

## Topological isomorphism of oligomorphic groups

The closed subgroups of the permutation group  $S_\infty$  of  $\mathbb{N}$  coincide with the automorphism groups of structures on  $\mathbb{N}$ . There are well-known connections between model-theoretic properties of a structure and properties of its automorphism group. For instance, the automorphism groups of  $\omega$ -categorical structures on  $\mathbb{N}$  are precisely the oligomorphic closed subgroups of  $S_\infty$  (a permutation group is oligomorphic if for each  $k$  there are only finitely many  $k$ -orbits).

We study the complexity of topological isomorphism of oligomorphic closed subgroups of  $S_\infty$  in the setting of Borel reducibility. Previous work of Kechris, Nies and Tent (and independently Rosendal and Zielinski) showed that this equivalence relation is below graph isomorphism. We show that it is below a Borel equivalence relation with countable equivalence classes. This is a joint project with Andre Nies and Katrin Tent.