

STOC 2007 Program

Talks occupy 25 minute time slots of which the last 5 are for questions and switching between sessions. Session titles are for general orientation purpose only, and might be only weakly correlated with talks in session. Session chairs are tentative. Sessions are numbered in the order of paper appearance in the proceedings. Session 5 was to have been the Knuth Prize Lecture by Nancy Lynch, but that has now been postponed until the FOCS conference.

Sunday, June 10.

17:45–19:00. **Turing Award Lecture: Fran Allen.**

19:00–21:00. **STOC Reception.**

Monday, June 11.

1A. Crypto. Chair: Russell Impagliazzo.

8:50–9:15. Iftach Haitner and Omer Reingold. *Statistically-Hiding Commitment from Any One-Way Function.*

9:15–9:40. Jonathan Katz. *On Achieving the “Best of Both Worlds” in Secure Multiparty Computation.*

9:40–10:05. Yuval Ishai, Eyal Kushilevitz, Rafail Ostrovsky and Amit Sahai. *Zero-Knowledge from Secure Multiparty Computation.*

1B. Geometry. Chair: Vijaya Ramachandran.

8:50–9:15. Timothy M. Chan and Mihai Patrascu. *Voronoi Diagrams in $n \cdot 2^{O(\sqrt{\lg \lg n})}$ Time.*

9:15–9:40. Mihai Patrascu. *Lower Bounds for 2-Dimensional Range Counting.*

9:40–10:05. Saugata Basu. *Combinatorial Complexity in O -minimal Geometry.*

10:05–10:30. **Coffee Break**

2A. Fourier algorithms. Chair: Uriel Feige.

10:30–10:55. Martin Furer. *Faster Integer Multiplication.*

10:55–11:20. Andreas Bjrkklund, Thore Husfeldt, Petteri Kaski and Mikko Koivisto. *Fourier Meets Möbius: Fast Subset Convolution.*

2B. Privacy. Chair: Valerie King.

10:30–10:55. Kobbi Nissim, Sofya Raskhodnikova and Adam Smith. *Smooth Sensitivity and Sampling in Private Data Analysis.*

10:55–11:20. Cynthia Dwork, Frank McSherry and Kunal Talwar. *The Price of Privacy and the Limits of LP Decoding.*

11:30–12:30. **FCRC Plenary: Chuck Moore, AMD, A Framework for Innovation**

12:30–14:00. **Lunch**

3A. Approximation algorithms. Chair: Milena Mihail.

14:00–14:25. Claire Kenyon-Mathieu and Warren Schudy. *How to rank with few errors: A PTAS for Weighted Feedback Arc Set on Tournaments.*

14:25–14:50. Sudipto Guha and Kamesh Munagala. *Approximation Algorithms for Budgeted Learning Problems.*

14:50–15:15. Arash Asadpour and Amin Saberi. *An Approximation Algorithm for Max-Min Fair Allocation of Indivisible Goods.*

15:15–15:40. Mohsen Bayati, David Gamarnik, Dmitry Katz, Chandra Nair and Prasad Tetali. *Simple deterministic approximation algorithms for counting.*

3B. Networks and distributed algorithms. Chair: Michel Goemans.

14:00–14:25. Elchanan Mossel and Sebastien Roch. *On the Submodularity of Influence in Social Networks.*

14:25–14:50. Christian Borgs, Jennifer T. Chayes, Constantinos Daskalakis and Sebastien Roch. *First to Market is not Everything: an Analysis of Preferential Attachment with Fitness.*

14:50–15:15. Matthew Andrews, Kyomin Jung and Alexander Stolyar. *Stability of the Max-Weight Routing and Scheduling Protocol in Dynamic Networks and at Critical Loads.*

15:15–15:40. Hagit Attiya and Keren Censor. *Tight Bounds for Asynchronous Randomized Consensus.*

15:40–16:05. **Coffee Break**

4A. Hardness of approximation. Chair: Ryan O’Donnell

16:05–16:30. Julia Chuzhoy, Venkatesan Guruswami, Sanjeev Khanna and Kunal Talwar. *Hardness of Routing with Congestion in Directed Graphs.*

16:30–16:55. Julia Chuzhoy and Sanjeev Khanna. *Polynomial Flow-Cut Gaps and Hardness of Directed Cut Problems.*

16:55–17:20. Per Austrin. *Balanced Max 2-Sat might not be the hardest.*

17:20–17:45. Venkatesan Guruswami and Prasad Raghavendra. *A 3-Query PCP over Integers.*

4B. Systems of equations. Chair: Robert Kleinberg.

16:05–16:30. Nicholas Harvey and John Dunagan. *Iteratively Constructing Preconditioners via the Conjugate Gradient Method.*

16:30–16:55. Stefan Kiefer, Michael Luttenberger and Javier Esparza. *On the Convergence of Newton’s Method for Monotone Systems of Polynomial Equations.*

16:55–17:20. Sanjeev Arora and Satyen Kale. *A Combinatorial, Primal-Dual approach to Semidefinite Programs.*

17:20–17:45. Anna Gilbert, Martin Strauss, Joel Tropp and Roman Vershynin. *One sketch for all: Fast algorithms for Compressed Sensing.*

20:30–21:00 **Student Poster Session**

21:00–22:30 **SIGACT Business Meeting**

Tuesday, June 12

6A. Untitled. Chair: Leonard Schulman.

8:50–9:15. Van Vu and Terence Tao. *The condition number of a randomly perturbed matrix.*

9:15–9:40. Udi Wieder and Kunal Talwar. *Balanced Allocations: The Weighted Case.*

9:40–10:05. Sergey Yekhanin. *Towards 3-Query Locally Decodable Codes of Subexponential Length.*

6B. Circuit complexity. Chair: Eric Allender.

8:50–9:15. Rahul Santhanam. *Circuit Lower Bounds for Merlin-Arthur Classes.*

9:15–9:40. Amir Shpilka. *Interpolation of Depth-3 Arithmetic Circuits with two Multiplication Gates.*

9:40–10:05. Alexander Sherstov. *Separating AC^0 from Depth-2 Majority Circuits.*

10:05–10:30. **Coffee Break**

7A. Lovasz-Schrijver relaxations. Chair: Martin Grohe.

10:30–10:55. Grant Schoenebeck, Luca Trevisan and Madhur Tulsiani. *Tight Integrality Gaps for Lovasz-Schrijver LP Relaxations of Vertex Cover and Max Cut.*

10:55–11:20. Stefan Dantchev. *Rank Complexity Gap for Lovasz-Schrijver and Sherali-Adams Proof Systems.*

7B. Data structures. Chair: Vijaya Ramachandran.

10:30–10:55. Anna Pagh, Rasmus Pagh and Milan Ruzic. *Linear Probing with Constant Independence.*

10:55–11:20. Gianni Franceschini and S. Muthukrishnan. *Optimal Suffix Selection.*

11:30–12:30. **FCRC Plenary: David Culler, UCB, and Deborah Estrin, UCLA**

Wireless Sensing – The Internet’s Front-Tier

12:30–14:00. **Lunch**

8A. Game theory. Chair: Robert Kleinberg.

14:00–14:25. Shahar Dobzinski and Noam Nisan. *Limitations of VCG-Based Mechanisms.*

14:25–14:50. Sergiu Hart and Yishay Mansour. *The Communication Complexity of Uncoupled Nash Equilibrium Procedures.*

14:50–15:15. Fang Wu and Li Zhang. *Proportional response dynamics leads to market equilibrium.*

15:15–15:40. Kamal Jain and Vijay Vazirani. *Eisenberg-Gale Markets: Algorithms and Structural Properties.*

8B. Exact algorithms. Chair: Chandra Chekuri.

14:00–14:25. Pinar Heggernes, Christophe Paul, Jan Arne Telle and Yngve Villanger. *Interval completions with few edges*.

14:25–14:50. Ken-ichi Kawarabayashi and Bruce Reed. *Computing crossing number in linear time*.

14:50–15:15. Elliot Anshelevich and Adriana Karagiozova. *Terminal Backup, 3D Matching, and Covering Cubic Graphs*.

15:15–15:40. Jin-Yi Cai and Pinyan Lu. *Holographic Algorithms: From Art to Science*.

15:40–16:05. **Coffee Break**

9A. Probabilistic proof systems. Chair: Salil Vadhan.

16:05–16:30. Thomas Holenstein. *Parallel Repetition: Simplifications and the No-Signaling Case*.

16:30–16:55. Rafael Pass and Muthuramakrishnan Venkatasubramanian. *An Efficient Parallel Repetition Theorem for Arthur-Merlin Games*.

16:55–17:20. Shafi Goldwasser, Dan Gutfreund, Alexander Healy, Tali Kaufman and Guy Rothblum. *Verifying and Decoding in Constant Depth*.

17:20–17:45. Ronen Shaltiel and Christopher Umans. *Low-end uniform hardness vs. randomness tradeoffs for AM*.

9B. Approximate counting + lattices. Chair: Milena Mihail.

16:05–16:30. Thomas Hayes, Juan C. Vera and Eric Vigoda. *Randomly coloring planar graphs with fewer colors than the maximum degree*.

16:30–16:55. Leslie Ann Goldberg and Mark Jerrum. *Inapproximability of the Tutte polynomial*.

16:55–17:20. Ishay Haviv and Oded Regev. *Tensor-based Hardness of the Shortest Vector Problem to within Almost Polynomial Factors*.

17:20–17:45. Chris Peikert and Alon Rosen. *Lattices that Admit Logarithmic Worst-Case to Average-Case Connection Factors*.

17:45–18:15. **Student Poster Talks**

Wednesday, June 13

10A. Property testing. Chair: Santosh Vempala.

8:50–9:15. Vojtech Rödl and Mathias Schacht. *Property testing in hypergraphs and the removal lemma*.

9:15–9:40. Noga Alon, Alexandr Andoni, Tali Kaufman, Kevin Matulef, Ronitt Rubinfeld and Ning Xie. *Testing k -wise and Almost k -wise Independence*.

9:40–10:05. Alex Samorodnitsky. *Low-degree tests at large distances*.

10B. Quantum computing. Chair: Andris Ambainis.

8:50–9:15. Dmitry Gavinsky, Julia Kempe, Iordanis Kerenidis, Ran Raz and Ronald de Wolf. *Exponential separations for one-way quantum communication complexity, with applications to cryptography.*

9:15–9:40. Peter Hoyer, Troy Lee and Robert Spalek. *Negative weights make adversaries stronger.*

9:40–10:05. Cristopher Moore, Alexander Russell and Piotr Sniady. *On the Impossibility of a Quantum Sieve Algorithm for Graph Isomorphism.*

10:05–10:30. **Coffee Break**

11A. Online-related algorithms. Chair: Valerie King.

10:30–10:55. Sham Kakade, Adam Tauman Kalai and Katrina Ligett. *Playing Games with Approximation Algorithms.*

10:55–11:20. Matthias Englert, Harald Rcke and Matthias Westermann. *Reordering Buffers for General Metric Spaces.*

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11B. Quantum computing. Chair: Leonard Schulman.

10:30–10:55. Gus Gutoski and John Watrous. *Toward a general theory of quantum games.*

10:55–11:20. Frederic Magniez, Ashwin Nayak, Jeremie Roland and Miklos Santha. *Search via Quantum Walk.*

11:30–12:30. **FCRC Plenary: Avi Wigderson, Princeton, *The Art of Reduction***

12:30–14:00. **Lunch**

12A. Exact algorithms. Chair: Michel Goemans.

14:00–14:25. Virginia Vassilevska, Ryan Williams and Raphael Yuster. *All-Pairs Bottleneck Paths For General Graphs in Truly Sub-Cubic Time.*

14:25–14:50. Timothy M. Chan. *More Algorithms for All-Pairs Shortest Paths in Weighted Graphs.*

14:50–15:15. Gyula Pap. *Some new results on node-capacitated packing of A -paths.*

15:15–15:40. Anand Bhalgat, Ramesh Hariharan, Debmalya Panigrahi and Kavitha Telikepalli. *An $\tilde{O}(mn)$ Gomory-Hu tree construction algorithm for unweighted graphs.*

12B. Metric embeddings. Chair: Ryan O'Donnell.

14:00–14:25. Piotr Indyk. *Uncertainty Principles, Extractors, and Explicit Embeddings of L_2 into L_1 .*

14:25–14:50. Bo Brinkman, Adriana Karagiozova and James Lee. *Vertex cuts, random walks, and dimension reduction in series-parallel graphs.*

14:50–15:15. Ittai Abraham, Yair Bartal and Ofer Neiman. *Local Embeddings of Metric Spaces.*

15:15–15:40. Amit Deshpande and Kasturi Varadarajan. *Sampling Based Dimension Reduction for Subspace Approximation*.

15:40–16:05. **Coffee Break**

13A. Approximation algorithms. Chair: Robert Krauthgamer.

16:05–16:30. Lap Chi Lau, Joseph (Seffi) Naor, Mohammad Salavatipour and Mohit Singh. *Survivable Network Design with Degree or Order Constraints*.

16:30–16:55. Mohit Singh and Lap Chi Lau. *Approximating Minimum Bounded Degree Spanning Trees to within One of Optimal*.

16:55–17:20. Amit Agarwal, Noga Alon and Moses Charikar. *Improved Approximation for Directed Multicut and Directed Sparsest Cut*.

17:20–17:45. Patrick Donovan, Bruce Shepherd, Adrian Vetta and Gordon Wilfong. *Degree-Constrained Network Flows*.

13B. Lower bounds. Chair: Martin Grohe.

16:05–16:30. Paul Beame, T. S. Jayram and Atri Rudra. *Lower Bounds for Randomized Read/Write Stream Algorithms*.

16:30–16:55. Adi Shraibman and Nati Linial. *Lower Bounds in Communication Complexity Based on Factorization Norms*.

16:55–17:20. Mark Braverman and Michael Yampolsky. *Constructing Non-Computable Julia Sets*.