

# Foundations of Software Technology and Theoretical Computer Science

December 15-17, 2009

All Invited talks in CS101, Sessions A in CS 101, Sessions B in CS102.

15 December 2009

08:00-09:00 Registration

**Invited Talk:** *R. Ravi*

09:00-10:00 Iterative Methods in Combinatorial Optimization

Chair: *Ravi Kannan*

10:00-10:30 Coffee Break

10:30-12:30

## Session 1A

Chair: *Piyush P. Kurur*

## Session 1B

Chair: *R. Ramanujam*

*Vikraman Arvind, Pushkar Joglekar and Srikanth Srinivasan.*

Arithmetic Circuits and the Hadamard Product of Polynomials

*Parosh Abdulla, Yu-Fang Chen, Lukáš Holík and Tomáš Vojnar.*

Mediating for Reduction (on Minimizing Alternating Buchi Automata)

*Mark Braverman, Stephen Cook, Pierre McKenzie, Rahul Santhanam and Dustin Wehr.*

Fractional Pebbling and Thrifty Branching Programs

*Mikołaj Bojańczyk and Szymon Toruńczyk.*

Deterministic Automata and Extensions of Weak MSO

*Abhinav Kumar, Satyanarayana Lokam, Vijay M. Patankar and Jayalal M.N. Sarma.*

Using Elimination Theory to construct Rigid Matrices

*Jérémie Cabessa, Jacques Duparc, Alessandro Facchini and Filip Murlak.*

The Wadge Hierarchy of Max-Regular Languages

*Chandan Saha, Ramprasad Saptharishi and Nitin Saxena.*

The Power of Depth 2 Circuits over Algebras.

*Stéphanie Delaune, Steve Kremer and Olivier Pereira.*

Simulation based security in the applied pi calculus

12:30-14:00 Lunch (CSE Lawns)

**Invited Talk:** *Anuj Dawar*

14:00-15:00 Structure and Specification as Sources of Complexity

Chair: *Anil Seth*

15:00-15:30 Coffee Break

15:30-17:00

**Session 2A**

Chair: *Jaikumar Radhakrishnan*

*Samir Datta, Prajakta Nimbhorkar, Thomas Thierauf and Fabian Wagner.*  
Graph Isomorphism for  $K_{\{3,3\}}$ -free and  $K_5$ -free graphs is in Log-space

*John Hitchcock, A Pavan and N. V. Vinodchandran.*  
Kolmogorov Complexity in Randomness Extraction

*Marc Kaplan, Iordanis Kerenidis, Sophie Laplante and Jérémie Rolan.*  
Non-Local Box Complexity and Secure Function Evaluation

**Session 2B**

Chair: *Kamal Lodaya*

*Tomáš Brázdil, Javier Esparza and Stefan Kiefer.*  
On the Memory Consumption of Probabilistic Pushdown Automata

*Mark Kattenbelt and Michael Huth.*  
Verification and refutation of probabilistic specifications via games

*Mathieu Tracol, Marcus Größer and Christel Baier.*  
Recurrence and Transience for Probabilistic Automata

17:15-18:00

Special Session on “Remembering Rajeev Motwani”

Chair: *Somenath Biswas*

19:30-

Dinner (CSE Lawns)

**16 December 2009**

**Invited Talk:** *Kim G. Larsen*

09:00-10:00

Priced Timed Automata: Theory and Tools

Chair: *Madhavan Mukund*

10:00-10:30

Coffee Break

10:30-12:30

**Session 3A**

Chair: *Navin Goyal*

*Stéphane Bessy, Fedor Fomin, Serge Gaspers, Christophe Paul, Anthony Perez, Saket Saurabh and Stéphan Thomassé .*  
Kernels for Feedback Arc Set In Tournaments

*Fedor Fomin, Daniel Lokshtanov, Venkatesh Raman and Saket Saurabh.*  
Subexponential Algorithms for Partial Cover Problems

*Anuj Dawar and Stephan Kreutzer.*  
Domination Problems in Nowhere-Dense Classes of Graphs

**Session 3B**

Chair: *Dietmar Berwanger*

*Laurent Braud.*  
Covering of ordinals

*Julien Cristau.*  
Automata and temporal logic over arbitrary linear time

*Alexander Rabinovich.*  
Synthesis of Finite-state and Definable Winning Strategies

*Joachim Kneis, Alexander Langer and Peter Rossmanith.*  
A Fine-grained Analysis of a Simple Independent Set Algorithm.

*Soumya Paul and Sunil Easaw Simon.*  
Nash Equilibrium in Generalised Muller Games

12:30-14:00 Lunch (CSE Lawns)

14:00-15:30

**Session 4A**

Chair: *Venkatesh Raman*

**Session 4B**

Chair: *Sanjiva Prasad*

*Konstantinos Georgiou, Avner Magen and Iannis Tourlakis.*

On the Tightening of the Standard SDP for Vertex Cover with  $\ell_1$  Inequalities

*Tomáš Brazdil, Vojtech Forejt, Jan Krčál, Jan Křetínský and Antonín Kučera.*

Continuous-Time Stochastic Games with Time-Bounded Reachability

*Chien-Chung Huang and Zoya Svitkina.*

Donation Center Location Problem

*Laura Bozzelli, Axel Legay and Sophie Pinchinat.*

On Timed Alternating Simulation for Concurrent Timed Games

*Rohit Khandekar, Guy Kortsarz and Zeev Nutov.*

Approximating Fault-Tolerant Group-Steiner Problems

*Ankur Taly and Ashish Tiwari.*

Deductive Verification of Continuous Dynamical Systems

15:30-16:00 Coffee break

16:00-17:00 IARCS Business Meeting

19:30- Conference Banquet (Institute Guest House Lawns)

**17 December 2009**

**Invited Talk:** *Avi Wigderson*

09:00-10:00 Randomness extractors – applications and constructions

Chair: *Satya Lokam*

10:00-10:30 Coffee break

10:30-12:00

**Session 5A**

Chair: *Amit Kumar*

**Session 5B**

Chair: *Deepak D'Souza*

*Mostafa Ammar, Deeparnab Chakrabarty, Atish Das Sarma, Subrahmanyam Kalyanasundaram and Richard J. Lipton.*

Algorithms for Message Ferrying on Mobile ad hoc Networks

*Christof Löding and Karianto Wong.*  
On Nondeterministic Unranked Tree Automata with Sibling Constraints

*Rohit Khandekar, Kirsten Hildrum,  
Sujay Parekh, Deepak Rajan, Jay  
Sethuraman and Joel Wolf.*

Bounded Size Graph Clustering with  
Applications to Stream Processing  
Problem

*Stéphane Demri, Marcin Jurdziński,  
Oded Lachish and Ranko Lazić.*

The covering and boundedness prob-  
lems for branching vector addition sys-  
tems

*André Madeira and S. Muthukrishnan.*  
Functionally Private Approximations  
of Negligibly-Biased Estimators

*M. Praveen and Kamal Lodaya.*

Modelchecking counting properties of  
1-safe nets with buffers in para-  
PSPACE

12:15-12:30 Closing Session

12:30-14:00 Lunch (CSE Lawns)

20:00- Dinner (Institute Guest House Lawns)