

报告人简介 Speaker

Ruizhi Yang



PhD candidate at the department of philosophy, Peking University
His research interest includes mathematical logic, especially set theory, and the philosophy of mathematics

报告安排 How to come

- ▶ 3:00 p.m., Mar. 20th, 2012
- ▶ Room 2401, West Guanghua Tower, 220 Handan Road, Shanghai

内容提要

- ▶ Axiomatization of mathematics
- ▶ The phenomenon of incompleteness
- ▶ The consistency strength hierarchy (Gödel hierarchy)
- ▶ Philosophy neutral mathematics and mathematics neutral philosophy
- ▶ Mathematics of strict finitism
- ▶ Set theory multiverse view
- ▶ Philosophy's deliberate impacts on mathematics
- ▶ The revisionism on mathematics and its practical failure
- ▶ Philosophy's real impacts on mathematical practice: A case study on the axioms of determinacy
- ▶ How philosophy impacts on mathematician's motivation
- ▶ How philosophy impacts on the strategies of searching a proof

Outline

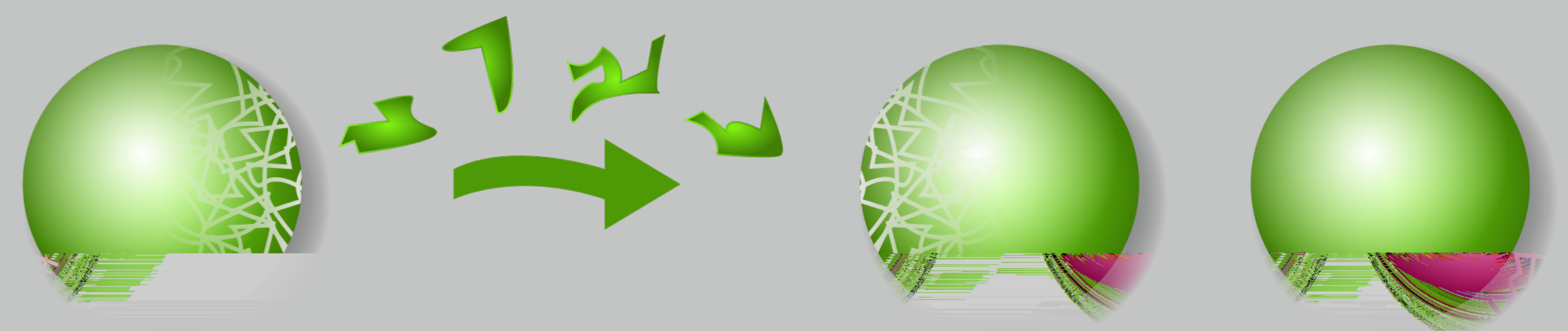
- ▶ The preliminary to contemporary philosophy of mathematics or foundation of mathematics
- ▶ Axiomatization of mathematics
- ▶ The phenomenon of incompleteness
- ▶ The consistency strength hierarchy (Gödel hierarchy)
- ▶ Philosophy neutral mathematics and mathematics neutral philosophy
- ▶ Mathematics of strict finitism
- ▶ Set theory multiverse view
- ▶ Philosophy's deliberate impacts on mathematics
- ▶ The revisionism on mathematics and its practical failure
- ▶ Philosophy's real impacts on mathematical practice: A case study on the axioms of determinacy
- ▶ How philosophy impacts on mathematician's motivation
- ▶ How philosophy impacts on the strategies of searching a proof

公理系统的一致性强度排列 Gödel Hierarchy

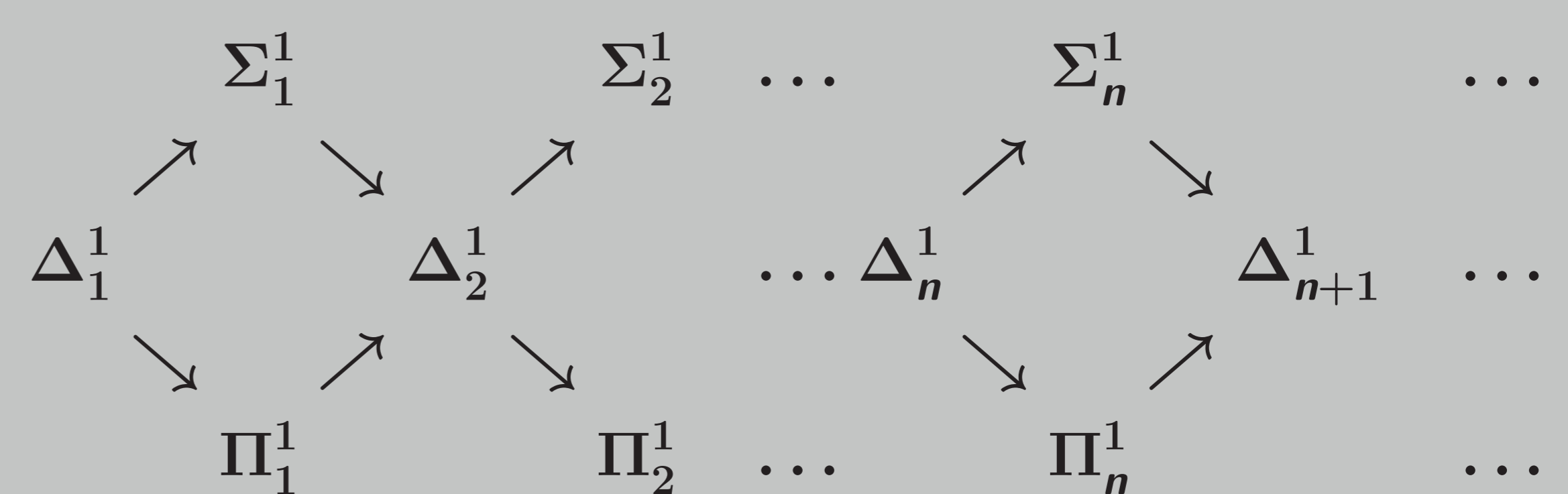
Reinhardt ($0 \neq 1$)
 I_0
 n -huge
 Supercompact
 Superstrong
 Woodin
 Strong
 Measurable
 Inaccessible
 ZFC
 Type theory

Z_2
 Π_1^1 -CA₀
 ATR₀
 ACA₀
 WKL₀
 RCA₀
 Q

Banach-Tarski 悖论 Banach-Tarski Paradox



投射集谱系 Projective Hierarchy



自然数无穷博弈 Infinite games on natural numbers

player I: $a_0 \ a_2 \ \dots$
 player II: $a_1 \ a_3 \ \dots$
 Player I wins the game G_A if $\langle a_i : i \in \mathbb{N} \rangle \in A$