Thursday 24 January 2018 – at 2:30 p.m.
Seminar Room “-1” – Department of Mathematics

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Introduction to alpha-Computability Theory

Abstract:
An ordinal $\alpha$ is admissible iff $\alpha$-th level $L_\alpha$ of Goedel's constructible hierarchy satisfies the axioms of Kripke-Platek set theory (roughly predicative part of ZFC).
Alpha-computability theory is the study of the first-order definability theory over Goedel's $L_\alpha$ for an admissible ordinal $\alpha$.

Equivalently, alpha-computability theory studies the computability on a Turing machine with a transfinite tape and time of an order type $\alpha$ for an admissible ordinal $\alpha$.
The field of alpha-computability theory is the source of deep connections between computability theory, set theory, model theory, definability theory and other areas of mathematics.

In the seminar I will assume basic familiarity with computability theory and axiomatic set theory. Other notions such as Goedel's constructible hierarchy and an admissible ordinal will be explained.

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