

10th ANNUAL ACM SYPOSIUM ON THEORY OF COMPUTING*

MAY 1-3, 1978

SPONSORED BY: ACM/SIGACT, with the cooperation of the IEEE Computer Society Technical Committee on Mathematical Foundations of Computing, and The University of California, San Diego.

LOCATION: All technical sessions will be held at the Kona Kai Club, Shelter Island, San Diego, CA 92106. Telephone number: (714) 222-1191. Shelter Island is on San Diego Bay. (It is connected to the mainland by an isthmus, and therefore isn't really an island.)

A block of rooms has been reserved at the Kona Kai Club and Kona Inn at the rate of \$28.00 per day for single occupancy and \$34.00 per day for triple occupancy (\$10.00 per student). The rooms for students have kitchen facilities. Reservations submitted with fewer than triple occupancy will be pooled to obtain full triple occupancy. Please make reservations directly with the Club using the attached form. (If you do not use the form, be sure to state that you will be attending the SIGACT meeting so that you get these reduced room rates.)

TRANSPORTATION: Shelter Island is only a 5-10 minute drive from the San Diego International Airport (Lindbergh Field). While the Kona Kai Club does not provide limousine service, taxis or private shuttle services provide inexpensive transportation between the airport and the Club. San Diego is served by Amtrak and several bus lines and the terminals are also a short taxi ride from Shelter Island. Those who wish to drive should take Interstate 5 south or Interstate 8 west to the Rosecrans Street exit and continue southwest on Rosecrans to Shelter Island Drive, which connects to Shelter Island. The Club is near the south end.

CLIMATE: The weather in San Diego in May will probably be clear and sunny. The temperature usually goes up to the high 60's during the day and down to the high 50's at night. Rain is very unlikely.

REGISTRATION FEE:	<u>Advance Registration before April 14, 1978</u>	<u>Registration at Symposium</u>
Member of ACM or SIGACT	\$55 (b)	\$60 (b)
Nonmember	\$60 (b)	\$65 (b)
Author	\$48 (b)	\$53 (b)
Student	\$12 (a)	\$12 (a)

* (Although this symposium has already taken place, the following has been for those who wish to keep track of these scheduled symposia. - Ed.)

- (a) The student fee is \$12, which provides a copy of the proceedings but not tickets to the reception, luncheons or banquet. Separate tickets may be purchased for these functions at the conference, if available.
- (b) Includes (a), plus reception (Sunday), luncheons (Monday and Tuesday), excursion and banquet (Tuesday evening), and coffeebreaks.

Additional copies of the proceedings can be purchased at the symposium for \$8.00 each.

THINGS TO DO: The Kona Kai Club has heated pools, tennis courts, handball and volleyball, saunas, an exercise room, a private beach, and a beautiful view of the bay and Point Loma. If you wish to venture out from the comforts of the Club, you can visit the famous San Diego Zoo in Balboa Park, Sea World on Mission Bay, or Old Town with its Spanish building and numerous shops. You can tour Point Loma and La Jolla, two exclusive residential areas. Visit the Scripps Institute of Oceanography or watch the hang gliders soar over the beaches at Torrey Pines. Tijuana is only a short drive from San Diego.

The excursion on Tuesday, May 2 will be a boat trip around the San Diego Harbor, departing from the Kona Kai pier at 5:15 p.m. and returning to the Club in time for a Luau banquet.

FURTHER
INFORMATION:

Contact one of the local arrangement chairmen:
Professor Walter Burkhard or Professor Walter Savitch
Department of Applied Physics and Information Science
University of California, San Diego
La Jolla, California 92093
Telephone: (714) 452-3047

MAY 1-3, 1978

Kona Kai Club
Shelter Island, San Diego, California

SUNDAY, APRIL 30

7:00 - 10:00 p.m. Evening Registration

8:00 - 11:00 p.m. Reception

MONDAY, MAY 1SESSION 1: 9:00 a.m. - Noon

Chairman: W. Rounds, University of Michigan

9:00 Combinatorial Optimization with Rational Objective Functions. (Short)
Nimrod Megiddo
University of Illinois at Urbana-Champaign

9:15 Maximization Problems on Graphs with Edge Weights Chosen From a
Normal Distribution. (Long)
George S. Lueker
University of California at Irvine

9:40 A Representation for Linear Lists with Moveable Fingers. (Short)
Mark R. Brown and Robert E. Tarjan
Stanford University

9:55 The Macro Model for Data Compression. (Long)
James A. Stoner and Thomas G. Szymanski
Princeton University

10:20 - 10:45 COFFEE BREAK

10:45 The Subgraph Homeomorphism Problem. (Long)
Andrea LaPaugh and Ronald L. Rivest
M.I.T.

11:10 On the $n^{\log_2 n}$ Isomorphism Technique. (Long)
Gary L. Miller
University of Rochester

11:35 Exact and Approximate Membership Testers. (Long)
Larry Carter, George Markovsky, and Mark Wegman
IBM T. J. Watson Research Center
Robert Floyd and John Gill
Stanford University

Noon - 2:00 LUNCHEON

SESSION 2: 2:00 - 5:30 p.m.

Chairman: S. A. Cook, University of Toronto

- 2:00 Tree Transducers, L Systems and Two-Way Machines. (Long)
J. Engelfriet, G. Rozenberg and G. Slutzki
Twente University of Technology
- 2:25 Operational and Semantic Equivalence Between Recursive Programs. (Long)
Jean-Claude Raoult and Jean Vuillemin
Universite de Paris-Sud, France
- 2:50 A New Solution to the Critical Section Problem. (Short)
Howard P. Katseff
University of California at Berkeley
- 3:05 A Unified Approach to Models of Synchronous Parallel Machines. (Long)
Leslie M. Goldschlager
University of Toronto
- 3:30 - 4:00 COFFEE BREAK
- 4:00 Computability Theory in Admissable Domains. (Long)
Edward Sciore and Adrian Tang
Department of Electrical Engineering and Computer Science
Princeton University
- 4:25 On Formulating Simultaneity for Studying Parallelism and
Synchronization. (Long)
Raymond E. Miller and Chee K. Yap
IBM - Mathematical Sciences Department
- 4:50 Parallelism in Random Access Machines. (Short)
Steven Fortune and James Wyllie
Cornell University
- 5:05 Data Type Specification: Parameterization and the Power of Specification
Techniques. (Long)
James W. Thatcher, Eric G. Wagner and Jesse B. Wright
IBM - Mathematical Sciences Department

TUESDAY, MAY 2SESSION 1: 8:45 a.m. - Noon

Chairman: I. Munro, University of Waterloo

- 8:45 An Efficient Algorithm for Determining Whether a Cubic Graph is
Toroidal. (Long)
I. S. Filotti
Columbia University
- 9:10 Switching Functions Whose Montone Complexity is Nearly Quadratic. (Long)
Ingo Wegener
Universitat Bielefeld, Germany

9:35 Straight-Line Program Length as a Parameter for Complexity Measures. (Long)
Nancy A. Lynch
Georgia Tech.

10:00 - 10:30 COFFEE BREAK

10:30 Computational Complexity of Computing Polynomials Over the Fields of
Real and Complex Numbers. (Long)
Victor Ya. Pan
IBM - Mathematical Sciences Department

10:55 Optimal Evaluation of Pairs of Bilinear Forms. (Long)
Joseph Ja'Ja'
Pennsylvania State University

11:20 Algorithms for Edge Coloring Bipartite Graphs. (Short)
Harold N. Gabow and Oded Kariv
University of Colorado at Boulder

11:35 On the Parallel Evaluation of Multivariate Polynomials. (Long)
L. Hyafil
IRIA-LABORIA, France

Noon - 1:45 LUNCHEON

SESSION 2: 1:45 - 5:00 p.m.

Chairman: A. Yao, Stanford University

1:45 Time-Space Tradeoffs for Straight-Line Programs. (Short)
Martin Tompa
University of Toronto

2:00 An NP-Complete Number-Theoretic Problem. (Short)
Eitan M. Gurari and Oscar H. Ibarra
University of Minnesota

2:15 The Complexity of Satisfiability Problems. (Short)
Thomas J. Schaefer
Menlo Park, California 94025

2:30 Coping with Errors in Binary Search Procedures. (Short)
D. J. Kleitman, A. R. Meyer, R. L. Rivest, J. Spencer and K. Winklmann
M.I.T.

2:45 On Time-Space Classes and Their Relation to the Theory of Real
Addition. (Long)
Anni Bruss and Albert Meyer
M.I.T.

3:10 On the Completeness of a Generalized Matching Problem. (Short)
Pavol Hell and David G. Kirkpatrick
Simon Fraser University

3:25 - 3:45 COFFEE BREAK

- 3:45 Propositional Representation of Arithmetic Proofs. (Long)
M. Dowd
University of Toronto
- 4:10 Node- and Edge-Deletion NP-Complete Problems. (Long)
Mihalis Yannakakis
Princeton University
- 4:35 On the Complexity of the Maximum Subgraph Problem. (Long)
John M. Lewis
Yale University
- 5:15 Boat Trip Departing from Kona Kai Pier

WEDNESDAY, MAY 3SESSION 1: 9:00 - 11:50 a.m.

Chairman: R. E. Ladner, University of Washington

- 9:00 Nondeterminism and the Size of the Two-Way Finite Automata. (Long)
William K. Sakoda and Michael Sipser
University of California at Berkeley
- 9:25 Indexing of Subrecursive Classes. (Long)
Dexter Kozen
University of California at Berkeley
- 9:50 Analysis of the Full Alpha-Beta Pruning Algorithm. (Short)
Gerard M. Baudet
Carnegie-Mellon University
- 10:05 Anomaly Hierarchies of Mechanized Inductive Inference. (Long)
John Case and Carl Smith
SUNY at Buffalo
- 10:30 - 10:45 COFFEE BREAK
- 10:45 Presburger Arithmetic with Bounded Quantifier Alternation. (Short)
Donald W. Loveland and C. R. Reddy
Duke University
- 11:00 A Practical Decision Method for Propositional Dynamic Logic. (Long)
Vaughan R. Pratt
Lab for Computer Science
M.I.T.
- 11:25 Relativized Questions Involving Probabilistic Algorithms. (Long)
Charles Rackoff
University of Toronto