

# Ramsey numbers for families of graphs

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The Ramsey number  $R_k(G)$  is the smallest  $n$  such that for every colouring of the edges of a complete graph on  $n$  vertices with  $k$  colors there is a monochromatic copy of  $G$ .

After Aharoni *et al.* [1], we consider a generalization of Ramsey numbers for families of graphs. For a family of graphs  $\mathcal{G}$  by  $R_k(\mathcal{G})$  we denote the smallest  $n$  such that for every colouring of a complete graph on  $n$  vertices with  $k$  colors there is a monochromatic copy a graph  $G \in \mathcal{G}$ . We determine the Ramsey numbers for family of cycles, family of odd cycles. Moreover we give some bounds on the Ramsey number for family of even cycles, family of cycles with restrictions on lengths, family of stars and matchings.

## References

- [1] R.Aharoni, N.Alon, M.Amir, P.Haxell, D.Hefetz, Z.Jiang, G.Kronenberg, A.Naor, Ramsey-nice families of graphs, *European Journal of Combinatorics*, Volume 72, 2018 pp. 29-44.