

The 3-colored Ramsey Number of Odd Cycles

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For graphs L_1, \dots, L_k , the Ramsey number $R(L_1, \dots, L_k)$ is the minimum integer N satisfying that for any coloring of the edges of the complete graph K_N on N vertices by k colors there exists a color i for which the corresponding color class contains L_i as a subgraph.

In 1973, Bondy and Erdős conjectured that if n is odd and C_n denotes the cycle on n vertices, then $R(C_n, C_n, C_n) = 4n - 3$. In 1999, Łuczak proved that $R(C_n, C_n, C_n) = 4n + o(n)$, where $o(n)/n \rightarrow 0$ as $n \rightarrow \infty$. In this paper we strengthen Łuczak's result and verify this conjecture for n sufficiently large.

This is a joint work with Yoshiharu Kohayakawa and Miklós Simonovits.