



universität  
wien

Fakultät für Mathematik

## Mathematisches Kolloquium

Mittwoch, 29. März 2023

Sky Lounge

### EINLADUNG

Sandra Müller  
(TU Wien)

„Independence Phenomena in Mathematics: Current  
Obstacles and Scenarios for Solutions“

## „Independence Phenomena in Mathematics: Current Obstacles and Scenarios for Solutions“

### **Abstract:**

*The standard axioms of set theory, the Zermelo-Fraenkel axioms (ZFC), do not suffice to answer all questions in mathematics. While this follows abstractly from Kurt Gödel's famous incompleteness theorems, we nowadays know numerous concrete examples for such questions. A large number of problems in set theory, for example, regularity properties such as Lebesgue measurability and the Baire property are not decided - for even rather simple (for example, projective) sets of reals - by ZFC. Even many problems outside of set theory have been shown to be unsolvable, meaning neither their truth nor their failure can be proven from ZFC. A major part of set theory is devoted to attacking this problem by studying various extensions of ZFC and their properties. I will outline some of these extensions and explain current obstacles in understanding their impact on the set theoretical universe together with recent progress on these questions and future scenarios. This work is related to the overall goal to identify the “right” axioms for mathematics.*

**14.45 Uhr: Kaffeejause**

**15.15 Uhr: Vortrag**

**Vinum cum pane im Anschluss**

Anton Mellit  
José Luis Romero  
Radu Ioan Boț