

ICALP 2015 Track A Program

Monday 6 July 2015

Session 1 10:25-12:30 (ROOM2: Royal Room)

Chair: Martin Grohe

- 10:25 Peter Fulla and Stanislav Živný
A Galois Connection for Valued Constraint Languages of Infinite Size
- 10:50 Johan Thapper and Stanislav Živný
Sherali-Adams Relaxations for Valued CSPs
- 11:15 Marcin Kozik and Joanna Ochremiak
Algebraic Properties of Valued Constraint Satisfaction Problem
- 11:40 Manuel Bodirsky, Barnaby Martin and Antoine Mottet
Constraint Satisfaction Problems over the Integers with Successor
- 12:05 Laurent Bienvenu, Damien Desfontaines and Alexander Shen
What Percentage of Programs Halt?

Session 2 10:25-12:30 (ROOM3: Rose Room)

Chair: Yossi Azar

- 10:25 Georgios Amanatidis, Evangelos Markakis, Afshin Nikzad and Amin Saberi
Approximation Algorithms for Computing Maximin Share Allocations
- 10:50 Elliot Anshelevich, Koushik Kar and Shreyas Sekar
Envy-Free Pricing in Large Markets: Approximating Revenue and Welfare
- 11:15 Jugal Garg, Ruta Mehta, Vijay Vazirani and Sadra Yazdanbod
ETR-Completeness for Decision Versions of Multi-Player (Symmetric) Nash Equilibria
- 11:40 Yossi Azar and Ilan Cohen
Serving in the Dark Should Be Done Non-Uniformly
- 12:05 Jurek Czyzowicz, Leszek Gasieniec, Adrian Kosowski, Evangelos Kranakis, Paul Spirakis and Przemysław Uznański
On Convergence and Threshold

Session 3 15:00-16:15 (ROOM2: Royal Room)

Chair: Ivan Visconti

- 15:00 Leslie Ann Goldberg, Rob Gysel and John Lapinskas
Approximately Counting Locally-Optimal Structures
- 15:25 Andreas Göbel, Leslie Ann Goldberg and David Richerby
Counting Homomorphisms to Square-Free Graphs, Modulo 2
- 15:50 Andreas Galanis, Leslie Ann Goldberg and Mark Jerrum
Approximately Counting H -Colourings is #BIS-Hard

Session 4 15:00-16:15 (ROOM3: Rose Room)

Chair: Erik Jan van Leeuwen

- 15:00 Serge Gaspers and Gregory Sorkin
Separate, Measure and Conquer: Faster Algorithms for Max 2-CSP and Counting Dominating Sets
- 15:25 Andreas Björklund, Holger Dell and Thore Husfeldt
The Parity of Set Systems under Random Restrictions with Applications to Exponential Time
- 15:50 Daniel Lokshtanov, Pranabendu Misra, Fahad Panolan and Saket Saurabh
Deterministic Truncation of Linear Matroids

Session 5 16:45-18:00 (ROOM2: Royal Room)

Track A Best Papers

Chair: Bettina Speckmann

- 16:45 Aaron Bernstein and Clifford Stein
Fully Dynamic Matching in Bipartite Graphs
- 17:10 Huacheng Yu
An Improved Combinatorial Algorithm for Boolean Matrix Multiplication
- 17:35 Radu Curticapean
Block Interpolation: A Framework for Tight Exponential-time Counting Complexity

Tuesday 7 July 2015

Session 6 10:25-12:30 (ROOM2: Royal Room)

Chair: Bettina Speckmann

- 10:25 Joseph Mitchell, Valentin Polishchuk, Mikko Sysikaski and Haitao Wang
An Optimal Algorithm for Minimum-Link Rectilinear Paths in Rectilinear Domains
- 10:50 Ulrike Grosse, Joachim Gudmundsson, Christian Knauer, Michiel Smid and Fabian Stehn
Fast Algorithms for Diameter-Optimally Augmenting Paths
- 11:15 Amir Nayyeri and Anastasios Sidiropoulos
Computing the Fréchet Distance between Polygons with Holes
- 11:40 Marek Karpinski, Andrzej Lingas and Dzmityr Sledneu
A QPTAS for the Base of the Number of Crossing-Free Structures on a Planar Point Set
- 12:05 Jian Li and Yifei Jin
A PTAS for the Weighted Unit Disk Cover Problem

Session 7 10:25-12:30 (ROOM3: Rose Room)

Chair: Takeaki Uno

- 10:25 Jędrzej Kaniewski, Troy Lee and Ronald de Wolf
Query Complexity in Expectation
- 10:50 Dean Doron and Amnon Ta-Shma
On the Problem of Approximating the Eigenvalues of Undirected Graphs in Probabilistic Logspace
- 11:15 Matthew Coudron and Thomas Vidick
Interactive Proofs with Approximately Commuting Provers
- 11:40 Sevag Gharibian and Jamie Sikora
Ground State Connectivity of Local Hamiltonians
- 12:05 Oded Goldreich, Tom Gur and Ron Rothblum
Proofs of Proximity for Context-Free Languages and Read-Once Branching Programs

Session 8 15:00-17:05 (ROOM2: Royal Room)

Chair: Kazuhisa Makino

- 15:00 Lila Fontes, Rahul Jain, Iordanis Kerenidis, Mathieu Laurière, Sophie Laplante and Jérémie Roland
Relative Discrepancy Does Not Separate Information
- 15:25 Swagato Sanyal
Near-optimal Upper Bound on Fourier Dimension of Boolean Functions in Terms of Fourier Sparsity
- 15:50 Maciej Skorski, Alexander Golovnev and Krzysztof Pietrzak
Condensed Unpredictability
- 16:15 Gil Cohen and Igor Shinkar
Zero-Fixing Extractors for Sub-Logarithmic Entropy
- 16:40 Salman Beigi, Omid Etesami and Amin Gohari
Deterministic Randomness Extraction from Generalized and Distributed Santha-Vazirani Sources

Session 9 15:00-17:05 (ROOM3: Rose Room)

Chair: Giuseppe Italiano

- 15:00 Jerry Li and John Peebles
Replacing Mark Bits with Randomness in Fibonacci Heaps
- 15:25 Thomas Dueholm Hansen, Haim Kaplan, Robert Tarjan and Uri Zwick
Hollow Heaps
- 15:50 Pawel Gawrychowski and Patrick K. Nicholson
Optimal Encodings for Range Top-k, Selection, and Min-Max
- 16:15 Pawel Gawrychowski, Shay Mozes and Oren Weimann
Submatrix Maximum Queries in Monge Matrices are Equivalent to Predecessor Search
- 16:40 Paul Beame, Vincent Liew and Mihai Pătraşcu
Finding the Median (Obliviously) with Bounded Space

Wednesday 8 July 2015

Session 10 10:25-12:30 (ROOM2: Royal Room)

Chair: Takeaki Uno

- 10:25 Zdenek Dvorak and Martin Kupec
On Planar Boolean CSP
- 10:50 Amer Mouawad, Naomi Nishimura, Vinayak Pathak and Venkatesh Raman
Shortest Reconfiguration Paths in the Solution Space of Boolean Formulas
- 11:15 Hamid Jahanjou, Eric Miles and Emanuele Viola
Local Reductions
- 11:40 Amey Bhangale, Swastik Kopparty and Sushant Sachdeva
Simultaneous Approximation of Constraint Satisfaction Problems
- 12:05 Subhash Khot and Rishi Saket
Approximating CSPs using LP Relaxation

Session 11 10:25-12:30 (ROOM3: Rose Room)

Chair: Erik Jan van Leeuwen

- 10:25 Archontia Giannopoulou, Bart M. P. Jansen, Daniel Lokshtanov and Saket Saurabh
Uniform Kernelization Complexity of Hitting Forbidden Minors
- 10:50 Yixin Cao
Unit Interval Editing is Fixed-Parameter Tractable
- 11:15 Andreas Björklund, Vikram Kamat, Lukasz Kowalik and Meirav Zehavi
Spotting Trees with Few Leaves
- 11:40 Fedor V Fomin, Petteri Kaski, Daniel Lokshtanov, Fahad Panolan and Saket Saurabh
Parameterized Single-exponential Time Polynomial Space Algorithm
- 12:05 Daniel Lokshtanov, M.S. Ramanujan and Saket Saurabh
Linear Time Parameterized Algorithms for SUBSET FEEDBACK VERTEX SET

Session 12 15:00-17:05 (ROOM2: Royal Room)

Chair: Hiro Ito

- 15:00 Omri Weinstein and David P. Woodruff
The Simultaneous Communication of Disjointness with Applications to Data Streams
- 15:25 Marco Molinaro, David Woodruff and Grigory Yaroslavtsev
Amplification of One-Way Information Complexity via Codes and Noise Sensitivity
- 15:50 Chandra Chekuri, Shalmoli Gupta and Kent Quanrud
Streaming Algorithms for Submodular Function Maximization
- 16:15 Sumit Ganguly
Taylor Polynomial Estimator for Estimating Frequency Moments
- 16:40 Clément Canonne
Big Data on the Rise? Testing Monotonicity of Distributions

Session 13 15:00-17:05 (ROOM3: Rose Room)

Chair: Bart Jansen

- 15:00 Tobias Mömke and Andreas Wiese
A $(2+\epsilon)$ -Approximation Algorithm for the Storage Allocation Problem
- 15:25 Yann Disser, Max Klimm and Elisabeth Lübbecke
Scheduling Bidirectional Traffic on a Path
- 15:50 Sungjin Im and Benjamin Moseley
Weighted Reordering Buffer Improved via Variants of Knapsack Covering Inequalities
- 16:15 Noa Avigdor-Elgrabli, Sungjin Im, Benjamin Moseley and Yuval Rabani
On the Randomized Competitive Ratio of Reordering Buffer Management with Non-Uniform Costs
- 16:40 Marvin Künnemann and Bodo Manthey
Towards Understanding the Smoothed Approximation Ratio of the 2-Opt Heuristic

Thursday 9 July 2015

Session 14 10:25-12:30 (ROOM2: Royal Room)

Chair: Jesper Jansson

- 10:25 Monika Henzinger, Sebastian Krinninger and Veronika Loitzenbauer
Finding 2-Edge and 2-Vertex Strongly Connected Components in Quadratic Time
- 10:50 Loukas Georgiadis, Giuseppe F. Italiano, Luigi Laura and Nikos Parotsidis
2-Vertex Connectivity in Directed Graphs
- 11:15 Thomas Erlebach, Michael Hoffmann and Frank Kammer
On Temporal Graph Exploration
- 11:40 Yasushi Kawase, Yusuke Kobayashi and Yutaro Yamaguchi
Finding a Path in Group-Labeled Graphs with Two Labels Forbidden
- 12:05 Monika Henzinger, Sebastian Krinninger and Danupon Nanongkai
Improved Algorithms for Decremental Single-Source Reachability on Directed Graphs

Session 15 10:25-12:30 (ROOM3: Rose Room)

Chair: Ivan Visconti

- 10:25 Aleksandar Nikolov
An Improved Private Mechanism for Small Databases
- 10:50 Shweta Agrawal, Yuval Ishai, Dakshita Khurana and Anat Paskin-Cherniavsky
Statistical Randomized Encodings: A Complexity Theoretic View
- 11:15 Brett Hemenway and Mary Wootters
Linear-time List Recovery of High-rate Expander Codes
- 11:40 Aloni Cohen and Justin Holmgren
Multilinear Pseudorandom Functions
- 12:05 Antonio Faonio, Jesper Buus Nielsen and Daniele Venturi
Mind Your Coins: Fully Leakage-Resilient Signatures with Graceful Degradation

Session 16 15:00-17:05 (ROOM2: Royal Room)

Chair: Kazuhisa Makino

- 15:00 Susanne Albers and Dario Frascaria
Quantifying Competitiveness in Paging with Locality of Reference
- 15:25 Yajun Wang and Sam Chiu-Wai Wong
Two-sided Online Bipartite Matching and Vertex Cover: Beating the Greedy Algorithm
- 15:50 Sayan Bhattacharya, Monika Henzinger and Giuseppe F. Italiano
Design of Dynamic Algorithms via Primal-Dual Method
- 16:15 Adam Kurpisz, Samuli Leppanen and Monaldo Mastrolilli
On the Hardest Problem Formulations for the 0/1 Lasserre Hierarchy
- 16:40 Lila Kari, Steffen Kopecki, Pierre-Étienne Meunier, Matthew Patitz and Shinnosuke Seki
Binary Pattern Tile Set Synthesis is NP-hard

Session 17 15:00-17:05 (ROOM3: Rose Room)

Chair: Thomas Erlebach

- 15:00 Boris Aronov and Matthew J. Katz
Batched Point Location in SINR Diagrams via Algebraic Tools
- 15:25 Huang Lingxiao and Jian Li
Approximating the Expected Values for Combinatorial Optimization Problems over Stochastic Points
- 15:50 Xiaohui Bei, Ning Chen and Shengyu Zhang
Solving Linear Programming with Constraints Unknown
- 16:15 Babak Behsaz, Zachary Friggstad, Mohammad Salavatipour and Rohit Sivakumar
Approximation Algorithms for Min-Sum k -Clustering and Balanced k -Median
- 16:40 Benjamin A. Burton, Clément Maria and Jonathan Spreer
Algorithms and Complexity for Turaev-Viro Invariants

Friday 10 July 2015

Session 18 10:25-12:30 (ROOM2: Royal Room)

Chair: Benjamin Burton

- 10:25 Agnes Cseh, Chien-Chung Huang and Telikepalli Kavitha
Popular Matchings with Two-Sided Preferences and One-Sided Ties
- 10:50 Sampath Kannan, Claire Mathieu and Hang Zhou
Near-Linear Query Complexity for Graph Inference
- 11:15 Andreas Emil Feldmann, Wai Shing Fung, Jochen Könnemann and Ian Post
A $(1 + \epsilon)$ -Embedding of Low Highway Dimension Graphs into Bounded Treewidth Graphs
- 11:40 Christoph Berkholz and Martin Grohe
Limitations of Algebraic Approaches to Graph Isomorphism Testing
- 12:05 Neeraj Kayal, Pascal Koiran, Timothee Pecatte and Chandan Saha
Lower Bounds for Sums of Powers of Low Degree Univariates

Session 19 10:25-12:30 (ROOM3: Rose Room)

Chair: Jesper Jansson

- 10:25 Olaf Beyersdorff, Leroy Chew, Meena Mahajan and Anil Shukla
Feasible Interpolation for QBF Resolution Calculi
- 10:50 Mark Bun and Justin Thaler
Hardness Amplification and the Approximate Degree of Constant-Depth Circuits
- 11:15 Balagopal Komarath, Jayalal Sarma and K. S. Sunil
Comparator Circuits over Finite Bounded Posets
- 11:40 Nir Ailon
Tighter Fourier Transform Lower Bounds
- 12:05 Fedor Fomin, Alexander Golovnev, Alexander Kulikov and Ivan Mihajlin
Lower Bounds for the Graph Homomorphism Problem