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An exponential improvement to diagonal Ramsey

The Ramsey number $R(k)$ is the minimum $n \in \mathbb{N}$ such that every red-blue colouring of the edges of the complete graph K_n on n vertices contains a monochromatic copy of K_k. In this talk I will present a recent result that shows

$$R(k) \leq (4 - \varepsilon)^k$$

for some constant $\varepsilon > 0$. This is the first exponential improvement over the upper bound of Erdős and Szekeres, proved in 1935.

This is joint work with Simon Griffiths, Robert Morris and Julian Sahasrabudhe.