

STOC 84

GENERAL INFORMATION

LOCATION

All technical sessions, the reception, and the business meeting will be held at the Sheraton-Washington Hotel, 2660 Woodley Road N.W., Washington D.C. 20008, 202-328-2000. The Sheraton-Washington Hotel is located just off of Connecticut Avenue near both the National Zoo and Rock Creek Park. A block of rooms has been reserved (until March 29) at the Sheraton Washington Hotel at the daily rate of \$71 per single and \$86 per double. Rooms for three and four people are available at \$93 and \$100 respectively (cots may be limited, so reserve early). Please use the enclosed hotel reservation form or if you call the hotel mention that you are attending the ACM Symposium on Theory of Computing. The hotel has agreed to honor the conference rates for the two nights before the Symposium for those of you who want to come early.

TRANSPORTATION

Washington D.C. is served by three airports - National (located approximately 8 miles from the hotel), Dulles (located approximately 25 miles from the hotel), and Baltimore-Washington International (located approximately 30 miles from the hotel). Direct flights are available from all major domestic cities and most major European cities. Transportation from National is available in the form of cabs (\$8-\$10) or by Metro. If you take the Metro, then take either the Blue or the Yellow line and change to the Red line at Metro center (from the Blue line) or Gallery Place (from the Yellow line). Take the Red line to the Woodley Park-Zoo stop. **NOTE THAT ON SUNDAYS THE METRO DOES NOT RUN AFTER 6 PM.** A cab from Dulles will cost approximately \$30; buses are available from Dulles to downtown Washington (16th and K Streets) at a cost of \$8.75. From there take a cab to the hotel. >From Baltimore-Washington Airport a cab will cost \$35-\$40. Buses are available to downtown Washington (16th and K Streets) at a cost of \$8.50. >From there take a cab to the hotel. There is also AMTRAK service from Baltimore-Washington Airport to Union Station in Washington D.C. From there a cab or the Metro can be taken to the hotel.

IF YOU DRIVE

FROM NATIONAL AIRPORT: Take the George Washington Memorial Parkway north to the Memorial Bridge. Bear right immediately after going across the bridge onto Rock Creek Parkway. Take the Massachusetts Avenue exit (about 2+ miles) and turn left onto Massachusetts Avenue. Go to 34th Street (4th light); turn right onto 34th. Take the 2nd right onto Garfield; follow Garfield to the intersection with 29th and Woodley. The hotel is on the right, off Woodley.

FROM DULLES AIRPORT: Take the Dulles Access Road to Route 66. After crossing the Potomac River, bear left at every decision point until you come to a stop light. Bear right and you are on Rock Creek Parkway. You are about 1 mile from the Massachusetts Avenue exit. Continue as above.

FROM BALTIMORE-WASHINGTON AIRPORT: Take the Baltimore Washington Expressway South to the Beltway (I-495). Go north-west on the Beltway to the Connecticut Avenue exit (the Beltway narrows from 4 to 3 lanes a mile before this exit). Go left onto Connecticut Avenue and follow it into D.C. Go past the Zoo and bear right at Woodley Road. The hotel will be on your left.

CLIMATE

Early May is magnificent in Washington with an average daily temperature of 66 degrees Fahrenheit. Azaleas and other flowering shrubs and trees are in full bloom. Rain is, of course, a possibility. The cherry blossoms will, unfortunately, be mostly gone by May 1.

THINGS TO DO

The Smithsonian Museum complex is one of the largest museum complexes in the world. It consists of seven art museums, the Air and Space Museum, the Museum of American History, and the Museum of Natural History. These are located on the Mall near a convenient Metro stop. The Smithsonian is highly recommended and it is open from 10 AM to 5:30 PM every day (evening hours may also be in effect).

On the Mall you can also purchase tickets for the Tourmobile which will take you to all the memorials (Lincoln, Jefferson, Washington, Arlington Cemetery, Viet Nam Memorial, etc.). If you plan in advance, you also might be able to have your Congressman or Senator obtain tickets for you for a tour of the White House. Congress will be in session, so you can visit the Capitol Building and see your elected representatives at work.

The National Zoo is within a walk of the Washington-Sheraton Hotel. There you can see the pandas and the white tigers in a very pleasant setting.

The restaurants in Washington are among the best in the country and a restaurant guide will be available. We will also have information available concerning the Kennedy Center for the Performing Arts. Those of you from overseas might consider visiting your Embassy or your Science Attache officer.

REGISTRATION FEES

The regular registration fee for the Symposium includes all technical sessions, the reception Sunday evening, two luncheons, and the Tuesday evening Boat Ride on the Potomac and Banquet (on the boat). All non-student registration fees increase by \$50 after April 13, so be sure to register in advance. The student registration fee includes only: technical sessions, a copy of the proceedings and coffee during the sessions. Additional tickets for the various evening social functions can be purchased (see the Advanced Registration Form).

REGISTRATION DESK

The Symposium registration desk will be open 7:00-10:00 PM on Sunday, April 29. It will be open from 8:00 to 5:00 on Monday and 8:00 to 12:00 on Tuesday and Wednesday. Extra copies of the Symposium Proceedings will be on sale at the registration desk. Please note that because there are 50% more papers in the Symposium than in the past, the cost of the Proceedings is likely to be in the \$16 to \$20 range.

INFORMATION

Local Arrangements Co-Chair:

Professor Carl Smith
 Department of Computer Science
 University of Maryland
 College Park, MD 20742
 Telephone: 301-454-7930
 smith.umcp-cs@csnet-relay

SUNDAY AFTERNOON

-Registration 7:00 pm - 10:00 pm
 -Reception 6:00 pm - 11:00 pm

Session 1A: MONDAY Morning 9 am - 12:30 am North Cotillion Room

- 8:00** Probabilistic Temporal Logic for Finite and Bounded Models
 S. Hart, M. Sharir
 Tel Aviv Univ.
- 9:30** Deciding Branching Time Logic
 E. Emerson, A. Sistla
 Univ. of Texas, Univ. of Massachusetts
- 10:00** Modelling Fair Processes
 M. Hennessy
 Univ. of Edinburgh
- 10:30** Coffee Break
- 11:00** Liveness Properties as Convergence in Metric Spaces
 P. Degano, U. Montanari
 Univ. Di Pisa
- 11:30** Transition Logic
 R. Gerth
 Univ. Utrecht
- 12:00** How You May Compose Temporal Logic Specifications
 H. Barringer, R. Kulper, A. Pnueli
 Univ. Manchester, Univ. Manchester, Weizmann Inst
- 12:30** Lunch
 Washington Room

Session 2A: MONDAY Afternoon, 2:00 pm - 6:00 pm North Cotillion Room

- 2:00** Minimum Spanning Ellipsoids
 M. Post
 Johns Hopkins Univ.
- 2:30** Digital Disks and a Digital Compactness Measure
 C. Kim, T. Anderson
 Washington State Univ.
- 3:00** Intersecting is Easier than Sorting
 B. Chazelle
 Brown Univ.
- 3:30** Break
- 4:00** Scaling and Related Techniques for Geometry Problems
 H. Gabow, J. Bentley, R. Tarjan
 Univ. Colorado, Carnegie-Mellon Univ., Bell Lab.
- 4:30** On Shortest Paths in Polyhedral Spaces
 M. Sharir, A. Schorr
 Tel Aviv Univ.
- 5:00** On k -Hulls and Related Problems
 R. Cole, C. Yap, M. Sharir
 Courant Inst., Courant Inst., Tel Aviv Univ.
- 5:30** An Algorithm for Constructing Regions with Rectangles: Independence and Minimum Generating Sets for Collections of Intervals
 D. Franzblau, D. Kletman
 Massachusetts Inst. of Tech.
- 6:00** Business Meeting
 Cotillion Room

Session 1B: MONDAY Morning, 9:00 am - 12:30 pm South Cotillion Room

- 9:00** A Minimum Area VLSI Architecture for $O(\text{LOG}N)$ Time Sorting
 G. Billard, F. Preparata
 Univ. Illinois
- 9:30** Tight Bounds on the Complexity of Parallel Sorting
 T. Leighton
 Massachusetts Inst. of Tech.
- 10:00** Lower Bounds on Communication Complexity
 P. Duris, Z. Gall, G. Schnitger
 Slovak Acad. Science, Columbia Univ., Penn. State Univ.
- 10:30** Break
- 11:00** An Area-Maximum Edge Length Tradeoff for VLSI Layout
 N. Blum
 Univ. of Saarlandes
- 11:30** On The Page Number of Planar Graphs
 J. Buss, P. Shor
 Massachusetts Inst. of Tech.
- 12:00** Channel Routing in VLSI
 A. Mirzalan
 York Univ.
- 12:30** Lunch
 Washington Room

Session 2B: MONDAY Afternoon, 2 pm - 6:00 pm South Cotillion Room

- 2:00** Factorization of Polynomials Over Finite Fields and Factorization of Primes in Algebraic Number Fields
 M.A. Huang
 Princeton Univ.
- 2:30** Sums of Divisors, Perfect Numbers, and Factoring
 E. Bach, G. Miller, J. Shallit
 Univ. California/Berkeley, MIT, Univ. Chicago
- 3:00** Predicting Bits of Algebraic Numbers and Factorization of Polynomials
 R. Kannan, A. Lenstra, L. Lovasz
 Carnegie-Mellon Univ., Centre for Math & Computer Science, Eotvos Lorand Univ.
- 3:30** Break
- 4:00** Evaluating Logarithms in $GF(2^{2^n})$
 D. Coppersmith
 IBM Research
- 4:30** An Efficient Signature Scheme Based on Quadratic Equations
 H. Ong, C.P. Schnorr, A. Shamir
 Goethe Univ., Goethe Univ., Weizmann Institute
- 5:00** Two-Way Communication with Secrecy Requirements
 A. Orlitsky, A. El Gamal
 Stanford Univ.
- 5:30** Correcting Faults in a Write-Once Memory
 D. Dolov, D. Moler, H. Matron, J. Ullman
 Hebrew Univ., Oregon Grad. Center, INRIA, Stanford
- 6:00** BUSINESS MEETING
 Cotillion Room

Session 3A: TUESDAY Morning, 9:00 am - 12:30 pm North Cotillion Room

- 9:00** Randomized Speed-ups in Parallel Computation
 U. Vishkin
 Courant Inst.
- 9:30** Optimal Parallel Algorithms for String Matching
 Z. Gall
 Columbia Univ., Tel-Aviv Univ.
- 10:00** Finding Euler Circuits in Logarithmic Parallel Time
 B. Awerbuch, A. Israeli, Y. Shiloach
 IBM-Israel Scientific Center
- 10:30** Break
- 11:00** A Probabilistic Relation Between Distributable and Possible Models of Parallel Computation
 E. Upfal
 Univ. of California/Berkeley
- 11:30** A Fast Parallel Algorithm for the Maximal Independent Set Problem
 R. Karp, A. Wigderson
 Univ. of California/Berkeley
- 12:00** On Maintaining Dynamic Information in a Concurrent Environment
 U. Manber
 Univ. Wisconsin
- 12:30** Lunch
 Washington Room

Session 3B: TUESDAY Morning 9:00 am - 12:30 pm South Cotillion Room

- 9:00** Some Unexpected Expected Behavior Results for Bin Packing
 J. Bentley, D. Johnson, F. Leighton, C. McGeoch, L. McGeoch
 AT&T Bell Lab., AT&T Bell Lab., MIT, Carnegie-Mellon U, Carnegie-Mellon U.
- 9:30** Probabilistic Analysis of d -Dimensional Bin Packing Problems
 R. Karp, M. Luby, A. Marchetti
 U. Calif. Berkeley, U. Toronto, U. Rome
- 10:00** Every Sorting Problem Has a Good Comparison
 J. Kahn, M. Saks
 Rutgers Univ.
- 10:30** Break
- 11:00** A New Polynomial-Time Algorithm for Linear Programming
 N. Karmarkar
 AT&T Bell Lab.
- 11:30** A Simplex-Type Algorithm Solves Linear Programs of Order $m \times n$ in Only $O((\min\{m, n\})^2)$ Steps on the Average
 I. Adler, N. Megiddo
 U. California/Berkeley, Stanford Univ.
- 12:00** Powers of Graphs: A Powerful Approximation Algorithm Technique for Bottleneck Problems
 D. Hochba, D. Shmoys
 Univ. California/Berkeley
- 12:30** Lunch
 Washington Room

Session 4A: TUESDAY Afternoon, 2:00 pm - 6:00 pm
North Cotillion Room

- 2:00** **Determining Equivalence of Expressions in Random Polynomial Time**
G. Gonnet
Univ. Waterloo
- 2:30** **Fast Expected-Time and Approximation Algorithms for Geometric Minimum Spanning Trees**
K. Clarkson
Stanford Univ.
- 3:00** **Building a Complete Inverted File for a Set of Text Files in Linear Time**
A. Blumer, J. Blumer, D. Haussler, R. McConnell, A. Ehrenfeucht
U. Denver, U. Denver, U. Denver, U. Denver, U. Colorado
- 3:30** **Break**
- 4:00** **On Finding the Knapsack Solution of a Zero-One Knapsack Problem**
A. Goldberg, A. Marchetti
Univ. California/Berkeley, Univ. Rome
- 4:30** **Average Case Selection**
W. Cunto, J.I. Munroe
Univ. Waterloo
- 5:00** **Separating a Planar Graph Using a Simple Cycle**
G. Miller
Massachusetts Inst. of Tech.
- 6:30** **Data Structures for On-Line Updating of Maximal Intersection Solutions**
G. Frederickson, M. Srinivas
Purdue Univ., Penn. State Univ.
- 6:30** **Buses Leave for Boat Cruise and BANQUET**

Session 4B: TUESDAY Afternoon 2:00 pm - 6:00 pm
South Cotillion Room

- 2:00** **On Tape Versus Core: An Application of Space Efficient Perfect Hash Functions to the Invariance of Space**
C. Slot, P. Van Emde Boas
Univ. Amsterdam
- 2:30** **Quadratic Lower Bounds for Deterministic and Non-Deterministic One-Tape Turing Machines**
W. Maass
Univ. California/Berkeley
- 3:00** **Uniform Definability on Finite Structures with Successor**
M. De Rougemont
Univ. California/Los Angeles
- 3:30** **Break**
- 4:00** **A General Result on Infinite Trees and its Applications**
D. Harel
Weizmann Inst.
- 4:30** **Pebblings, Edgings, and Equational Logic**
D. Kozen
IBM Research
- 5:00** **Learnability Theory**
I.G. Vallant
Harvard Univ.
- 5:30** **Automata Theoretic Techniques for Modal Logics of Programs**
M. Vardi, P. Wolper
IBM Research, Bell Labs
- 6:30** **Buses depart for Boat Ride and BANQUET**

Session 5A: WEDNESDAY Morning 8:00 am - 1:00 pm
North Cotillion Room

- 8:00** **The Complexity of Elementary Algebra and Geometry**
M. Ben-Or, D. Kozen, J. Reif
MIT, IBM Research, Harvard Univ.
- 8:30** **Problems Complete in "Average" Instance**
L. Levin
MIT, Boston Univ.
- 10:00** **Comparison of Arithmetic Functions with Respect to Boolean Circuit Depth**
H. Alt
Penn. State Univ.
- 10:30** **Break**
- 11:00** **A Theorem on Probabilistic Constant Depth Computations**
M. Ajtai, M. Ben-Or
Massachusetts Inst. of Tech.
- 11:30** **Threshold Functions and Bounded Depth Monotone Circuits**
R. Boppana
Massachusetts Inst. of Tech.
- 12:00** **On Monotone Formulas With Restricted Depth**
M. Klawe, W. Paul, N. Pippenger, M. Yannakakis
IBM Research, IBM Research, IBM Research, Bell Labs
- 12:30** **Amortized Efficiency of List Update Rules**
D. Sleator, R. Tarjan
Bell Labs

Session 5B: WEDNESDAY Morning 8:00 am - 12:30 pm
South Cotillion Room

- 8:00** **The Impact of Synchronous Communication on the Problem of Electing a Leader in a Ring**
G. Frederickson, N. Lynch
Purdue Univ., MIT
- 8:30** **On the Possibility and Impossibility of Achieving Clock Synchronization**
D. Dolev, J. Halpern, H. Strong
Hebrew Univ., IBM Research, IBM Research
- 10:00** **Logarithmic Protocols for Resolving Ethernet and Semaphore Conflicts**
D. Willard
SUNY/Albany, Bell Labs
- 10:30** **Break**
- 11:00** **An Efficient Network Synchronization Protocol**
B. Awerbuch
IBM-Israel Scientific Center
- 11:30** **A New Look at Fault Tolerant Network Routing**
D. Dolev, J. Halpern, B. Simons, R. Strong
Hebrew U., IBM Research, IBM Research, IBM Research
- Efficient Fault-Tolerant Routings in Networks**
A. Broder, D. Dolev, B. Simons, M. Fischer
IBM Research, IBM Research, IBM Research, Yale Univ.
- 12:00** **Distributed Elections in an Archimedean Ring of Processors**
P. Vitányi
Centre for Math & Computer Science, Amsterdam

**16th ANNUAL ACM SYMPOSIUM
ON THEORY OF COMPUTING**

SIGACT MEMBERSHIP FORM

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(Print last name first)

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Non Member

Dues are \$16.50. Make checks payable to ACM and mail to:

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P.O. Box 1215
Church Street Station
New York, New York 10249

PREREGISTRATION FORM

Use this form or a facsimile to preregister. ADVANCED REGISTRATION CLOSES APRIL 20. Preregistration after April 20 is subject to a \$50 late fee. Please mail form with check (drawn on US bank) or money order (in US funds) payable to 1983 ACM STOC to:

STOC REGISTRATION
c/o Professor Carl Smith
Department of Computer Science
University of Maryland
College Park, MD 20742

Rates for registration:

Member of ACM, SIGACT or IEEE Computer Society	\$125 _____
Non-Member	\$150 _____
Student	\$20 _____

Additional Banquet Tickets @ \$35 _____
 Non-student late fee \$50 _____
 Student late fee \$10 _____
 Total enclosed \$ _____

I would appreciate assistance with day care yes _____ no _____
 I have the following dietary requirements _____

Name _____
 (Print last name first)
 Affiliation _____
 Address _____
 City _____ State _____ Zip _____
 Country (if other than USA) _____
 Electronic Address _____
 Phone Number _____

HOTEL RESERVATION FORM

Mail before March 28, 1984 to:

1984 ACM STOC
 The Washington Sheraton Hotel
 2850 Woodley Road, NW
 Washington, DC 20008

Phone: (202) 326-2000 TELEEX: 692630

Please reserve a room for me at the 16th ACM-SIGACT Symposium on Theory of Computing, Sunday April 29 through Wednesday May 2, 1984.

_____ Single \$71.00 per day
 _____ Double \$86.00 per day
 _____ Triple \$93.00 per day
 _____ Quadruple \$100.00 per day

(Please indicate with whom you are sharing your room)

Arrival date _____ time _____
 Departure date _____ time _____

Send me confirmation at:

Name _____
 (Please print full name)
 Address _____
 City _____ State _____ Zip _____
 Country (if other than USA) _____

For arrivals after 6PM, the hotel requests that arrival be guaranteed by providing a personal check for one night's deposit, or by providing an AMERICAN EXPRESS credit card number and expiration date (no other credit cards accepted for reservation guarantees although major credit cards accepted for payment of hotel bill).