

PLS 2026 Preparatory Summer School

July 2–4, 2026 · Amphitheater B, Library of the Department of History and Philosophy of Science, NKUA

Time	Day 1 — Thu, July 2	Day 2 — Fri, July 3	Day 3 — Sat, July 4
09:30 – 10:00	Welcome & Orientation Venue info, logistics, introductions	—	—
10:00 – 11:30	Determinacy and Large Cardinals <i>Benny Siskind</i>	Introduction to Descriptive Set Theory and Classification Problems <i>Forte Shinko</i>	Introduction to Descriptive Set Theory and Classification Problems <i>Forte Shinko</i>
11:30 – 12:00	☕ Coffee break	☕ Coffee break	☕ Coffee break
12:00 – 13:30	Determinacy and Large Cardinals <i>Benny Siskind</i>	Introduction to Descriptive Set Theory and Classification Problems <i>Forte Shinko</i>	Determinacy and Large Cardinals <i>Benny Siskind</i>
13:30 – 15:00	🍴 Lunch break	🍴 Lunch break	🍴 Lunch break
15:00 – 16:30	The Unstable Formula Theorem in Model Theory <i>Adele Padgett</i>	The Unstable Formula Theorem in Model Theory <i>Adele Padgett</i>	The Unstable Formula Theorem in Model Theory <i>Adele Padgett</i>
16:30 – 17:30	🌳 Hanging out under a tree	🌳 Hanging out under a tree	🌳 Hanging out under a tree
17:30 – 18:30	Student Session Attendee presentations	Student Session Attendee presentations	Student Session Attendee presentations

🌳 On "Hanging out under a tree"

In the spirit of Thanases Pheidias who believed that mathematics thrives as much in unhurried conversation between people as it does in lectures. You are encouraged to wander, find shade, and simply talk. No slides, no problem sets.

Tutorial Abstracts

Forte Shinko

DESCRIPTIVE SET THEORY

Introduction to Descriptive Set Theory and Classification Problems

One of the trademark applications of logic to the rest of mathematics is to formalize and prove impossibility results, and more broadly, to compare the difficulty of various naturally-occurring problems. Descriptive set theory provides a framework to formalize problems concerned with objects specified by a countable amount of data (e.g. real numbers, manifolds, finitely generated groups). This tutorial gives an introduction to descriptive set theory, with a view towards the modern program of comparing classification problems via the formalism of Borel reducibility of equivalence relations.

Benny Siskind

SET THEORY

Determinacy and Large Cardinals

Many natural questions about simply definable sets of reals are independent of the usual axioms of set theory. However, if we add large cardinal axioms — which assert the existence of large infinite sets beyond what can be shown to exist from the usual axioms alone — we can decide many of these natural questions. This is because the existence of large cardinals implies determinacy principles: certain infinite two-player games are determined, meaning one of the players has a winning strategy. The tutorial shows how determinacy principles answer natural questions about definable sets of reals, and proves determinacy principles both from the usual axioms and from large cardinal axioms.

Adele Padgett

MODEL THEORY

The Unstable Formula Theorem in Model Theory

An important theme in model theory is to study mathematical structures satisfying a collection of axioms with some interesting property. Stability is one of the most important such properties: stable theories are natural from a model-theoretic perspective and have helped solve problems in graph theory, additive combinatorics, differential algebra, and Diophantine geometry. This tutorial focuses on Shelah's Unstable Formula Theorem, developing key notions in basic model theory along the way and exploring various ways of thinking about stability.