

7TH ANNUAL ACM SYMPOSIUM ON THEORY OF COMPUTING  
May 5 - 7, 1975

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

Location: This year's Symposium will be held in Albuquerque, New Mexico, at the Hotel Plaza. Nancy Martin is Local Arrangements Chairwoman. The 1975 Program Chairman is Bill Rounds, University of Michigan, who reports that the Program Committee has selected a schedule of 31 papers.

Transportation: The Hotel Plaza is located at Second Street and Central Avenue. Direct courtesy car service between the airport and the hotel is available between 6 a.m. and 10 p.m. daily. Telephone the hotel at 243-4421 for immediate service, or on Sunday check at the conference desk near the baggage area. It takes the courtesy car 10 minutes to reach the hotel.

Climate: Temperatures in early May range from 50° to 88° in Albuquerque, and from 31° to 60° at the summit of the mountains. Albuquerque skies tend to be clear and little rain can be expected during May.

Registration Fee: The fees listed below include the conference proceedings, a Sunday evening social hour and luncheons on Monday and Tuesday at the Hotel Plaza, and a Tuesday evening excursion to historic Old Town, where cocktails will be served, followed by a tour of Old Town and an authentic New Mexican dinner. Bus service will be provided.

	Advance Registration	Registration at Symposium
Member of ACM and SIGACT	\$34.50	\$39.50
Member of ACM or SIGACT	37.50	42.50
Nonmember	42.50	47.50
Author	27.50	32.50

Students may register at the special rate of \$7.50 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 18. For further information, please contact Publicity Chairman Jack Carlyle, Department of System Science, 4531 Boelter Hall, UCLA, Los Angeles, California 90024, telephone (213) 825-2240.

## PROGRAM

MONDAY, May 5

## SESSION 1:

9:00 a.m. - Chairman: S. Winograd, International Business Machines Corporation  
12:40 p.m.

Complexity Measures and Hierarchies for the Evaluation  
of Integers, Polynomials, and N-Linear Forms  
D. Dobkin and R. J. Lipton, Yale University

A Generalization and Proof of the Aanderaa-Rosenberg Conjecture  
R. Rivest, Massachusetts Institute of Technology and  
J. Vuillemin, University of California

The Complexity of Parallel Evaluation of Linear Recurrences  
L. Hyafil, IRIA and H. T. Kung, Carnegie-Mellon University

On Computing the Minima of Quadratic Forms  
A. C. Yao, University of Illinois

A  $2.25 N$  - Lower Bound for the Combinational Complexity  
of Boolean Functions  
W. J. Paul, Cornell University

Lower Bounds on the Size of Boolean Formulas  
M. J. Fischer and A. R. Meyer, Massachusetts Institute of  
Technology and M. S. Paterson, University of Warwick

On Non-Linear Lower Bounds in Computational Complexity  
L. G. Valiant, University of Leeds

## SESSION 2:

2:00 p.m. - Chairman: A. K. Chandra, International Business Machines Corporation  
5:30 p.m.

On the Complexity of Grammar and Related Problems  
H. B. Hunt, III, University of Wisconsin and  
T. G. Szymanski, Princeton University

A Combinatorial Problem Which is Complete in Polynomial Space  
S. Even, Technion, and R. E. Tarjan, University of California

On the Validity and Complexity of Bounded Resolution Procedures  
Z. Galil, Cornell University

p-Verifiable Proof Systems for the Propositional Calculus  
S. A. Cook, University of Toronto

Computability Concepts for Programming Language Semantics  
H. Egli, Forschungsinstitut für Mathematik, and  
R. Constable, Cornell University

Proving Assertions about Programs that Manipulate Data Structures  
S. A. Cook and D. C. Oppen, University of Toronto

TUESDAY, May 6

SESSION 3:

9:00 a.m. - Chairman: P. R. Young, Purdue University  
12:30 p.m.

On (Un) Predictability of Formal Languages  
A. Ehrenfeucht, University of Colorado, and  
G. Rozenberg, University of Utrecht

Decomposition Theorems for Various Kinds of Languages  
Parallel in Nature  
S. Skyum, University of Aarhus

Intercalation Lemmas for Tree Transducer Languages  
C. R. Perrault, University of Toronto

On the (Combinatorial) Structure of L Languages Without  
Interactions  
A. Ehrenfeucht, University of Colorado, and  
G. Rozenberg, University of Utrecht

Degree-Languages, Polynomial Time Recognition, and the LEA-Problem  
D. Wotschke, Pennsylvania State University

Comparative Complexity of Grammar Forms

S. Ginsburg and N. Lynch, University of Southern California

SESSION 4:

1:45 p.m. - Chairman, R. E. Tarjan, University of California  
5:15 p.m.

Hashing Schemes for Extendible Arrays

A. L. Rosenberg and L. J. Stockmeyer, International  
Business Machines Corporation,

Four Models for the Analysis and Optimization of Program  
Control Structures

T. Pratt, University of Texas

Node Listings for Reducible Flow Graphs

A. V. Aho, Bell Laboratories, and J. D. Ullman,  
Princeton University

The Complexity of Control Structures and Data Structures

R. A. De Millo, University of Wisconsin-Milwaukee,  
S. C. Eisenstat and R. J. Lipton, Yale University

A New Fixedpoint Approach to Recursive Programs

Z. Manna and A. Shamir, Weizmann Institute of Science

Optimal Code Generation for Expression Trees

A. V. Aho and S. C. Johnson, Bell Laboratories

WEDNESDAY, May 7

SESSION 5:

9:00 a.m. - Chairman, A. R. Meyer, Massachusetts Institute of Technology  
12:30 p.m.

On the Complexity of the Extended String-to-String  
Correction Problem

R. S. Wagner, Vanderbilt University

Results in Geometric Complexity

M. I. Shamos, Yale University

Riemann's Hypothesis and Tests for Primality

G. L. Miller, University of California

Two Applications of a Probabilistic Search Technique:  
Sorting  $X + Y$  and Building Balanced Search Trees

M. L. Fredman, Massachusetts Institute of Technology

Algorithmic Aspects of Vertex Elimination

D. J. Rose, Harvard University, and R. E. Tarjan,  
University of California

A Linear Recognition Algorithm for Interval Graphs

G. S. Lueker, Princeton University

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#### TWO INTERNATIONAL COMPUTING SYMPOSIA

International Computing Symposia will be held this summer in France and in Taiwan. The European meeting will be held June 2-4, 1975 in Juan-Les-Pins - Antibes, France. Papers included in the sessions on theoretical computer science are:

Extremal properties of non-deterministic time-complexity classes,  
by J. van Leeuwen

Bounds for selection, by L. Hyafil

Some remarks on the complexity of heuristic search algorithms, by  
S. Martelli

Programming with dummy variables, by B. Lang

A unified theory of formal language translation and extension, by  
D. W. Bray

Proof search in a Gentzen-like system of first-order logic, by  
W. Bibel and J. Schreiber

Further information on the French meeting may be obtained from Association Française pour la Cybernétique économique et technique (AFCET), 156 boulevard Pereire, 75017, Paris, France.

The Taiwan conference will be held on August 20-22, at the Grand Hotel, Taipei. For further information on this conference, contact Dr. C. L. Sheng, Chairman, Organizing Committee for International Computer Symposium, 1975, P. O. Box 14-2, Taipei, Taiwan, Republic of China.