

SIMPLE DEFINITIONS OF COMPLICATED SETS

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ABSTRACT. For many types of pathological sets of real numbers (i.e. sets of reals constructed with the help of the Axiom of Choice), it is possible to use results from descriptive set theory to show that these sets cannot be defined by simple formulas in second-order arithmetic. In this talk, I want to present results dealing with the *set theoretic* definability of pathological objects, i.e. with the question whether objects usually obtained from the Axiom of Choice can be defined in the structure $\langle V, \in \rangle$ using simple formulas. I will focus on the definability of well-orderings of the reals and bistationary subsets of uncountable regular cardinals.

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