Logic Session - Monday, September 19, 2022

9:00

Fatma Kader Bingol, University of Verona

On the constructivisation of Merkurjev's Theorem

10:00-11:00 working groups

11:00-11:30 coffee break

10:00

Ingo Blechschmidt, University of Augsburg

Connecting inductive definitions, generic models and a modal multiverse for algebra and combinatorics

12:30-15:30 lunch break

15:30

Giulio Fellin, University of Verona

Glivenko-style results for nuclei in entailment relations

16:30-16:45 coffee break

16:45-18:00 working groups

Abstracts

Fatma Kader Bingol, University of Verona

On the constructivisation of Merkurjev's Theorem

Merkurjev's Theorem states that any central simple algebra of exponent 2 is Brauer equivalent to a tensor product of a finite number of quaternion algebras. Generic arguments show that we should be able to give a constructive proof of Merkurjev's Theorem. In this talk, we discuss constructive results obtained recently for some consequence of Merkurjev's Theorem.

Ingo Blechschmidt, University of Augsburg

Connecting inductive definitions, generic models and a modal multiverse for algebra and combinatorics

At the 2022 conference in Schlehdorf on Proof and Computation honoring Helmut Schwichtenberg's 80th birthday, it was noticed that there is a connection between inductive definitions, generic models and a modal multiverse of universe extensions. The goal of this informal talk is to give a tour of these themes and highlight their connection, using Higman's lemma as running example. Along the way, we discuss that the proposed modal interpretation of the universal and the existential quantifier renders naive statements such as "a relation is well-founded iff there is no infinite descending chain" or "a ring element is nilpotent iff it is a member of every prime ideal" constructively correct, tieing established accounts of their computational content into the uniform modal framework.

Giulio Fellin, University of Verona

Glivenko-style results for nuclei in entailment relations

Glivenko's theorem says that, in propositional logic, classical provability of a formula entails intuitionistic provability of the double negation of that formula. Ever since Glivenko, many variants of this result have been proven, including Gödel's counterpart of Glivenko's theorem for first-order predicate logic and the theory of negative translations started by Kolmogorov. We aim to generalise these results from double negation to an arbitrary nucleus, from provability in a calculus to an inductively generated abstract consequence relation, and from propositional logic to any set of objects whatsoever.