

FOCS 2004 Schedule

Jolly Hotel Vittorio Veneto
Corso Italia 1, 00198 Roma, Italy

Saturday, October 16, 2004

4:00 - 7:00pm **Registration desk open**

7:00 - 9:00pm **Welcome Reception**

Sunday, October 17, 2004

8:00am - 5:00pm **Registration desk open**

8:30 - 10:10am **Session 1. Chair: Miklos Santha**

8:30 - 8:50am *Quantum Weak Coin-Flipping with Bias of 0.192*
CARLOS MOCHON (CalTech)

8:50 - 9:10am *Quantum and Classical Strong Direct Product Theorems and Optimal Time-Space Tradeoffs*
HARTMUT KLAUCK (Calgary), ROBERT SPALEK (CWI), RONALD DE WOLF (CWI)

9:10 - 9:30am *Quantum Walk Algorithm for Element Distinctness*
ANDRIS AMBAINIS (IAS)

9:30 - 9:50am *Quantum Speed-Up of Markov Chain Based Algorithms*
MARIO SZEGEDY (Rutgers)

9:50 - 10:10am *Adiabatic Quantum Computation is Equivalent to Standard Quantum Computation*
DORIT AHARONOV (Berkeley), WIM VAN DAM (MIT), JULIA KEMPE (Berkeley), ZEPH LANDAU (CUNY), SETH LLOYD (MIT), ODED REGEV (Tel Aviv)

10:10 - 10:30am **Coffee break**

10:30 - 11:50am **Session 2. Chair: Giuseppe F. Italiano**

10:30 - 10:50am *Maximizing Quadratic Programs: Extending Grothendieck's Inequality*
MOSES CHARIKAR (Princeton), ANTHONY WIRTH (Princeton)

10:50 - 11:10am *An Approximate Max-Steiner-Tree-Packing Min-Steiner-Cut Theorem*
LAP CHI LAU (Toronto)

11:10 - 11:30am *Edge-Disjoint Paths in Planar Graphs*
CHANDRA CHEKURI (Bell Labs), SANJEEV KHANNA (UPenn), F. BRUCE SHEPHERD (Bell Labs)

11:30 - 11:50am *Machine Minimization for Scheduling Jobs with Interval Constraints*
JULIA CHUZHOY (Technion) SUDIPTO GUHA (UPenn), SANJEEV KHANNA (UPenn) and JOSEPH (SEFFI) NAOR (Technion)

11:50am - 1:10pm **Session 3. Chair: Eli Upfal**

11:50am - 12:10pm *Random Edge can be Exponential on Abstract Cubes*
JIRI MATOUSEK (Charles Univ.), TIBOR SZABO (ETH)

12:10 - 12:30pm *On the Integrality Ratio for Asymmetric TSP*
MOSES CHARIKAR (Princeton), MICHEL X. GOEMANS (MIT), HOWARD KARLOFF (AT&T)

12:30 - 12:50pm	<i>The Hardness of Metric Labeling</i> JULIA CHUZHUY (Technion), JOSEPH (SEFFI) NAOR (Technion)
12:50 - 1:10pm	<i>Hardness of Buy-at-Bulk Network Design</i> MATTHEW ANDREWS (Bell Labs)
1:10 - 2:30pm	Lunch
2:30 - 3:50pm	Session 4. Chair: Oded Goldreich
2:30 - 2:50pm	<i>Hardness of Approximating the Shortest Vector Problem in Lattices</i> SUBHASH KHOT (IAS)
2:50 - 3:10pm	<i>Ruling Out PTAS for Graph Min-Bisection, Densest Subgraph and Bipartite Clique</i> SUBHASH KHOT (IAS)
3:10 - 3:30pm	<i>Optimal Inapproximability Results for MAX-CUT and Other 2-Variable CSPs?</i> SUBHASH KHOT (IAS), GUY KINDLER (Rutgers), ELCHANAN MOSSEL (Berkeley), RYAN O'DONNELL (IAS)
3:30 - 3:50pm	<i>Assignment-Testers: Towards a Combinatorial Proof of the PCP-Theorem</i> IRIT DINUR (Berkeley), OMER REINGOLD (Weizmann)
3:50 - 4:10pm	Coffee Break
4:10 - 5:30pm	Session 5. Chair: Johan Håstad
4:10 - 4:30pm	<i>Cryptography in NC^0</i> BENNY APPLEBAUM (Technion), YUVAL ISHAI (Technion), EYAL KUSHILEVITZ (Technion)
4:30 - 4:50pm	<i>An Unconditional Study of Computational Zero Knowledge</i> SALIL VADHAN (Harvard)
4:50 - 5:10pm	<i>Universally Composable Protocols with Relaxed Set-Up Assumptions</i> BOAZ BARAK (IAS), RAN CANETTI (IBM), JESPER BUUS NIELSEN (ETH), RAFAEL PASS (KTH)
5:10 - 5:30pm	<i>On the (Im)possibility of Cryptography with Imperfect Randomness</i> YEVGENIY DODIS (NYU), SHIEN JIN ONG (Princeton), MANOJ PRABHAKARAN (Princeton), AMIT SAHAI (Princeton)
8:40 - 10:00pm	Business Meeting

Monday, October 18, 2004

8:00am - 5:00pm	Registration desk open
8:30 - 10:10am	Session 6. Chair: Yuval Rabani
8:30 - 8:50am	<i>Approximating the Stochastic Knapsack Problem: The Benefit of Adaptivity</i> BRIAN C. DEAN (MIT), MICHEL X. GOEMANS (MIT), JAN VONDRAK (MIT)
8:50 - 9:10am	<i>An Edge in Time Saves Nine: LP Rounding Approximation Algorithms</i> ANUPAM GUPTA (CMU), R. RAVI (CMU), AMITABH SINHA (CMU)
9:10 - 9:30am	<i>Stochastic Optimization is (Almost) as Easy as Deterministic Optimization</i> DAVID SHMOYS (Cornell), CHAITANYA SWAMY (Cornell)
9:30 - 9:50am	<i>$O(\sqrt{\log n})$ Approximation to SPARSEST CUT in $\tilde{O}(n^2)$ time</i> SANJEEV ARORA (Princeton), ELAD HAZAN (Princeton), SATYEN KALE (Princeton)
9:50 - 10:10am	<i>Maximum Matchings via Gaussian Elimination</i> MARCIN MUCHA (Warsaw), PIOTR SANKOWSKI (Warsaw)

10:10 - 10:30am	Coffee break
10:30 - 11:50am	Session 7. Chair: Micah Adler
10:30 - 10:50am	<i>Exponentially Many Steps for Finding a Nash Equilibrium in a Bimatrix Game</i> RAHUL SAVANI (London), BERNHARD VON STENGEL (London)
10:50 - 11:10am	<i>Edge Pricing of Multicommodity Networks for Heterogeneous Selfish Users</i> GEORGE KARAKOSTAS (McMaster), STAVROS G. KOLLIPOULOS (McMaster)
	and
	<i>Tolls for Heterogeneous Selfish Users in Multicommodity Networks and Generalized Congestion Games</i> LISA FLEISCHER (IBM), KAMAL JAIN (Microsoft), MOHAMMAD MAHDIAN (MIT)
11:10 - 11:30am	<i>A Polynomial Time Algorithm for Computing the Arrow-Debreu Market Equilibrium for Linear Utilities</i> KAMAL JAIN (Microsoft)
11:30 - 11:50am	<i>The Price of Stability for Network Design with Fair Cost Allocation</i> ELLIOT ANSHELEVICH (Cornell), ANIRBAN DASGUPTA (Cornell), JON KLEINBERG (Cornell), EVA TARDOS (Cornell), TOM WEXLER (Cornell), TIM ROUGHGARDEN (Berkeley)
11:50am - 1:10pm	Session 8. Chair: Martin Grohe
11:50am - 12:10pm	<i>Holographic Algorithms</i> LESLIE G. VALIANT (Harvard)
12:10 - 12:30pm	<i>Hierarchy Theorems for Probabilistic Polynomial Time</i> LANCE FORTNOW (Chicago), RAHUL SANTHANAM (Chicago)
12:30 - 12:50pm	<i>Private Codes or Succinct Random Codes That Are (Almost) Perfect.</i> MICHAEL LANGBERG (CalTech)
12:50 - 1:10pm	<i>On the List and Bounded Distance Decodibility of the Reed-Solomon Codes</i> QI CHENG (Oklahoma) DAQING WAN (Irvine)
1:10 - 2:30pm	Lunch
2:30 - 3:50pm	Session 9. Chair: Sean Hallgren
2:30 - 2:50pm	<i>Multilinear-NC₁ ≠ Multilinear-NC₂</i> RAN RAZ (Weizmann)
2:50 - 3:10pm	<i>Algebras with Polynomial Identities and Computing the Determinant</i> STEVE CHIEN (Microsoft), ALISTAIR SINCLAIR (Berkeley)
3:10 - 3:30pm	<i>Lattice Problems in NP ∩ coNP</i> DORIT AHARONOV (Hebrew), ODED REGEV (Tel Aviv)
3:30 - 3:50pm	<i>Worst-Case to Average-Case Reductions Based on Gaussian Measures</i> DANIELE MICCIANCIO (San Diego), ODED REGEV (Tel Aviv)
3:50 - 4:10pm	Coffee Break
4:10 - 5:30pm	Session 10. Chair: Eli Ben-Sasson
4:10 - 4:30pm	<i>Extracting Randomness from Few Independent Sources</i> BOAZ BARAK (IAS), RUSSELL IMPAGLIAZZO (San Diego), AVI WIGDERSON (IAS)
4:30 - 4:50pm	<i>Deterministic Extractors for Bit-Fixing Sources by Obtaining an Independent Seed</i> ARIEL GABIZON (Weizmann), RAN RAZ (Weizmann), RONEN SHALTIEL (Weizmann)
4:50 - 5:10pm	<i>Constructing Expander Graphs by 2-Lifts and Discrepancy vs. Spectral Gap</i> YONATAN BILU (Hebrew), Nathan Linial (Hebrew)

- 5:10 - 5:30pm *Testing Polynomials over General Fields*
TALI KAUFMAN (Tel Aviv), DANA RON (Tel Aviv)
and
Testing Low-Degree Polynomials over Prime Fields
CHARANJIT S. JUTLA (IBM), ANINDYA C. PATTHAK (UTexas), ATRI RUDRA (UTexas), DAVID ZUCKERMAN (UTexas)
- 6:30 - 10:30pm **Social Event at the National Gallery of Modern and Contemporary Art**

Tuesday, October 19, 2004

- 8:00am - 3:00pm **Registration desk open**
- 8:30 - 10:10am **Session 11. Chair: Vladlen Koltun**
- 8:30 - 8:50am *Measured Descent: A New Embedding Method for Finite Metrics*
R. KRAUTHGAMER (IBM), J. R. LEE (Berkeley), M. MENDEL (Urbana), A. NAOR (Microsoft)
- 8:50 - 9:10am *Triangulation and Embedding using Small Sets of Beacons*
JON KLEINBERG (Cornell), ALEX SLIVKINS (Cornell), TOM WEXLER (Cornell)
- 9:10 - 9:30am *A Simple Linear Time $(1+\epsilon)$ -Approximation Algorithm for k -Means Clustering in Any Dimensions*
AMIT KUMAR (IIT Delhi), YOGISH SABHARWAL (IBM), SANDEEP SEN (IIT Delhi)
- 9:30 - 9:50am *On the Power of Discrete and of Lexicographic Helly-Type Theorems*
NIR HALMAN (Tel Aviv)
- 9:50 - 10:10am *An Optimal Randomised Cell Probe Lower Bound for Approximate Nearest Neighbour Searching*
AMIT CHAKRABARTI (Dartmouth), ODED REGEV (Tel Aviv)
- 10:10 - 10:30am **Coffee break**
- 10:30 - 11:50am **Session 12. Chair: Faith Fich**
- 10:30 - 10:50am *Dynamic Optimality—Almost*
ERIK D. DEMAINE (MIT) DION HARMON (MIT), JOHN IACONO (Polytechnic), MIHAI PATRASCU (MIT)
- 10:50 - 11:10am *No Sorting? Better Searching!*
GIANNI FRANCESCHINI (U. Pisa), ROBERTO GROSSI (U. Pisa)
- 11:10 - 11:30am *Dynamic Approximate All-Pairs Shortest Paths in Undirected Graphs*
LIAM RODITTY (Tel Aviv), URI ZWICK (Tel Aviv)
- 11:30 - 11:50am *Dynamic Transitive Closure via Dynamic Matrix Inverse*
PIOTR SANKOWSKI (Warsaw)
- 11:50am - 1:10pm **Session 13. Chair: Leonard Schulman**
- 11:50am - 12:10pm *Dynamic Speed Scaling to Manage Energy and Temperature*
NIKHIL BANSAL (IBM), TRACY KIMBREL (IBM), KIRK PRUHS (Pittsburgh)
- 12:10 - 12:30pm *Optimal Power-Down Strategies*
JOHN AUGUSTINE (Irvine), SANDY IRANI (Irvine), CHAITANYA SWAMY (Cornell)
- 12:30 - 12:50pm *On the Streaming Model Augmented with a Sorting Primitive*
GAGAN AGGARWAL (Stanford), MAYUR DATAR (Google), SRIDHAR RAJAGOPALAN (IBM), MATTHIAS RUHL (IBM)

12:50 - 1:10pm	<i>Approximating Edit Distance Efficiently</i> ZIV BAR-YOSSEF (IBM), T.S. JAYRAM (IBM), ROBERT KRAUTHGAMER (IBM), RAVI KUMAR (IBM)
1:10 - 2:30pm	Lunch
2:30 - 3:50pm	Session 14. Chair: Dimitris Achlioptas
2:30 - 2:50pm	<i>Strong Spatial Mixing for Lattice Graphs with Fewer Colours</i> LESLIE ANN GOLDBERG (Warwick), RUSSELL MARTIN (Warwick), MIKE PATERSON (Warwick)
2:50 - 3:10pm	<i>Shuffling by Semi-Random Transpositions</i> ELCHANAN MOSSEL (Berkeley), YUVAL PERES (Berkeley), ALISTAIR SINCLAIR (Berkeley)
3:10 - 3:30pm	<i>Randomly Coloring Constant Degree Graphs</i> ALAN M. FRIEZE (CMU)
3:30 - 3:50pm	<i>The Exact Satisfiability Threshold for a Potentially Intractible Random Constraint Satisfaction Problem</i> HAROLD CONNAMACHER (Toronto), MICHAEL MOLLOY (Toronto)
3:50 - 4:10pm	Coffee Break
4:10 - 5:10pm	Session 15. Chair: D. Sivakumar
4:10 - 4:30pm	<i>Spectral Analysis of Random Graphs with Skewed Degree Distributions</i> ANIRBAN DASGUPTA (Cornell), JOHN E. HOPCROFT (Cornell), FRANK MCSHERRY (Microsoft)
4:30 - 4:50pm	<i>Learning with Errors in Answers to Membership Queries</i> LAURENCE BISHT (Technion), NADER H. BSHOUTY (Technion), LAWRENCE KHOURY
4:50 - 5:10pm	<i>Learnability and Automatizability</i> MISHA ALEKHNovich (Princeton), MARK BRAVERMAN (Toronto), VITALY FELDMAN (Harvard), ADAM KLIVANS (Harvard), TONI PITASSI (IAS)