

Shifted Turán sieve method on tournaments

Sávio Ribas^{1,2,3}*, Wentang Kuo³, Yu-Ru Liu³,
Kevin Zhou³

¹ Instituto Federal de Educação, Ciência e Tecnologia de Minas Gerais (IFMG) - Campus Avançado Piumhi

² Universidade Federal de Minas Gerais (UFMG)

³ University of Waterloo

In [1], we construct a shifted version of the Turán sieve method, developed by Y.-R. Liu and M. R. Murty (see [2] and [3]), and apply it to some counting problems on tournaments in graph theory, i.e., complete directed graph, according to the number of cycles. More precisely, we obtain upper bounds for the number of tournaments which contain a small number of r -cycles. We also consider an analogous question on t -partite tournaments. These results are the first which deal with cycles on “all tournaments”.

References

- [1] KUO, W., LIU, Y.-R., RIBAS, SÁVIO, ZHOU, K., *The shifted Turán sieve method on tournaments*, Submitted.
- [2] LIU, Y.-R., MURTY, M. R., *The Turán sieve method and some of its applications*, J. Ramanujan Math. Soc., 14 (1999), 21-35.
- [3] LIU, Y.-R., MURTY, M. R., *Sieve Methods in combinatorics*, J. Combinatorial Theory, Series A, 111 (2005), 1-23.

*Agradeço ao *Ciência Sem Fronteiras/CNPq* pelo Doutorado Sanduíche e à *FAPEMIG* pelo suporte para a participação na XXI Escola Brasileira de Probabilidade.