



FroCoS ITP TABLEAUX 2025

27 September - 2 October
Reykjavik University, Iceland

Programme

All times are Reykjavik time (=UTC).
All sessions take place at Reykjavik University
(Menntavegur 1, 102 Reykjavik)



Rocq - Sat. 27 Sept.

Room M209

08:30

Registration

09:00

Rocq 1 Chair: Pierre Boutry

An Overview of MathComp-Analysis and Its Applications

Reynald Affeldt



An Engineer's Self-Taught Journey with the Rocq Proof Assistant

Pierre-Emmanuel Wulfman



A Library for the Automated Transformation of Rocq AST

Alexandre Jean

10:40

Coffee

11:05

Rocq 2 Chair: Loïc Pujet



Generating Higher Identity Proofs in Homotopy Type Theory

Thibaut Benjamin



Formalization of Matching Numbers with finmap and mathcomp-classical

Takafumi Saikawa, Kazunori Matsuda, and Yosuke Tsuji



Interaction Trees and Verified Compilation

Paolo Torrini and Benjamin Gregoire

12:30

Lunch

14:05

Rocq 3 Chair: Alessandro Bruni



Automating Alignments of HOL Light Inductive Types and Recursive Functions in Rocq

Antoine Gontard



Certified Programming with Dependent Types Made Simple with Proxy-Based Small Inversions

Pierre Corbineau, Basile Gros, and Jean-François Monin



Extending Sort Polymorphism with Elimination Constraints in Rocq

Tomás Díaz, Kenji Maillard, Johann Rosain, Matthieu Sozeau, Nicolas Tabareau, Éric Tanter, and Théo Winterhalter

15:25

Coffee

16:00

Rocq 4 Chair: Yannick Forster



LLM4Docq: Bootstrapping Documentation for MathComp with LLMs and Expert Feedback

Théo Stoskopf, Jules Viennot, and Cyril Cohen



Can States Be Decidable in Inquisitive Mechanizations?

Max Ole Elliger and Tadeusz Litak



MiniF2F in Rocq:

Automatic Translation Between Proof Assistants: A Case Study

Jules Viennot, Guillaume Baudart, Emilio Jesus Gallego Arias, and Marc Lelarge



HotdocX & jsCoq: A Platform for Interactive, AI-Augmented and Monetizable Coq Experiences

Christopher Mary

17:45



TABLEAUX Day 1 - Sat. 27 Sept.

Room M208

09:00

Registration

TABLEAUX 1 Chair: Reiner Hähnle

A Tableau System for First-Order Logic with Standard Names

Jens Claßen and Torben Braüner

Bounded Inquisitive Logics: Sequent Calculi and Schematic Validity

Tadeusz Litak and Katsuhiko Sano

Analytic Calculi for Logics of Indicative Conditionals

Vitor Rodrigues Greati, Sérgio Marcelino, Miguel Muñoz Pérez, and Umberto Rivieccio

10:30

Coffee

11:00

TABLEAUX 2 Chair: Lutz Straßburger

Analytic Proofs for Tense Logic

Agata Ciabattoni, Timo Lang, and Revantha Ramanayake

Improved Decision Procedures for Multimodal Tense Logic Using CEGAR-Tableaux

Rajeev Goré and Cormac Kikkert

Interpolation for Converse PDL

Johannes Kloibhofer, Valentina Trucco Dalmas, and Yde Venema



12:30

Lunch

14:00

TABLEAUX 3 Chair: Revantha Ramanayake

Semi-competitive Differential Game Logic

Julia Butte and André Platzer

Base-Extension Semantics for Intuitionistic Modal Logics

Yll Buzoku and David Pym

Forward Proof Search for Intuitionistic Multimodal K Logics

Niels Voorneveld

15:30

Coffee

16:00

TABLEAUX 4 Chair: Matteo Acclavio

A Proof-Theoretic View of Basic Intuitionistic Conditional Logic

Tiziano Dalmonte and Marianna Girlando

Intuitionistic mu-Calculus with the Lewis Arrow

Lide Grotenhuis and Bahareh Afshari

Justification Logic for Intuitionistic Modal Logic

Sonia Marin and Paaras Padhiar

17:30



ITP Day 1 - Sun. 28 Sept.

Room M209

11:00

ITP 1 Chair: Julie Cailler

Improving the SMT Proof Reconstruction Pipeline in Isabelle/HOL

Hanna Lachnitt, Mathias Fleury, Haniel Barbosa, Andrew Reynolds, Jibiana Jakpor, Bruno Andreotti, Clark Barrett, Hans-Jörg Schurr, Cesare Tinelli

Formalizing Splitting in Isabelle/HOL

Ghilain Bergeron, Florent Krasnopols, and Sophie Tourret

Sledgehammering without ATPs

Martin Desharnais and Jasmin Blanchette

12:30

Lunch

14:00

ITP 2 Chair: René Thiemann

Taming Floating-Point Rounding Errors with Proofs

Laura Titolo

Inductive Predicates via Least Fixpoints in Higher-Order Separation Logic

Robert Krebbers, Luko van der Maas, and Enrico Tassi

15:30

Coffee

16:00

ITP 3 Chair: Michael Norrish

Formalising Subject Reduction and Progress for Multiparty Session Processes

Burak Ekici, Tadayoshi Kamegai, and Nobuko Yoshida

Certified Implementability of Global Multiparty Protocols

Elaine Li and Thomas Wies

GOL in GOL in HOL: Verified Circuits in Conway's Game of Life

Magnus Myreen and Mario Carneiro

Nondeterministic Asynchronous Dataflow in Isabelle/HOL

Rafael Castro G. Silva, Laouen Fernet, and Dmitriy Traytel

18:00



TABLEAUX Day 2 - Sun. 28 Sept.

Room M208

11:00

TABLEAUX 5 Chair: Tarmo Uustalu

Skolemization Beyond Intuitionistic Logic: The Role of Quantifier Shifts

Raheleh Jalali



A Sequent Calculus Perspective on Base-Extension Semantics

Victor Barroso-Nascimento, Ekaterina Piotrovskaya, and Elaine Pimentel

Lunch

12:30

14:00

TABLEAUX 6 Chair: Anupam Das

Designing a Safe Forward Chaining Tactic Using Productive Proofs

Kaustuv Chaudhuri, Arunava Gantait, and Dale Miller

Intuitionistic BV

Matteo Acclavio and Lutz Straßburger

An Agda Formalization of Nonassociative Lambek Calculus and Its Metatheory

Niccolò Veltri and Cheng-Syuan Wan

Coffee

15:30

16:00

TABLEAUX 7 Chair: Niccolò Veltri

Cyclic System for an Algebraic Theory of Alternating Parity Automata

Anupam Das and Abhishek De

A Sequent Calculus for Trace Formula Implication

Niklas Heidler and Reiner Hähnle

On Solving String Equations via Powers and Parikh Images

Clemens Eisehofer, Theodor Seiser, Laura Kovács, and Nikolaj Bjørner

Business Meeting

18:00



ITP Day 2 - Mon. 29 Sept.

Room M110

09:00



ITP 4 Chair: Sophie Tourret

An Isabelle/HOL Formalization of Semi-Thue and Conditional Semi-Thue Systems

Dohan Kim

Formalizing Concentration Inequalities in Rocq: Infrastructure and Automation

Reynald Affeldt, Alessandro Bruni, Cyril Cohen, Pierre Roux, and Takafumi Saikawa

Towards Automating Permutation Proofs in Coq: A Reflexive Approach with Iterative Deepening Search

Nadeem Abdul Hamid

10:30

Coffee

11:00

ITP 5 Chair: Lawrence Paulson

Nanopass Back-Translation of Call-Return Trees for Mechanized Secure Compilation Proofs

Jérémie Thibault, Joseph Lenormand, Cătălin Hrițcu

Formalizing the Hidden Number Problem in Isabelle/HOL

Sage Binder, Eric Ren, and Katherine Kosaian

On Verifying Secret Control Flow Elimination

David Knothe, Oliver Bringmann

12:30

Lunch

14:00



ITP 6 Chair: Benedikt Ahrens

A Mechanized First-Order Theory of Algebraic Data Types with Pattern Matching

Joshua M. Cohen

Program Optimisations via Hylomorphisms for Extraction of Executable Code

David Castro Perez, Marco Paviotti, and Michael Vollmer

15:00

Coffee

15:30

ITP 7 Chair: Manuel Eberl

Mechanising Böhm Trees and $\lambda\eta$ -Completeness

Chun Tian and Michael Norrish

Barendregt's Theory of the Lambda-Calculus, Refreshed and Formalized

Adrienne Lancelot, Beniamino Accattoli, Maxime Verclef

A Verified Cost Model for Call-by-Push-Value

Zhuo Chen, Johannes Åman Pohjola, Christine Rizkallah

17:00

19:00

Conference dinner - Harpa, Restaurant Hnoss (Austurbakki 2, 101 Reykjavik)



TABLEAUX/FroCoS - Mon. 29 Sept.

Room M115 (morning), M209 (afternoon)

09:00

TABLEAUX 8 Chair: Marianna Girlando

A Gödel Modal Logic over Witnessed Crisp Models

Mauro Ferrari, Camillo Fiorentini, and Ricardo Oscar Rodriguez

The Modal Cube Revisited: Semantics without Worlds

Renato Leme, Carlos Olarte, Elaine Pimentel, and Marcelo Esteban Coniglio

Refined Tableau Systems for Some Modal Logics of Confluence

Kiana Samadpour Motalebi, Renate A. Schmidt, and Cláudia Nalon



10:30

Coffee

11:00

TABLEAUX 9 Chair: Carlos Olarte

Non-Wellfounded Proof Theory for Interpretability Logic

Borja Sierra Miranda, Sebastijan Horvat, and Thomas Studer

Finding Connections via Satisfiability Solving

Clemens Eisenhofer, Michael Rawson, and Laura Kovács

Constraint learning for non-confluent proof search

Michael Rawson, Clemens Eisenhofer, and Laura Kovács

12:30

Lunch

14:00

TABLEAUX+FroCoS Chair: Tarmo Uustalu

Towards a Universal Interactive Theorem Proving Interface

Kaustuv Chaudhuri

15:00

Coffee

15:30

FroCoS 1 Chair: Elaine Pimentel

The Expressive Power of Description Logics with Numerical Constraints over Restricted Classes of Models

Franz Baader and Filippo De Bortoli

Reasoning in OWL 2 EL with Hierarchical Concrete Domains

Francesco Kriegel

The Concrete Evonne: Visualization Meets Concrete Domain Reasoning

Christian Alrabbaa, Franz Baader, Raimund Dachselt, Alisa Kovtunova, and Julián Méndez

17:00

19:00

Conference dinner - Harpa, Restaurant Hnoss (Austurbakki 2, 101 Reykjavik)



ITP Day 3 - Tue. 30 Sept.

Room M209 (morning), M105 (afternoon)

09:00

ITP 8 Chair: Yannick Forster

Autosubst: On Mechanising Binders in a General-Purpose Proof Assistant

Kathrin Stark

Animating MRBNFs:

Truly Modular Binding-Aware Datatypes in Isabelle/HOL

Jan van Brügge, Andrei Popescu, and Dmitriy Traytel

10:30

Coffee

11:00

ITP 9 Chair: Dmitriy Traytel

Formally Verifying a Vertical Cell Decomposition Algorithm

Yves Bertot and Thomas Portet

Verification of the CVM Algorithm

with a Functional Probabilistic Invariant

Emin Karayel, Seng Joe Watt, Derek Khu, Kuldeep S. Meel, Yong Kiam Tan

Verifying an Efficient Algorithm for Computing Bernoulli Numbers

Manuel Eberl and Peter Lammich

12:30

Lunch

14:30

ITP 10 Chair: Pierre Boutry

Automatically Generalizing Proofs and Statements

Anshula Gandhi, Anand Rao Tadipatri, and Timothy Gowers

Canonical for Automated Theorem Proving in Lean

Chase Norman and Jeremy Avigad

Verifying Datalog Reasoning with Lean

Johannes Tantow, Lukas Gerlach, Stephan Mennicke, and Markus Krötzsch

16:00

Coffee

16:30

Business Meeting

Community Meeting

18:00



FroCoS Day 2 - Tue. 30 Sept.

Room V109

09:00

FroCoS 2 Chair: Christophe Ringeissen

The Dependently Typed Higher-Order Form for the TPTP World
Daniel Randalter, Cezary Kaliszyk, Florian Rabe, and Geoff Sutcliffe

An Analytic Representation of the Semantics of First-Order S5
Anela Lolic, Matthias Baaz, and Mariami Gamsakhurdia

Deciding Satisfiability for Overlaid Symbolic Heaps
Nicolas Peltier, Quentin Petitjean and Mihaela Sighireanu

10:30

Coffee

11:00

FroCoS 3 Chair: Carsten Fuhs

Weighted Rewriting
Martin Avanzini and Akihisa Yamada

Data-Driven Runtime Complexity Analysis
Samuel Frontull, Manuel Meitinger, and Georg Moser

**Graph Embedded Rewrite Systems:
Combination and Undecidability Results**
Serdar Erbatur, Andrew M. Marshall, Paliath Narendran, and Christophe Ringeissen

12:30

Lunch

14:30

FroCoS 4 Chair: René Thiemann

Automated Static Program Analysis via Constrained Term Rewriting
Carsten Fuhs

**Difference of Constrained Patterns in
Logically Constrained Term Rewrite Systems**
Naoki Nishida, Misaki Kojima, and Yuto Nakamura

16:00

Coffee

16:30

FroCoS 5 Chair: Haniel Barbosa

Iterative Monomorphisation
Tanguy Bozec and Jasmin Blanchette

Subtyping in Dependently-Typed Higher-Order Logic
Colin Rothgang and Florian Rabe

**Context-Aware Clause Selection
Using Symbol Name Meanings in Theorem Proving**
Claudia Schon

18:00



ITP Day 4 - Wed. 1 Oct.

Room M105

09:00

ITP 12 Chair: Maria Inés de Frutos-Fernández

Algebra is Half the Battle:

Verifying Presentations for Graded Unipotent Chevalley Groups

Eric Wang, Arohee Bhoja, Cayden Codel, and Noah G. Singer

Formalising New Mathematics in Isabelle: Diagonal Ramsey

Lawrence Paulson

A Natural Language Formalization of Perfectoid Rings in Naproche

Peter Koepke

10:30

Coffee

11:00

ITP 13 Chair: Johan Commelin

A Formalization of Divided Powers in Lean

Antoine Chambert-Loir and Maria Inés de Frutos-Fernández

A Formal Proof of Complexity Bounds on Diophantine Equations

Jonas Bayer and Marco David

A Formal Analysis of Algorithms for Matroids and Greedoids

Mohammad Abdulaziz, Thomas Ammer, Shriya Meenakshisundaram, and Adem Rimpapa

12:30

Lunch

14:00

ITP 14 Chair: Loïc Pujet

Scott's Representation Theorem and the Univalent Karoubi Envelope

Arnoud van der Leer, Kobe Wullaert, and Benedikt Ahrens

Formalising Inductive and Coinductive Containers

Stefania Damato, Thorsten Altenkirch, and Axel Ljungström

Formalizing colimits in Cat

Mario Carneiro and Emily Riehl.

15:30

Coffee

16:00

ITP 15 Chair: Mohammad Abdulaziz

Abstract, Compositional Consistency:

Isabelle/HOL Locales for Completeness à la Fitting

Asta Halkjær From and Anders Schlichtkrull

Finiteness of Symbolic Derivatives in Lean

Ekaterina Zhuchko, Hendrik Maarand, Margus Veanes, and G. Ebner

A Certified Proof Checker for

Deep Neural Network Verification in Imandra

Remi Desmartin, Omri Isac, Ekaterina Komendantskaya, Kathrin Stark, Grant Passmore, and Guy Katz

LeanLTL: A Unifying Framework for Linear Temporal Logics in Lean

Eric Vin, Kyle Miller, and Daniel J. Fremont

17:50



FroCoS Day 3 - Wed. 1 Oct.

Room M115

FroCoS 6 Chair: Mathias Fleury

When GNNs Met a Word Equations Solver: Learning to Rank Equations

Parosh Aziz Abdulla, Mohamed Faouzi Atig, Julie Cailler, Chencheng Liang, and Philipp Rümmer

A Finite Abstraction of Real-Valued Functions for Complete Reasoning about Influence

Sören Möller, Florian Bruse and Martin Lange

Number Theory Combination: Natural Density and SMT

Guilherme Toledo and Yoni Zohar

09:00

Coffee

10:30

11:00

FroCoS 7 Chair: Guilherme Toledo

Polite Combination in Parametric Array Theories

Rodrigo Raya and Christophe Ringeissen

Shininess, Strong Politeness, and Unicorns

Benjamin Przybocinski, Guilherme Toledo, and Yoni Zohar

Exploiting Partial-Assignment Enumeration in Optimization Modulo Theories

Gabriele Masina and Roberto Sebastiani

12:30

Lunch

14:00

FroCoS 8 Chair: Kaustuv Chaudhuri

Checking Linear Integer Arithmetic Proofs in Lambdapi

Alessio Coltellacci and Stephan Merz

Certifying rlive: A New Proof Strategy for Liveness Model Checking

Alberto Griggio, Giulia Sindoni, and Stefano Tonetta



Business Meeting

15:30

Coffee



Lean - Thu. 2 Oct.

Room M117

09:00

Lean 1

Report from the FRO

Joachim Breitner



Gödel Mirror: A Paraconsistent Calculus Mechanized in Lean 4

Jhet Chan

10:30

Coffee

11:00

Lean 2

Automatic Geometry Theorem Proving Using Polynomial Elaboration

Mauricio Barba da Costa



The Formal Conjectures Repo

Moritz Firsching

Formalizing Possibly Infinite Trees of Finite Degree

Lukas Gerlach

Verifying a Real-World Regex Implementation

Yulu Pan

12:30

Lunch

14:00

Lean 3

Discussion Session

15:30

Coffee

16:00

Lean 4

Teaching Programming using Lean

Luc Duponcheel

Euler's Polyhedron Formula à la Lean

Jesse Alama

Generalized Rewriting

Jovan Gerbscheid

Canonical: Simplify, Monomorphize, Destruct

Chase Norman

17:30