

Simplicity of automorphism groups of linearly ordered structures

Aleksandra Kwiatkowska

Institut für Mathematische Logik und Grundlagenforschung, Universität Münster

Abstract

We are concerned with linearly ordered structures such as linearly ordered graphs or metric spaces and normal subgroups of their automorphism groups. The first result along these lines goes back to 50's, where Higman proved that the automorphism group of the rationals, viewed as a linear order, has exactly three non-trivial normal subgroups. Generalizing his result as well as recent results of Macpherson-Tent and Tent-Ziegler, we prove, in particular, that the automorphism group of the countable linearly ordered random graph is simple. More generally, we apply our techniques to automorphism groups of order and tournament expansions of Fraïssé limits of free, transitive, non-trivial amalgamation classes as well as of the bounded countable Urysohn metric space; each time showing that the automorphism group is simple. This is joint work with Filippo Calderoni and Katrin Tent.