

## 8TH ANNUAL ACM SYMPOSIUM ON THEORY OF COMPUTING

May 3-5, 1976

Sponsored by: ACM/SIGACT, with the cooperation of the IEEE Computer Society Technical Committee on Mathematical Foundations of Computing, and Pennsylvania State University.

Location: This year's Symposium will be held in Hershey, Pennsylvania, at the Hershey Motor Lodge and Convention Center. Detlef Wotschke is the Local Arrangements Chairman. The 1976 Program Chairman is Ashok Chandra of IBM, who reports that the Program Committee has selected a schedule of 30 papers. A panel discussion has been arranged on the role of theory in the computer science curriculum.

Transportation: The Hershey Motor Lodge is a resort motel with indoor/outdoor swimming pool, sauna, tennis courts, golf course, etc. It is located on US Route 322, ca. 12 miles East of Harrisburg and 2 miles West of Hershey. The Harrisburg-Hershey area is served by the Harrisburg International Airport and the Harrisburg AMTRAK Station. There is direct courtesy car service between the airport or AMTRAK station and the Motor Lodge. It is strongly recommended that you request the courtesy car service on your hotel reservation form. You can also call the Hershey Motor Lodge at 533-3311 for service. It takes the courtesy car about 20-25 minutes from the airport or the AMTRAK station to reach the Motor Lodge. A taxi ride from the airport costs about \$7, and \$8 from the AMTRAK station.

Climate: Temperatures in early May average between 48 and 70 degrees in Hershey. Rain is a possibility.

Registration Fee: The fees listed below include the conference proceedings, a Sunday evening social hour, luncheons on Monday and Tuesday, coffee-breaks, and the banquet on Tuesday evening.

	Advance Registration	Registration at Symposium
Member of ACM and SIGACT	\$45.00	\$50.00
Member of ACM or SIGACT	\$48.00	\$53.00
Nonmember	\$52.00	\$57.00
Author	\$40.00	\$45.00

Students may register at the special rate of \$10.00 to attend the technical sessions and receive a copy of the proceedings. Tickets to special events and additional copies of the proceedings may be purchased at the conference, if available.

Information and Registration Forms: The Symposium Program (with registration forms) is being mailed to all SIGACT members. Advance registration closes April 14. For further information, please contact Publicity Chairman Emily P. Friedman, Department of System Science, 4531 Boelter Hall, UCLA, Los Angeles, California 90024, telephone (213) 825-2360.

## PROGRAM

MONDAY, May 3

## SESSION 1:

9:00 a.m. - Chairman: R. E. Tarjan, Stanford University  
12:30 p.m.

Some Complexity Results for the Traveling Salesman Problem

C. H. Papadimitriou and K. Steiglitz, Princeton University

Some NP-complete Geometric Problems

M. R. Carey

R. L. Graham Bell Laboratories

D. S. Johnson

P-complete Decision Problems for Quadratic Polynomials

K. Manders and L. Adleman, University of California at Berkeley

On Isomorphisms and Density of NP and Other Complete Sets

J. Hartmanis and L. Berman, Cornell University

Complexity of Decision Problems Based on Finite Two-person  
Perfect-Information Games

T. J. Schaefer, University of California at Berkeley

Exponential Space Complete Problems for Petri Nets and  
Commutative Subgroups

E. Cardoza, MIT, Project Mac

R. J. Lipton, Yale University

A. R. Meyer, MIT, Project Mac

## SESSION 2:

2:00 a.m. - Chairman: R. Sethi, Pennsylvania State University  
5:30 p.m.

Parallel Algorithms for the Transitive Closure and the  
Connected Component Problems

D. S. Hirschberg, Rice University

Sorting on a Mesh-connected Parallel Computer

C. D. Thompson and H. T. Kung, Carnegie-Mellon University

On Abstractions of Parallel Programs

T. W. Doepfner, Jr., Princeton University

A Consistent and Complete Deductive System for the Verification of Parallel Programs

S. S. Owicki, Cornell University

A New Incompleteness Result for Hoare's System

M. Wand, Indiana University

An Algebraic System for Process Structuring and Interprocess Communication

T. Kimura, University of Delaware

TUESDAY, May 4

SESSION 3:

8:30 a.m. -  
12:00 noon

Chairman: A. K. Chandra, IBM T. J. Watson Research Center

On Structuring of Flowcharts

S. R. Kosaraju, The Johns Hopkins University

On-Line Context Free Recognition in Less than Cubic Time

S. L. Graham

M. A. Harrison

W. L. Ruzzo

University of California at Berkeley

Finding the Depth of a Flow Graph

A. C. Fong and J. D. Ullman, Princeton University

Dichotimization, Reachability, and the Forbidden Subgraph Property

H. B. Hunt, III, Harvard University  
T. G. Szymanski, Princeton University

A Useful Device for Showing the Solvability of Some Decision Problems

O. H. Ibarra and C. E. Kim, University of Minnesota

On Deterministic Context-free Languages, Multihead Automata, and the Power of an Auxiliary Pushdown Store

I. H. Sudborough, Northwestern University

SESSION 4:

1:15 p.m. -  
4:30 p.m.

Chairman: M. J. Fischer, University of Washington

Space Bounds for a Game on Graphs

W. J. Paul, Cornell University  
R. E. Tarjan and J. R. Celoni, Stanford University

Real-time Algorithms for String-matching and Palindrome Recognition

Z. Galil, IBM T. J. Watson Research Center

Evaluation of Polynomials with Super-preconditioning

R. J. Lipton, Yale University  
L. J. Stockmeyer, IBM Thomas J. Watson Research Center

Linear Unification

M. Paterson, University of Warwick  
M. Wegman, IBM T. J. Watson Research Center

The Analysis of Double Hashing

L. J. Guibas, Xerox Palo Alto Research Center, and  
E. Szemerédi, Hungarian Academy of Sciences

On the Average Behavior of Set Merging Algorithms

A. C. Yao, MIT

WEDNESDAY, May 5

SESSION 5:

9:00 a.m. - Chairman: H. B. Hunt, Harvard University  
12:30 p.m.

Universal Circuits

L. G. Valiant, University of Leeds

The Realization of Monotone Boolean Functions

N. J. Pippenger, IBM T. J. Watson Research Center

Associative Retrieval Tree Hash-Coding

W. A. Burkhard, University of California at San Diego

Divide and Conquer in Multidimensional Space

J. L. Bentley, University of North Carolina at Chapel Hill  
M. I. Shamos, Carnegie-Mellon University

Location of a Point in a Planar Subdivision and Its Application

D. T. Lee and F. P. Preparata, University of Illinois

Simple Godel Numberings, Translations, and the P-hierarchy:  
Preliminary Report

M. Machtey and P. Young, Purdue University