

Abstract

In this thesis, we are interested in automorphism groups of classes of graphs with a very strong structure. Probably the first nontrivial result in this direction is from 1869 due to Jordan. He gave a characterization of the class \mathcal{T} of the automorphism groups of trees.

Surprisingly, automorphism groups of intersection-defined classes of graphs were studied only briefly. Even for deeply studied classes of intersection graphs the structure of their automorphism groups is not well known. We study the problem of reconstructing the automorphism group of a geometric intersection graph from a good knowledge of the structure of its representations. We mainly deal with interval graphs.

Interval graphs are intersection graphs of intervals on the real line. They are one of the oldest and most studied classes of geometric intersection graphs. Our main result is that the class \mathcal{T} is the same as the class \mathcal{I} of the automorphism groups of interval graphs. Moreover, we show for an interval graph how to find a tree with the same automorphism group, and vice versa.