Cycle-complete Ramsey numbers

Jozef Skokan[1]

[1] London School of Economics

The Ramsey number $r(C_\ell, K_n)$ is the smallest natural number N such that every red/blue edge-colouring of a clique of order N contains a red cycle of length ℓ or a blue clique of order n. In 1978, Erdős, Faudree, Rousseau and Schelp conjectured that $r(C_\ell, K_n) = (\ell - 1)(n - 1) + 1$ for $\ell \geq n \geq 3$ provided $(\ell, n) \neq (3, 3)$. In this talk I will discuss a recent proof of this conjecture for large ℓ, and a strong form of a conjecture due to Nikiforov, showing that $r(C_\ell, K_n) = (\ell-1)(n-1)+1$ provided $\ell \geq \frac{C \log n}{\log \log n}$, for some absolute constant $C > 0$. Up to the value of C this is tight, and answers two further questions of Erdős et al. up to multiplicative constants.

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