations $S_r(n, p)$ of the binomial random graph $G(n, p)$ which avoid strongly connected tournaments of size r , determining the correct order of growth of $\log_2 S_r(n, p)$ up to polylogarithmic factors. We also prove a similar result for the related quantity $T_r(n, p)$, defined as the number of orientations of $G(n, p)$ in which every copy of K_r is transitive. In the case $r = 3$, this significantly improves a result of Allen, Kohayakawa, Mota and Parente.

If time permits, we will discuss open problems related to counting orientations of $G(n, p)$ which avoid tournaments with several strongly connected components of prescribed sizes.