

HIGHLIGHTS 2019

OF LOGIC, GAMES AND AUTOMATA

CONFERENCE PROGRAMME

Warsaw, 17-20 September 2019

TUESDAY (Tutorial Day)

- 9:00–9:30 Registration
- 9:30–10:45 **Tutorial 1**
Sebastian Siebertz: Nowhere dense graph classes and algorithmic applications
Session chair: Nicole Schweikardt
- 10:45–11:15 Coffee Break
- 11:15–12:15 **Tutorial 1 cont.**
- 12:15–14:15 Lunch Break
- 14:15–15:30 **Tutorial 2:**
Guy Avni, Formal Methods Meets Algorithmic Game Theory
Session chair: Damian Niwiński
- 15:30–16:00 Coffee Break
- 16:00–17:00 **Tutorial 2 cont.**

WEDNESDAY

- 9:00–9:30 Registration
- 9:30–10:30 **Invited Talk**
Dmitry Chistikov, On the complexity of logics over the integers
- 10:30–11:00 Coffee Break
- 11:00–12:20 **Session 1: LOGICS**
- 12:20–14:20 Lunch Break
- Session 2A: POPULATION PROTOCOLS AND PROBABILISTIC SYSTEMS**
Session 2B: PROGRAM VERIFICATION AND TREE AUTOMATA
- 14:20–15:30 Coffee Break
- 16:00–17:20 **Session 3: TRANSDUCERS**
- 17:20–17:35 Short Break
- 17:35–18:25 **Session 4: PARITY GAMES AND GAMES WITH FINITE MEMORY**

THURSDAY

- 8:45–9:00 Registration
- 9:00–11:00 **Spotlight Session**
Jérôme Leroux: Reachability in Vector Addition Systems is Not Elementary
Sylvain Schmitz: Reachability in Vector Addition Systems is Primitive-Recursive in Fixed Dimension
- 11:00–11:30 Coffee Break
- 11:30–12:20 **Session 5: VECTOR ADDITION SYSTEMS**
- 12:20–14:20 Lunch Break
- 14:20–15:40 **Session 6: MIXED TOPICS**
- 15:40–16:10 Coffee Break
- Session 7A: BRACKETS, PETRI NETS, AND TIMED AUTOMATA**
Session 7B: MARKOV PROCESSES AND STOCHASTIC HYBRID SYSTEMS
- 16:10–17:10 Short Break
- 17:10–17:20 Short Break
- 17:20–18:20 **Session 8: AUTOMATA ON WORDS**
- 19:00 Picnic

FRIDAY

- 9:00–10:00 **Invited Talk**
Marie Fortin: Expressivity of first-order logic and star-free propositional dynamic logic over ordered structures
- 10:00–10:30 Coffee Break
- 10:30–11:50 **Session 9: REGULARITY**
- 11:50–12:00 Short Break
- 12:00–13:00 **Session 10: MEAN-PAYOFF GAMES, REACHABILITY GAMES, AND PATROLLING GAMES**
- 13:00–13:10 Closing Remarks

WEDNESDAY, 18.09

9:30–10:30 Invited talk

Dmitry Chistikov: On the complexity of logics over the integers
Session chair: Michael Benedikt

11:00–12:20 Session 1: LOGICS

Session chair: Dmitry Chistikov

Laureline Pinault	Undecidability of MSO with Path-Measure Quantifier via Probabilistic Automata
Szymon Toruńczyk	Aggregation, Enumeration, and Updates on Sparse Databases via Circuits
Stanislav Kikot	On Monotone Determinacy of Recursive Queries over Disjunctive Views
Steffen van Berghem	Learning Concepts Definable in First-Order Logic with Counting
Gabriel Istrate	Proof complexity of Kneser-Lovasz formulas and other combinatorial principles: the role of kernelization
Benjamin Lucien Kaminski	Quantitative Separation Logic - A Logic for Reasoning about Probabilistic Pointer Programs
Eugenia Ternovska	A Logic of Information Flows
Arthur Milchior	MightyL: From Metric Interval Temporal Logic to Timed/Signal automata

14:20–15:30 Session 2a: POPULATION PROTOCOLS AND PROBABILISTIC SYSTEMS

Session chair: Mickael Randour

Stefan Jaax	Succinct Population Protocols
Chana Weil-Kennedy	The Complexity of Verifying Observation Population Protocols
Antonin Kucera	Termination complexity of Parameterized Population Protocols
Catalin Dima	Model Checking Strategic Abilities in Information-sharing Agents
Jan Kretinsky	Semi-Quantitative Abstraction and Analysis of Stochastic Population Models
Edoardo Pirovano	A Counter Abstraction Technique for the Verification of Probabilistic Swarm Systems
Julia Eisentraut	Stopping Criteria for Value and Strategy Iteration on Concurrent Stochastic Games

14:20–15:30 Session 2b: PROGRAM VERIFICATION AND TREE AUTOMATA

Session Chair: Marie Fortin

Pierre Clairambault	On the expressivity of linear recursion schemes
Peter Chini	Parameterized Complexity of Program Verification Tasks
Mehran Hosseini	Termination of Affine Loops over the Integers
Paul Brunet	Pomsets with boxes: towards Atomic CKA
Patrick Landwehr	Tree Automata with Global Constraints for Infinite Trees
David Barozzini	Cost Logics, Safe Schemes, and Downward Closures
Alexander Rabinovich	Degrees of Ambiguity of Büchi Tree Automata

16:00–17:20 Session 3: TRANSDUCERS

Session Chair: Thomas Colcombet

Mikołaj Bojańczyk	Polyregular functions
Sougata Bose	Origin-equivalence and resynchronizers for two-way transducers
Jan Martens	Resynchronizability of one-way transducers is undecidable
Anca Muscholl	Equivalence of finite-valued streaming string transducers is decidable
Janusz Schmude	Deciding Transducer Equivalence via Simulating an Algebra With a Ring of Polynomials
Amina Doumane	First-order tree-to-tree functions
Adrien Boiret	Deciding equivalence on symbolic DTop with lookahead
Ramanathan Srinivasan	Regular Separability and Intersection Emptiness are Independent Problems

17:35–18:25 Session 4: PARITY GAMES AND GAMES WITH FINITE MEMORY

Session Chair: Marcin Jurdziński

Mickael Randour	Games Where You Can Play Optimally With Finite Memory
Karoliina Lehtinen	From Parity to Büchi with universal trees.
Paweł Parys	Parity Games: Zielonka's Algorithm in Quasi-Polynomial Time
Clément Tamines	Partial Solvers for Generalized Parity Games
Tom van Dijk	Distractions in Parity Games

THURSDAY, 19.09

9:00–11:00 Spotlight Session

Jérôme Leroux: Reachability in Vector Addition Systems is Not Elementary
Sylvain Schmitz: Reachability in Vector Addition Systems is Primitive-Recursive in Fixed Dimension
Session Chair: Mikołaj Bojańczyk

11:30–12:20 Session 5: VECTOR ADDITION SYSTEMS

Session Chair: Jérôme Leroux

Jan Otop Long-Run Average Behavior of Vector Addition Systems with States
Wojciech Czerwiński An Approach to Regular Separability in Vector Addition Systems
Michał Pilipczuk Reachability for BoBrVASS
Radosław Piórkowski New pumping technique for 2-VASS
Dominik Velan Deciding Fast Termination for Probabilistic VASS with Nondeterminism

14:20–15:40 Session 6: MIXED TOPICS

Session Chair: Leonid Libkin

Johannes Doleschal Split-Correctness in Information Extraction
Petr Jancar Bisimulation Equivalence of First-Order Grammars is ACKERMANN-Complete
Jędrzej Kołodziejki Bisimulational Categoricity
Wojtek Jamroga Some Things are Easier for the Dumb and the Bright Ones (Beware of the Average!)
Vadim Malvone Reasoning about Natural Strategic Ability
Bastien Maubert Reasoning about Quality and Fuzziness of Strategic Behaviours
Sławomir Lasota Definable isomorphism problem
Oleg Verbitsky Identifiability of Graphs with Small Color Classes by the Weisfeiler-Leman Algorithm

16:10–17:10 Session 7a: BRACKETS, PETRI NETS, AND TIMED AUTOMATA

Session Chair: Sylvain Schmitz

Dmitry Chistikov Re-pairing brackets
Olivier Finkel Wadge Degrees of ω -Languages of Petri Nets
Michał Skrzypczak On the strength of non-determinism for Buchi VASS
Piotr Hofman Continuous Reachability for Unordered Data Petri Nets is in PTime
Patrick Totzke Timed Basic Parallel Processes
Sayan Mukherjee Fast Algorithms for Handling Diagonal Constraints in Timed Automata

16:10–16:50 Session 7b: MARKOV PROCESSES AND STOCHASTIC HYBRID SYSTEMS

Session Chair: Sebastian Siebertz

David Purser The big-O Problem for Labelled Markov Chains
Jakob Piribauer Long-run probabilities of path properties
Pierre Vandenhove Reachability in Stochastic Hybrid Systems
Pranav Ashok PAC Statistical Model Checking for Markov Decision Processes and Stochastic Games
Georg Zetsche Presburger arithmetic with stars, rational subsets of graph groups, and nested zero tests

17:20–18:20 Session 8: AUTOMATA ON WORDS

Session Chair: Christof Löding

Corto Mascle On Nonnegative Integer Matrices and Short Killing Words
Rafał Stefański Single use register automata for data words
Nicolas Mazzocchi Two-way automata with Presburger acceptance
Ismaël Jecker On Equivalence Problem for Rational Relations
Chris Köcher Reachability Problems on Partially Lossy Queue Automata
Corentin Barloy A robust class of linear recurrence sequences

FRIDAY, 20.09

9:00–10:00 Invited talk

Marie Fortin: Expressivity of first-order logic and star-free propositional dynamic logic over ordered structures
Session Chair: Véronique Bruyère

10:30–11:50 Session 9: REGULARITY

Session Chair: Anca Muscholl

Dominik Wojtczak	Omega-Regular Objectives in Model-Free Reinforcement Learning
Simon Jantsch	From Linear Temporal Logic to Unambiguous Büchi Automata
Grzegorz Fabiański	Uniformization of MSO-definable relations on integers
Vincent Michielini	Uniformization problem for class of regular languages: an algebraic approach
Denis Kuperberg	Computational content of cyclic proofs for regular expressions
Émile Hazard	An infinitary proof system for the inclusion of ω -regular languages
Nathan Lhote	Computability and continuity of regular functions over ω -words
Christopher Hugenroth	Separating Languages over Infinite Words with Product Automata

12:00–13:00 Session 10: MEAN-PAYOFF GAMES, REACHABILITY GAMES, AND PATROLLING GAMES

Session Chair: Guy Avni

Véronique Bruyère	Energy mean-payoff games
Daniele Dell'Erba	Quasi Dominion Measures for Mean-Payoff Games
Pierre Ohlmann	Universal Graphs for Mean Payoff Games
Aline Goeminne	On Relevant Equilibria in Reachability Games
Marie Van Den Bogaard	The Complexity of Subgame Perfect Equilibria in Quantitative Reachability Games
Antonín Kučera	Automatic Synthesis of Efficient Regular Strategies in Adversarial Patrolling Games