

# An abundance of Rado graphs

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Richard Rado constructed in 1964 an (undirected) denumerable graph  $R$  with the natural numbers as vertex set and the following edges: For given  $m$  and  $n$  with  $m < n$ ,  $m$  is adjacent to  $n$  if  $n$  has a 1 in the  $m$ 'th position of its binary expansion.

It is well known that  $R$  is a universal graph in the set  $\mathcal{I}$  of all countable graphs (since every graph in  $\mathcal{I}$  is an induced subgraph of  $R$ ). From other known properties of  $R$  it can easily be deduced that there are edge-disjoint copies of  $R$  in the complete denumerable graph  $K_\infty$  (since  $R$  is self-complementary) and also that some proper subgraphs of  $R$  are isomorphic to  $R$  (since  $R$  is indestructible).

In this talk we offer a number of new constructions of graphs isomorphic to the Rado graph  $R$  (called **clones** of  $R$ ) and use them to prove the existence of many pairwise edge-disjoint, many pairwise vertex-disjoint and an abundance of different copies of  $R$  in  $K_\infty$  and in  $R$ .