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MAKING A K_4 -FREE GRAPH BALANCED BIPARTITE

We show that every K_4 -free graph on n vertices can be made balanced bipartite by removing at most $n^2/9$ edges. This proves the conjecture of Balogh, Clemen and Lidický [1], as well as generalizes Sudakov's result [3] on the bipartite distance of K_4 -free graphs and Reiher's result [2] on the sparse half of K_4 -free graphs.

This is joint work with József Balogh, Ignacy Buczek and Piotr Kuc.

References

- [1] J. Balogh, F. Christian Clemen, B. Lidický, *10 problems for partitions of triangle-free graphs*, European Journal of Combinatorics 121, 2024, 103841.
- [2] C. Reiher, *K_4 -free graphs have sparse halves*, Bulletin of the London Mathematical Society 55, 2022, pp. 1178–1195.
- [3] B. Sudakov, *Making a K_4 -free graph bipartite*, Combinatorica 27, 2007, pp. 509–518.