

Grid Ramsey problem

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The grid Ramsey number $G(r)$ is the smallest number n such that every edge-colouring of the grid graph $\Gamma_{n,n} := K_n \times K_n$ with r colours induces a rectangle whose parallel edges receive the same colour. We show $G(r) \leq r^{\binom{r+1}{2}} - (1/4 - o(1))r^{\binom{r}{2}+1}$, slightly improving the currently best known upper bound due to Gyárfás.