# Full and co-full subgraphs of a graph

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Let $G$ be a graph on $n$ vertices with $p\binom{n}{2}$ edges. Following Erdős, Łuczak and Spencer, an $m$-vertex subgraph $H$ of $G$ is called *full* if it has minimum degree at least $p(m-1)$, and is called *co-full* if it has maximum degree at most $p(m-1)$. Let $g(G)$ denote the order of a largest full or co-full subgraph of $G$. In this talk, I will consider the problem of determining the order of

$$g(n) := \min\Big\{ g(G) : \quad |V(G)| = n \Big\}.$$

This is related to, but distinct from, a problem of Erdős and Pach on quasi-Ramsey numbers. I will show that there exist constants $c_1, c_2 > 0$ such that

$$c_1 \frac{n}{\log n} \leq g(n) \leq c_2 \frac{n \log \log n}{\log n}.$$

Joint work with Klas Markström (Umeå) and Jacques Verstraëte (UCSD).

# References

[1] P. Erdős, T. Łuczak and J. Spencer, "Subgraphs of large minimal degree", in Random graphs, Vol. 2, Wiley (1992), pp. 59–66.

[2] P. Erdős and J. Pach, On a quasi-Ramsey problem, J. Graph Theory 7 (1983), 137–147.

[3] R.J. Kang, J. Pach, V. Patel and G. Regts, A precise threshold for quasi-Ramsey numbers, SIAM J. Discrete Math. 29 (2015), 1670–1682.

[4] V. Falgas–Ravry, K. Markström and J. Verstraëte, Full subgraphs, arXiv preprint: 1505.03072 (2016).

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