Contents

Invited Talk

Polarized Substructural Session Types ............................................. 3
  Frank Pfenning and Dennis Griffith

Semantics of Programming Languages I

Synthesis of Strategies and the Hoare Logic of Angelic Nondeterminism ................................................................. 25
  Konstantinos Mamouras

An Infinitary Model of Linear Logic ................................................ 41
  Charles Grellois and Paul-André Melliès

Game Semantics and Normalization by Evaluation ............................. 56
  Pierre Clairambault and Peter Dybjer

Foundations of Differential Dataflow ............................................. 71
  Martín Abadi, Frank McSherry, and Gordon D. Plotkin

Categorical Models and Logics

States of Convex Sets ......................................................................... 87
  Bart Jacobs, Bas Westerbaan, and Bram Westerbaan

A Categorical Semantics for Linear Logical Frameworks .................... 102
  Matthijs Vákár

A Completeness Result for Finite λ-bisimulations ............................. 117
  Joost Winter

Sequent Calculus in the Topos of Trees ............................................. 133
  Ranald Clouston and Rajeev Goré

Modal and Temporal Logics

Coalgebraic Trace Semantics via Forgetful Logics ............................. 151
  Bartek Klin and Jurriaan Rot

Unifying Hyper and Epistemic Temporal Logics ............................... 167
  Laura Bozzielli, Bastien Maubert, and Sophie Pinchinat
Concurrent, Probabilistic and Timed Systems

On the Total Variation Distance of Semi-Markov Chains .......................... 185
Giorgio Bacci, Giovanni Bacci, Kim Guldstrand Larsen, and Radu Mardare

Decidable and Expressive Classes of Probabilistic Automata ....................... 200
Rohit Chadha, A. Prasad Sistla, Mahesh Viswanathan, and Yue Ben

Knowledge = Observation + Memory + Computation ................................. 215
Blaise Genest, Doron Peled, and Sven Schewe

Compositional Metric Reasoning with Probabilistic Process Calculi .............. 230
Daniel Gebler, Kim Guldstrand Larsen, and Simone Tini

Semantics of Programming Languages II

Fragments of ML Decidable by Nested Data Class Memory Automata .................. 249

Operational Nominal Game Semantics .................................................. 264
Guilhem Jaber

Step-Indexed Logical Relations for Probability ........................................ 279
Aleš Bizjak and Lars Birkedal

Automata, Games, Verification

Minimisation of Multiplicity Tree Automata ......................................... 297
Stefan Kiefer, Ines Marusic, and James Worrell

Robust Multidimensional Mean-Payoff Games are Undecidable .................. 312
Yaron Velner

The Cyclic-Routing UAV Problem Is PSPACE-Complete ............................. 328
Hsi-Ming Ho and Joël Ouaknine

Typing Weak MSOL Properties ............................................................. 343
Sylvain Salvati and Igor Walukiewicz

Logical Aspects of Computational Complexity

Three Variables Suffice for Real-Time Logic ........................................ 361
Timos Antonopoulos, Paul Hunter, Shahab Raza, and James Worrell
On Presburger Arithmetic Extended with Modulo Counting
Quantifiers ................................................................. 375
   Peter Habermehl and Dietrich Kuske

Parity Games of Bounded Tree- and Clique-Width ......................... 390
   Moses Ganardi

Type Theory, Proof Theory and Implicit Computational Complexity

Programming and Reasoning with Guarded Recursion for Coinductive Types ................................................................. 407
   Ranald Clouston, Aleš Bizjak, Hans Bugge Grathwohl, and Lars Birkedal

The Computational Contents of Ramified Corecurrence ................... 422
   Daniel Leivant and Ramyaa Ramyaa

On the Dependencies of Logical Rules .................................... 436
   Marc Bagnol, Amina Doumane, and Alexis Saurin

On the Mints Hierarchy in First-Order Intuitionistic Logic ............... 451
   Aleksy Schubert, Paweł Urzyczyn, and Konrad Zdanowski

Author Index ................................................................. 467