

7-12 Jan 2024 - Dagstuhl Seminar 24021

"From Proofs to Computation in Geometric Logic and Generalizations"

(plenary talks in the morning, working groups in the afternoon and in the evening)

One each day:

12:15 lunch
15:30 tea
18:00 dinner

Monday 8th January 2024

09:00 introduction
09:20 Steve Vickers: Constructive content of geometric reasoning
10:00 coffee
10:30 Michael Rathjen: Looking for the ideal background theory
11:10 Makoto Fujiwara: Hierarchy of Σ_n -fragments of logical principles over HA and hierarchy of intermediate propositional logics

informal sessions

13:30 Ingo Blechschmidt: Tutorial on Agda
14:30 Ulrik Buchholtz: Geometric type theory

16:15 Laura Crosilla: Predicativity
16:55 Ulrich Kohlenbach: Proof Mining: Logical foundations and recent applications

informal sessions

19:30 Andrej Bauer: The countable reals
21:30 Working group on formalization of Infinite Time Turing Machines

Tuesday 9th January 2024

09:00 Takako Nemoto: König's lemma, Weak König's lemma and Σ^0_1 -induction in constructive reverse mathematics
10:00 coffee
10:30 Iosif Petrakis: Topologies of open complemented subsets
11:10 Felix Cherubini, Matthias Hutzler: Constructive mathematics for algebraic geometry (introduction to synthetic algebraic geometry)

informal sessions (working groups)

13:30 Steve Vickers: Geometric theories and spaces
14:30 Sara Negri, Elaine Pimentel: Proof systems for geometric axioms and beyond
14:30 Working group on finiteness conditions in constructive mathematics
16:15 Milly Maietti: Arithmetic universes and existential completion

informal sessions

19:30 Ulrik Buchholtz: How much transfinite induction is predicatively justifiable?

Wednesday 10th January 2024

09:00 Satoru Niki: From a constructive logic to a contradictory logic
09:40 planning of excursion/hike and afternoon/Thursday
10:00 coffee
10:30 Marc Bezem: Skolem's Theorem in coherent logic
11:10 Andrej Bauer: Instance reducibility and propositional containers
after lunch: hike
19:30 Ingo Blechschmidt: Tutorial on realizability, a connection between constructive and computable mathematics

Thursday 11th January 2024

09:15 Henri Lombardi: Understanding geometric theories in the context of constructive mathematics

10:00 coffee

10:30 Sara Negri: Proof systems for strong negation

11:10 Olaf Beyersdorff: Proof complexity and solving of quantified Boolean formulas

12:10 group photo (very important, do not be late)

informal sessions

13:15 (main seminar room) Martín Escardó: Searchable ordinals

14:15 (cheese room) working group on formalization of Euclidean geometry

14:40 (room Trier) working group on synthetic algebraic geometry

16:00 (room Trier) working group on strong negation

17:00 (main seminar room) Ingo Blechschmidt: On the status of Zorn's Lemma

19:30 (room Trier) Nicolas Daans: Defining subsets of rational numbers using first-order logic: some fun facts but mainly many questions

21:00 informal get-together

Friday 12th January 2024

--don't forget to pay at the reception!--

09:15 Benno van den Berg: A topos for continuous logic

10:30 ???

11:10 Lightning talks (everyone is invited to contribute a mini talk of five minutes, if applicable send your slides to iblech-dagstuhl@speicherleck.de)