Program of the
Twenty-Sixth Annual IEEE Symposium on
LOGIC IN COMPUTER SCIENCE

21–24 June 2011, Toronto, Ontario, Canada

The symposium is sponsored by the IEEE Computer Society's Technical Committee on Mathematical Foundations of Computing in cooperation with the Association for Symbolic Logic, with ACM SIGACT as Technical Co-Sponsor. This year's meeting is hosted by the Fields Institute, and we gratefully acknowledge their support for organization. We are also thankful to Microsoft Research, Redmond for financial support.

Monday, June 20
Tutorial Day

9:00 – 12:40	**Albert Atserias.** **A Why-On-Earth Tutorial on Finite Model Theory**
9:00 – 10:00	Part 1
	Coffee Break
10:20 – 11:20	Part 2
11:40 – 12:40	Part 3
14:20 – 18:00	**Prakash Panangaden.** **The Meaning of Semantics**
14:20 – 15:20	Part 1
	Coffee Break
15:40 – 16:40	Part 2
17:00 – 18:00	Part 3
18:00	*Welcome Reception*

Tuesday, June 21

9:00 – 9:15 **Conference Opening**

9:15 – 10:15 **Session 1: Invited Talk**
Chair: Rajeev Alur

Ashish Tiwari.
Logic in Software, Dynamical and Biological Systems

Coffee Break

10:45 – 12:45 **Session 2: Logic and Automata I**
Chair: Mikołaj Bojańczyk

10:45 – 11:15 Arnaud Carayol, Axel Haddad and Olivier Serre.
Qualitative Tree Languages

11:15 – 11:45 Manfred Kufleitner and Alexander Lauser.
Languages of Dot-Depth One over Infinite Words

11:45 – 12:15 Tomáš Brázdil, Václav Brožek, Krishnendu Chatterjee, Vojtěch Forejt and Antonín Kučera.
Two Views on Multiple Mean Payoff Objectives in Markov Decision Processes

12:15 – 12:45 Udi Boker, Krishnendu Chatterjee, Thomas A. Henzinger and Orna Kupferman.
Temporal Specifications with Accumulative Values

14:15 – 15:45 **Session 3: Semantics I**
Chair: Jean-Pierre Jouannaud

14:15 – 14:45 Lars Birkedal, Rasmus Ejlers Møgelberg, Jan Schwinghammer and Kristian Støvring.
First steps in synthetic guarded domain theory: step-indexing in the topos of trees

14:45 – 15:15 Martin Churchill, James Laird and Guy McCusker.
Imperative Programs as Proofs via Game Semantics

15:15 – 15:45 Andrzej Murawski and Nikos Tzevelekos.
Game semantics for good general references

Coffee Break

16:15 – 17:45 **Session 4: Probabilistic Computation**
Chair: Prakash Panangaden

16:15 – 16:45 Thomas Ehrhard, Michele Pagani and Christine Tasson.
The Computational Meaning of Probabilistic Coherence Spaces

16:45 – 17:15 Jean Goubault-Larrecq and Daniele Varacca.
Continuous Random Variables

17:15 – 17:45 Nathanael L. Ackerman, Cameron E. Freer and Daniel M. Roy.
Noncomputable conditional distributions

Wednesday, June 22

9:00 – 10:00 **Session 5: Invited Talk**
Chair: Albert Atserias

Toniann Pitassi.
Propositional Proof Complexity: A survey on the state of the art, including some recent results

Coffee Break

10:30 – 12:30 **Session 6: Type Theory**
Chair: Patrick Baillot

10:30 – 11:00 Jean-Yves Marion.
A type system for complexity flow analysis

11:00 – 11:30 Ugo Dal Lago and Marco Gaboardi.
Linear Dependent Types and Relative Completeness

11:30 – 12:00 Bruno Barras, Jean-Pierre Jouannaud, Pierre-Yves Strub and Qian Wang.
COQ MTU : a higher-order type theory with a predicative hierachy of universes parameterized by a decidable first-order theory

12:00 – 12:30 Pierre Clairambault.
Isomorphisms of types in the presence of higher-order references

14:00 – 15:30 **Session 7: Complexity**
Chair: Stephan Kreutzer

14:00 – 14:30 Yijia Chen and Jörg Flum.
Listings and logics

14:30 – 15:00 Christian Herrmann and Martin Ziegler.
Computational Complexity of Quantum Satisfiability

15:00 – 15:30 Dai Tri Man Le and Stephen A. Cook.
Formalizing Randomized Matching Algorithms

Coffee Break

16:00 – 17:00 **Session 8: Proof Theory and Linear Logic**
Chair: Dale Miller

16:00 – 16:30 Alexandre Miquel.
Forcing as a program transformation

16:30 – 17:00 Willem Heijltjes.
Proof nets for additive linear logic with units

17:15 – 18:15 Short Presentations

Chair: Martin Grohe

Sam Sanders. Computing the Infinite

Charles Jordan and Thomas Zeugmann. Recent Progress in the Classification for Testability

Kohei Suenaga and Ichiro Hasuo. Programming with Infinitesimals: A WHILE-Language for Hybrid System Modeling

Andrzej Murawski and Nikos Tzevelekos. Algorithmic nominal game semantics

Nathanael Ackerman, Cameron Freer and Daniel Roy. #P-complete conditional distributions

Yang Cai and Ting Zhang. Can Nondeterminism Help Complementation?

Fabien Givors and Gregory Lafitte. Holes Punched Computabilities

Guo-Qiang Zhang, Xiangnan Zhou, Robert Fraser and Licong Cui. Concatenation and Kleene Star on Deterministic Finite Automata

Eric Jui-Yi Kao and Michael Genesereth. Achieving cut, deduction, and other properties with a variation on quasi-classical logic

18:30 – 19:30 LICS Business Meeting and Presentation of Kleene and Test of Time Awards

Thursday, June 23

9:00 – 10:00 **Session 9: Invited Talk**
Chair: Dale Miller

Naoki Kobayashi.
Higher-Order Model Checking: From Theory to Practice

Coffee Break

10:30 – 12:30 **Session 10: Semantics II**
Chair: Andrzej Murawski

10:30 – 11:00 Sergey Goncharov and Lutz Schröder.
Powermonads and Tensoring Unranked Effects

11:00 – 11:30 Ichiro Hasuo and Naohiko Hoshino.
Semantics of Higher-Order Quantum Computation via Geometry of Interaction

11:30 – 12:00 Chung-Kil Hur, Derek Dreyer and Viktor Vafeiadis.
Separation Logic in the Presence of Garbage Collection

12:00 – 12:30 Neelakantan Krishnaswami and Nick Benton.
Ultrametric Semantics of Reactive Programs

14:00 – 15:30 **Session 11: Decidability and Complexity**
Chair: Ashish Tiwari

14:00 – 14:30 Diego Figueira, Santiago Figueira, Sylvain Schmitz and Philippe Schnoebelen.
Ackermannian and Primitive-Recursive Bounds with Dickson's Lemma

14:30 – 15:00 Stefan Göller and Anthony Widjaja Lin.
The Complexity of Verifying Ground Tree Rewrite Systems

15:00 – 15:30 Juha Kontinen, Antti Kuusisto, Peter Lohmann and Jonni Virtema.
Complexity of two-variable Dependence Logic and IF-Logic

Coffee Break

16:00 – 17:30	**Session 12: Constraint Satisfaction and Related Problems** *Chair: Andrei Krokhin*
16:00 – 16:30	Libor Barto. The Dichotomy for Conservative Constraint Satisfaction Problems Revisited
16:30 – 17:00	Florent Madelaine and Barnaby Martin. A tetrachotomy for positive first-order logic without equality
17:00 – 17:30	Manuel Bodirsky, Michael Pinsker and Todor Tsankov. Decidability of Definability
18:00	*Conference Dinner* *(at L'Espresso Bar Mercurio, 321 Bloor St West)*

Friday, June 24

9:00 – 10:00 **Session 13: Invited Talk**
Chair: Matt Valeriote

Andrei Krokhin.
The complexity of evaluating first-order sentences over a fixed structure

Coffee Break

10:30 – 12:30 **Session 14: Logic and Automata II**
Chair: Naoki Kobayashi

10:30 – 11:00 Michael Benedikt, Gabriele Puppis and Cristian Riveros.
Regular Repair of Specifications

11:00 – 11:30 Benjamin Aminof, Orna Kupferman and Robby Lampert.
Rigorous Approximated Determinization of Weighted Automata

11:30 – 12:00 Mikołaj Bojańczyk, Bartek Klin and Sławomir Lasota.
Automata with group actions

12:00-12:30 Diego Figueira.
A decidable two-way logic on data words

14:00 – 15:00 **Session 15: Halpern-Shoham Logic**
Chair: Yijia Chen

14:00 – 14:30 Jakub Michaliszyn and Jerzy Marcinkowski.
The Ultimate Undecidability Result for the Halpern-Shoham Logic

14:30 – 15:00 Davide Bresolin, Angelo Montanari, Pietro Sala and Guido Sciavicco.
What's decidable about Halpern and Shoham's interval logic? The maximal fragment ABBL

Coffee Break

15:30 – 16:30 **Session 16: Concurrency**
Chair: Martin Grohe

15:30 – 16:00 Richard Mayr and Parosh Abdulla.
Computing Optimal Coverability Costs in Priced Timed Petri Nets

16:00 – 16:30 Silvain Rideau and Glynn Winskel.
Concurrent strategies