

# The Rado graph and the Urysohn space

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Rado's universal graph, published in 1964, is the unique countable “random graph”, and has many remarkable properties, involving automorphisms, decompositions, first-order properties, Ramsey properties, amenability of groups, etc. I will discuss some of these.

The graph is also one of a family of structures, of which perhaps the first to be recognised was a remarkable Polish (complete and separable) metric space found by Urysohn: this is the unique Polish space which is universal (it embeds all Polish spaces isometrically) and homogeneous (every isometry between finite subsets extends to the whole space).