

# On graph Ramsey numbers for wheels and union of graphs

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Ramsey theory was initially studied in the context of the problem of finding a regular procedure to determine the consistency of any given logical formula (1928). This became famous after Paul Erdős and George Szekeres (1935) applied it in graph theory.

The research on finding the exact value of classical Ramsey numbers  $R(m, n)$  has received a lot of attention. However, the results are still far from satisfactory. On the other hand, graph Ramsey theory as one of its generalizations has grown enormously in the last four decades to become presently one of the most active areas in Ramsey theory.

Let  $G$  and  $H$  be two graphs. Basically, the *Ramsey number*  $R(G, H)$  is defined as the smallest integer  $N$  such that any 2-colouring (red or blue) on the edges of  $K_N$  yields either a red subgraph  $G$  or a blue subgraph  $H$ . The determination of Ramsey numbers  $R(G, H)$  has been studied for various combinations of graphs  $G$  and  $H$ . In this talk, we shall give a survey on the determination of Ramsey numbers  $R(G, H)$  if either  $G$  or  $H$  is a wheel. We also discuss the Ramsey numbers  $R(G, H)$  if either  $G$  or  $H$  is a union of graphs.