Model Theory and Definability (1)

Monday, September 15, 2025 9:05 AM (1 hour)

The aim of this course is to give a fast-track introduction to model-theoretic methods and their uses in number theory. In the first two to three sessions, I will introduce first-order logic and a range of model-theoretic tools, focusing in particular on compactness, quantifier elimination and definability. For each of the techniques introduced, I will discuss applications to number theory. Additionally, I will set reading tasks for researchers new to the area, enabling them to follow more model-theoretic talks throughout the programme.

In the second part of the course, I will discuss definability of henselian valuations, both explicitly and implicitly, and discuss questions of uniformity and complexity of such definitions.

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