

May 5-7, 1982

**14TH ANNUAL ACM SYMPOSIUM
ON THEORY OF COMPUTING**

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ADVANCED REGISTRATION FORM

Use this form or facsimile to preregister. Advance registration closes Friday, April 9, 1982. Please mail form with check made payable to ACM-SIGACT Symposium to:

SIGACT-82 REGISTRATION
% Dr. Barbara B. Simons
IBM Research K51-61F
5600 Cottle Road
San Jose, California 95193

Member of ACM, SIGACT, or IEEE	
Computer Society	\$105.00 (b) <input type="checkbox"/>
Non-member	\$115.00 (b) <input type="checkbox"/>
Author	\$100.00 (b) <input type="checkbox"/>
Student	\$ 35.00 (a) <input type="checkbox"/>

Additional banquet tickets @ \$19.00 per ticket _____
number _____

Wine Tour @ \$25.00 per person _____
number _____

total enclosed _____

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Affiliation _____

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Requests for refunds will be honored until April 16, 1982. After registration closes, all non-student fees will increase by \$10.00 per person and student fees will increase by \$5.00 per person.

(a)—includes technical sessions, one copy of the conference proceedings, and coffee breaks.

(b)—includes (a), plus reception (Tuesday), luncheons (Wednesday, Thursday, and Friday), and banquet (Thursday evening).

Requests for special dietary considerations should accompany this registration form.

HOTEL RESERVATION FORM

Mail to:
ACM-SIGACT-82
San Franciscan Hotel
1231 Market Street
San Francisco, California 94103
(415) 626-8000 collect from California
(800) 227-4747 elsewhere

Please reserve a room for me at the 14th Annual ACM-SIGACT Symposium on Theory of Computing, May 5 through May 7, 1982.

- ___ Single \$50-\$55-\$65 per day
 - ___ Double (twin) \$60-\$65-\$75 per day
 - ___ Suite \$125 per day
 - ___ Family Suite \$85 per day
- rates subject to 9.75% city tax.

Arrival date _____ a.m.
p.m.

Departure date _____ a.m.
p.m.

Please send confirmation to:

Name _____
(Please print full name)

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SYMPOSIUM PROCEEDINGS ORDER FORM

The 1982 Annual Symposium Proceedings are available postage paid; prices are per copy: (ACM ORDER NO. 508820)

ACM or SIGACT	
Member	Non-member
\$16.00	\$21.00

Proceedings are ordered prepaid from:

ACM Order Department
P.O. Box 64145
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Please send me _____ copies of the 1982 proceedings prepaid.

Amount enclosed _____

Name _____
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One copy of the 1982 proceedings is included in the registration fee; additional copies can be purchased at the symposium for \$12.00 each.

PROGRAM

Reception: Sunday Evening, May 4, 7:30 p.m.—11:30 p.m.
Crystal Ballroom
Consultants: Sam Bent, Michael Louj
University of Wisconsin, University of Illinois, Urbana

Session I: Monday Morning, May 5, 9:00 a.m.—12:15 p.m.
Crystal Ballroom
Chair: William Rounds, University of Michigan

9:00-9:25 Two Tapes are Better than One for Nondeterministic Machines
Pavol Dürš, Zvi Galil
Slovak Academy of Science, Tel-Aviv University

9:25-9:50 The Tight Deterministic Time Hierarchy
Martin Fürer
University of Tübingen

9:50-10:15 Probabilistic Simulations
Nicholas Pippenger
IBM

10:15 COFFEE BREAK

10:45-11:10 Real-Time Simulation of Multicounters by Oblivious One-Tape Turing Machines
Paul M.B. Vitanyi
Mathematisch Centrum

11:10-11:35 Two Dimensional Alternating Turing Machines
Katsushi Inoue, Itsuo Takanami, Hiroshi Taniguchi
Yamaguchi University

11:35-11:50 Ensembles de Mots Biinfinis
Maurice Nivat, Dominique Perrin
Université Paris 7

11:50-12:15 Trees, Automata, and Games
Uri Gurevich, Leo Harrington
Ben-Gurion University and Bowling Green State University, Berkeley

12:15-2:15 LUNCH

Session II: Monday Afternoon, May 5, 2:15 p.m.—5:25 p.m.
Crystal Ballroom
Chair: Jean Vuillemin, INRIA

2:15-2:40 The Theory of Signature Testing for VLSI
J. Lawrence Carter
IBM

2:40-2:55 How To Assemble Tree Machines
Sandeep N. Bhatt, Charles E. Leiserson
MIT

2:55-3:20 A Layout Strategy for VLSI Which is Provably Good,
Frank Thomson Leighton
MIT

3:20-3:35 Measuring Energy Consumption in VLSI Circuits
Gloria Kissin
University of Toronto

3:35 COFFEE BREAK

4:05-4:20 How to Reuse a "Write-Once" Memory
Ronald Rivest, Adi Shamir
MIT, Weizmann Institute

4:20-4:45 Maintaining Dense Sequential Files in a Dynamic Environment
Dan E. Willard
Bell Laboratories

Session II (continued)

4:45-5:00 Maintaining Order in a Linked List
Paul F. Dietz
USC

5:00-5:25 Space-Time Tradeoff for Answering Range Queries
Andrew Yao
Berkeley

7:30 BUSINESS MEETING, Crystal Ballroom

9:00 SIGACT FOLLIES, Crystal Ballroom
Chair: Maria M. Klawe, IBM
Stage Manager: Janos Simon, Pennsylvania State
Master of Ceremonies: Daniel J. Kleitman MIT

Session III: Tuesday Morning, May 6, 9:00—12:00 p.m.
Crystal Ballroom
Chair: Ashok Chandra, IBM

9:00-9:25 Complexity of Relational Query Languages
Moshe Vardi, Stanford

9:25-9:50 Relational Queries Computable in Polynomial Time
Neil Immerman, Tufts

9:50-10:15 Denotational Semantics of Concurrency
J.W. de Bakker, J.C. Zucker
Mathematisch Centrum, Bar-Ilan University

10:15 COFFEE BREAK

10:45-11:10 The Complexity of Propositional Linear Temporal Logic
A.P. Sistla, E.M. Clarke
Harvard

11:10-11:35 Decision Procedures and Expressiveness in the Temporal Logic of Branching Time
E. Allen Emerson, Joseph Y. Halpern
Austin, MIT and Harvard

11:35-12:00 A Probabilistic Dynamic Logic
Yishai A. Feldman, David Harel
Weizmann

12:00-2:00 LUNCH

Session IV: Tuesday Afternoon, May 6, 2:00—5:00 p.m.
Crystal Ballroom
Chair: Ravi Kannan; MIT

2:00-2:25 Communication Complexity
Christos H. Papadimitriou, Michael Sipser
MIT and National Technical University, Athens, MIT

2:25-2:50 Symmetric Complementation
John H. Reif, Harvard

2:50-3:05 Space-Bounded Hierarchies and Probabilistic Computations
Walter L. Ruzzo, Janos Simon, Martin Tompa
Washington, Pennsylvania State, Washington

3:05-3:30 On the Random Oracle Hypothesis
Stuart L. Kurtz
University of Chicago

3:30 COFFEE BREAK

4:00-4:15 Bounds on the Time for Parallel RAM's to Compute Simple Functions
Stephen Cook, Cynthia Dwork
Toronto, Cornell

4:15-4:30 Probabilistic, Nondeterministic, and Alternating Decision Trees
Udi Manber, Martin Tompa
Washington

Session VI (continued)

- 2:50-3:15** Graph Problems on a Mesh-Connected Processor Array
Mikhail J. Atallah, S. Rao Kosaraju
Johns Hopkins
- 3:15-3:30** On the Time Complexity of Broadcast Communication Schemes
Albert G. Greenberg
Washington
- 3:30** COFFEE BREAK
- 4:00-4:25** How to Play Mental Poker Keeping Secret all Partial Information
Shafi Goldwasser, Silvio Micali
Berkeley
- 4:25-4:40** A Technique for Proving Lower Bounds for Distributed Election Algorithms
J. Pachl, E. Korach, D. Rotem
Waterloo
- 4:40-5:05** Cryptographic Protocols
Richard A. DeMillo, Nancy A. Lynch, Michael Merritt
Georgia Institute of Technology
- 5:05-5:30** Polynomial Algorithms for Multiple Processor Agreement
D. Dolev, H.R. Strong
IBM

Wine Tour: Thursday Morning, May 8, 9:00 a.m.—5:00 p.m. (optional event)
Chair: Barbara B. Simons, IBM
Bus departs from and returns to hotel.

14th Annual ACM Symposium on Theory of Computing**Sponsored By:**

The ACM Special Interest Group for Automata and Computability Theory

With the Cooperation of:

The IEEE Computer Society Technical Committee on Mathematical Foundations of Computing

And:

IBM Research
San Jose

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Local Arrangements Chair:

Barbara B. Simons, IBM Research, San Jose

Entertainment Chair:

Maria M. Klawe, IBM Research, San Jose

Publicity Chair:

Walter A. Burkhard, University of California, San Diego

INFORMATION**LOCATION**

All technical sessions will be held at the San Franciscan Hotel, 1231 Market Street, San Francisco, California 94103 on May 5, 6, and 7, 1982. A block of rooms has been reserved (until April 4, 1982) at the San Franciscan Hotel at the rate of \$50-\$55-\$65 per day for single occupancy and \$60-\$65-\$75 for double occupancy. A block of suites each consisting of two adjoining rooms with shared full bath are also reserved. BART stop is at Civic Center (8th Street).

TRANSPORTATION

Taxis from the San Francisco airport to the hotel cost approximately \$20.00. Direct limousine service between 6:00 a.m. and 10:00 p.m. from airport to hotel costs \$6.50 per person. Call Lorrie's at 826-5450 immediately on arrival at the airport; advanced reservations not accepted. The Airporter buses from the airport to the downtown terminal depart regularly and charge approximately \$3.00.

CLIMATE

Daytime temperatures in San Francisco in May average in the fifties. We recommend that you bring a warm jacket for the evenings and something waterproof for the unlikely case of rain.

RECEPTION

The reception will be held Tuesday evening, May 4, 7:30 p.m. to 11:00 p.m. in the Crystal Ballroom of the San Franciscan Hotel.

WINE TOUR

After three hectic days of talks and meeting with colleagues, you will need a little relaxation. With this in mind, we have arranged a wine tour in Napa and Sonoma Counties. The tour will depart from the San Franciscan Hotel around 9:00 a.m. and return to the hotel around 5:00 p.m. A nice lunch in the Depot Restaurant in the town of Sonoma is included in the price of the tour, which is \$25.00.

If you are interested in going on the tour, please get your reservation in as early as possible. Since we may have to limit the number of people coming on the tour, ticket orders will be filled in the order in which they arrive. If your order arrives after the tour is filled, we will of course refund your money. We cannot, however, guarantee ticket refunds for people who have received tickets.

THINGS TO DO

Public transportation in San Francisco is excellent. From the hotel's central location on Market Street, it is possible to take buses, cable cars, or BART to numerous attractions: shopping in major department stores in Union Square or Union Street boutiques; driving in Chinatown or downtown; relaxing and seeing the sights of Golden Gate Park; the glitter and funk of North Beach; the heights of Telegraph Hill's Coit Tower; the bustle of Fisherman's Wharf and Ghiradelli Square.

San Francisco's reputation for fine restaurants is legendary. Among the many obvious choices are Ernie's (expensive and elegant); La Bougogue (ditto); Scott's (seafood); Hunan (Chinese); Alioto's (tourist seafood); Tommy's Joynt (corned beef with character); Cafe Sport (Sicilian seafood); Schroeder's (German); Buena Vista Cafe (Irish coffee).

SIGACT FOLLIES

Here's your chance to get into the (SIG)ACT! Following the business meeting Wednesday evening, SIGACT members will display some of their other talents in a collection of skits. With Daniel J. Kleitman as master of ceremonies and Janos Simon as stage manager, we can expect a hilarious evening. To submit a skit to SIGACT FOLLIES, please send a brief description including a list of participants to Maria M. Klawe, IBM Research K51-61F, 5600 Cottle Road, San Jose, California 95193. Successful entrants will be informed by May 1, 1982.

REGISTRATION DESK:

The symposium registration desk will be open Tuesday evening 6:00 p.m.-8:00 p.m. and all day Wednesday, Thursday, and Friday.

FURTHER INFORMATION:

contact:

Dr. Barbara B. Simon
IBM Research K51-61F
5600 Cottle Road
San Jose, California 95193
(408) 256-0490