

RESEARCH STATEMENT

PHILIPP SCHLICHT

My research is centered around descriptive set theory and equivalence relations on Polish spaces. One of the main motivations in this area is the calculation of the complexity of definable equivalence relations and the connection with classification problems.

I am especially interested in applications of inner model theory to descriptive set theory. This was the topic of my dissertation, in which I characterized the inner models with representatives in all equivalence classes of thin equivalence relations in a given projective pointclass. I have also worked on the descriptive set theory of the space κ^κ and equivalence relations on κ^κ , where κ is an infinite cardinal with $\kappa^{<\kappa} = \kappa$. With Katie Thompson, we are analyzing the class of trees of a fixed regular size up to strict order preserving maps. More recently, I found a computable version of the Lopez-Escobar theorem, which connects classes of countable structures with the logic $\mathcal{L}_{\omega_1\omega}$. With Frank Stephan, we have computed the possible ranks of linear orders which are isomorphic to a structure recognized by a finite state automaton with running time a limit ordinal α .