

MAP 2016: Effective Analysis: Foundations, Implementations, Certification

Monday January 11th

9:50 - 10:00 Welcome

10:00 - 11:00 A. Bauer. *Tutorial on Type theory I: Type theory and Equality reflection*

30min break

11:30 - 12:30 M. Seisenberger. *Verification of Discrete and Real-timed Railway Control Systems*

-Lunch break -

16:30 - 17:30 P. Selinger. *Combining numerical and number-theoretic methods to solve unitary approximation problems in quantum computing I.*

30min break

18:00 - 18:30 H. Lombardi. *Towards a constructive theory of O-minimal structures.*

18:30 - 19:00 Y. H. Geum. *Basins of attraction for optimal third-order multiple-root finders.*

Tuesday January 12th

9:00 - 10:00 A. Bauer. *Tutorial on Type theory II : Type theory and Programming*

10:00 - 10:30 U. Berger. *Constructive logic for concurrent real number computation.*

30min break

11:00 - 12:00 N. Müller. *Wrapping in Exact Real Arithmetic.*

12:00 - 12:30 B. Djatal. *Newton sums for an effective formalization of algebraic numbers.*

-Lunch break -

16:30 - 17:30 S. Boldo. *Formal verification of numerical analysis programs.*

17:30 - 18:00 E. Martin-Dorel. *CoqInterval: A Toolbox for Proving Non-linear Univariate Inequalities in Coq.*

18:00 - 18:30 MAP business meeting

Wednesday January 13th

9:00 - 10:00 P. Selinger. *Combining numerical and number-theoretic methods to solve unitary approximation problems in quantum computing II.*

10:00 - 10:30 V. Magron. *Certified Roundoff Error Bounds Using Semidefinite Programming and Formal Floating Point Arithmetic.*

30min break

11:00 - 12:00 M. Konečný. *Exact Real Number Computation in AERN.*

12:00 - 12:30 P. Collins. *Implementing Logic and Real Arithmetic.*

-Lunch break. Free afternoon-

Thursday January 14th

9:00 - 10:00 E. Darulova. *Programming with Numerical Uncertainties.*

30min break

10:30 - 11:00 C. Lelay. *A new approach to formalize real numbers in the UniMath library.*

11:00 - 11:30 B. Spitters. *Cubical sets as a classifying topos.*

11:30 - 12:30 E. Rijke. *Localizations at omega-compact types as sequential colimits.*

-Lunch break -

15:30 - 16:30 F. Immler. *Verified Numerics for ODEs in Isabelle/HOL.*

16:30 - 17:00 I. Petrakis. *Bishop's Stone-Weierstrass theorem for compact metric spaces revisited.*

30 min break

17:30 - 18:30 L. Théry. *Proof and Computation.*

Friday January 15th

9:00 - 10:00 P. Selinger. *Combining numerical and number-theoretic methods to solve unitary approximation problems in quantum computing I.*

10:00 - 10:30 S. Posur. *Category theory as a foundation for algorithms and programming in computer algebra.*

30min break

11:00 - 12:00 A. Bauer. *Tutorial on Type theory III: Type theory and Formalization.*

12:00 - 12:30 R. Lewis. *Algebra and Analysis in the Lean Theorem Prover.*

-Lunch break. End of the conference-