

Einladung

Würzburger Mathematisches Kolloquium

Julius-Maximilians-Universität Würzburg • Institut für Mathematik

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Models of Arithmetic and Reverse Mathematics

Dienstag, 24. November 2026 • 14:15 Uhr

Seminarraum SE41 • Humboldt-Bau (Emil-Fischer-Straße 41, 97074 Würzburg)

Der Vortrag wird auch als Zoom-Meeting übertragen: go.uni-wue.de/ifmcolloquium-zoom

Abstract. Reverse mathematics is a research program in mathematical logic that aims to classify mathematical theorems according to their logical strength. In this framework, theorems are usually formalized in subsystems of second-order arithmetic. How can we prove that a theorem τ is logically stronger than another theorem σ ? A standard method is to construct a mathematical structure (a model) that satisfies σ , together with some basic axioms, but fails to satisfy τ . In this talk, I will introduce several types of models of arithmetic and present examples of such classifications from a model-theoretic viewpoint.

In particular, I will focus on the contrast between ω -models and nonstandard models. Since the natural numbers are standard in ω -models, these models have a close connection with computability theory and are particularly useful for analyzing the strength of set-existence axioms. However, ω -models alone are not sufficient to measure the strength of induction axioms. To distinguish theorems according to the amount of induction they require, we need to consider nonstandard models. By examining various mathematical principles that can be separated using these models, I will illustrate the rich model-theoretic aspects of reverse mathematics.



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Alle sind herzlich eingeladen.

Die Dozentinnen und Dozenten der Mathematik

