Ann Arbor 1994

The Mathematical Programming Society will hold its triennial scientific meeting, the 15th International Symposium on Mathematical Programming, in Ann Arbor, MI, USA, on the campus of the University of Michigan Aug. 15-19, 1994.

The meeting is sponsored by the Mathematical Programming Society and the University of Michigan College of Engineering. The University of Michigan is close to local museums, restaurants, clubs and coffeehouses. The location is within 30 minutes of Detroit Metropolitan Airport, with direct service to major airports throughout North America, Europe and Asia.

The meeting will offer a series of tutorial lectures, a student program and parallel sessions of invited and contributed talks. Computer demonstrations and topical workshops also will be organized. The meeting will open with a plenary session featuring the awarding of the George B. Dantzig Prize (for significant research in mathematical programming), the Fulkerson Prize (for outstanding papers in discrete mathematics), the Orchard-Hays Prize (for excellence in computational mathematical programming), and the A.W. Tucker Prize (for an outstanding paper by a student). A reception and banquet at the historic Greenfield Village are planned.

Sessions will be organized around the following topics: Linear, integer, mixed-integer programming; Interior point and pathfollowing methods; Convex programming; Nonlinear, nonconvex, nonsmooth optimization; Automatic differentiation; Complementarity (linear and nonlinear), fixed point methods; Dynamic programming and optimal control; Graphs, networks, matroids, greedoids; Combinatorial optimization; Game theory and multobjective programming; Heuristic and approximate methods, global optimization; Mathematical programming in medical imaging; Computational complexity; Routing, scheduling, sequencing; Mathematical programming in manufacturing; VLSI design; Computer

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**CONFERENCE NOTES**

- **3-6**
- **TR&WP**
- **7**
- **BOOK REVIEWS**
- **8-9**
- **JOURNALS**
- **10**
- **GALLIMAUFRY**
- **12**
1992

LANCHESTER PRIZE

Call for Nominations

Each year since 1954, the Council of the Operations Research Society of America has offered the Lanchester Prize for the best published contribution to operations research in the English language. For 1992, the prize is $5,000 and a commemorative medallion. To be eligible for the Lanchester Prize, a book, paper or a group of books or papers must meet the following requirements:

1) It must be on an operations research subject;
2) it must have been published in 1992; or two years prior to 1992, or, in the case of a group, at least one member of a group must have been published in 1992, or the two years prior to 1992;
3) it must be written in the English language; and
4) it must have appeared in the open literature.

Nominations should be sent by March 30, 1993, to:

Clyde L. Monma
Chair, Lanchester Prize Committee
Bellcore, Room 2L-387
Mathematics and Operations Research
445 South St.
Morristown, NJ 07962-1910

implementations, software; Stochastic and chance-constrained programming; Large-scale optimization; Decision support systems; Parallel and massively parallel algorithms; Teaching mathematical programming; Nonlinear models in molecular design, computational chemistry; Engineering design optimization; Chemical process optimization; and Applications of mathematical programming. Suggestions for other areas also are welcome.

Papers on all theoretical, computational and practical aspects of mathematical programming are welcome. Presentation of recent results is especially encouraged. A late abstract deadline is set to enable such timely discussions.

A second announcement will be mailed in September 1993 to all respondents. That announcement will include early registration forms and information on paper submission. The deadline for these submissions will be:

April 1, 1994: Early registration and contributed paper topic
June 1, 1994: Final titles and abstracts
Aug. 15-19, 1994: On-site registration at the Symposium

For further information, contact:
15th International Symposium on Mathematical Programming Conferences and Seminars
541 Thompson St., Room 112
University of Michigan
Ann Arbor, MI 48109-1360
USA
Tel: (313) 764-5305
FAX: (313) 764-2990
e-mail: xvismp@um.cc.umich.edu.

CONFERENCE LOGO WINS AWARD


THE LETTERS XV SHOW THAT THIS IS THE 15TH SYMPOSIUM; THE PARABOLIC ARC IS FOR PEOPLE COMING TOGETHER FROM AROUND THE WORLD TO ATTEND THE SYMPOSIUM; AND THE A' IS AN ABBREVIATION OF ANN ARBOR.
A conference on large-scale optimization, hosted by the Center for Applied Optimization, was held at the University of Florida during mid-February. The conference received sponsorship from the National Science Foundation and the U.S. Army Research Office and endorsements from MPS, SIAM, ORSA and IMAES. Forty-one invited speakers presented papers on topics in mathematical programming and optimal control, with an emphasis on algorithm development and numerical computation.

Many of the papers included applications in such areas as molecular configuration, protein folding, economic growth models, airline crew scheduling, location theory, telecommunications network planning, multitarget tracking and traffic network models.

Speakers from Japan, Canada and several European countries gave the meeting an important international component. Attendees also included representatives from American Airlines, Argonne Labs, AT&T, IBM, Thinking Machines and USAir. A unique feature of the meeting was the NSF-sponsored attendance of 13 graduate students from universities in the United States.

A conference publication based on the theme of large-scale optimization is planned by Kluwer Academic Press.

— W.W. HAGER, D.W. HEARN, P. FARDALOS
OPTIMIZATION DAYS 1993
Montréal, Canada
May 12-14, 1993

All those interested in optimization methods and their present or potential applications are kindly invited to participate. The languages of the conference will be English and French. Plenary speakers will be:

M. Ball, University of Maryland
C. Daganzo, University of California at Berkeley
G. Laporte, École des Hautes Études Commerciales and C.R.T.
A. Nagurney, University of Massachusetts at Amherst.

A 100-200 word summary defining clearly the content of the talk, together with the registration form, should be forwarded as soon as possible to:

André Langevin and
Brunilde Sansó
GERAD
5255, avenue Decelles
Montréal, Canada, H3T 1V6
Telephone: (514) 340-6043
e-mail: jopt93@crt.umontreal.ca
Fax: (514) 340-5665

Authors are particularly encouraged to send a copy of their summary via e-mail to the above address.

DIMACS Workshop on Quadratic Assignment Problems
Rutgers University
May 20-21, 1993

A workshop on Quadratic Assignment and Related Problems is to be held May 20-21, 1993, at the DIMACS (Discrete Mathematics and Theoretical Computer Science) Center at Rutgers University.

The quadratic assignment problem (the traveling salesman problem is a special case) belongs to a class of combinatorial optimization problems that have many practical applications, but are computationally very difficult to solve. Applications of the quadratic assignment problem can be found in location theory, scheduling, manufacturing, VLSI and process communication.

In this workshop, about 20 invited speakers will present recent results on many different aspects of quadratic assignment problems, including algorithms, applications, software development, efficient algorithms for certain classes of problems, complexity and collection of test data.

If you want to participate or you have any questions, you may get information by sending e-mail to: center@dimacs.rutgers.edu or to the organizers: pardalos@math.ufl.edu and henry@orange.princeton.edu.

— P. PARDALOS

Fifteenth Symposium on Mathematical Programming with Data Perturbations
George Washington University
May 27-28, 1993

A fifteenth Symposium on Mathematical Programming with Data Perturbations will be held at George Washington University’s Marvin Center May 27-28, 1993. This symposium is designed to bring together practitioners who use mathematical programming optimization models and deal with questions of sensitivity analysis, with researchers who are developing techniques applicable to these problems.

CONTRIBUTED papers in mathematical programming are solicited in the following areas:

1) Sensitivity and stability analysis results and their applications.
2) Solution methods for problems involving implicitly defined problem functions.
3) Solution methods for problems involving deterministic or stochastic parameter changes.
4) Solution approximation techniques and error analysis.

“CLINICAL” presentations that describe problems in sensitivity or stability analysis encountered in applications are also invited. ABSTRACTS of papers intended for presentation at the Symposium should be sent in triplicate to Professor Anthony V. Fiacco.

Abstracts should provide a good technical summary of key results, avoid the use of mathematical symbols and references, not exceed 500 words, and include a title and the name and full mailing address of each author. The deadline for submission of abstracts is March 15, 1993.

Approximately 30 minutes will be allocated for the presentation of each paper. A blackboard and overhead projector will be available.

Anthony V. Fiacco, organizer.

— A.V. FIACCO
Symposium on Parallel Optimization 3

Center for Parallel Optimization
Computer Science Department
University of Wisconsin, Madison, WI

July 7-9, 1993

A three-day symposium of invited presentations on state-of-the-art algorithms and theory for the parallel solution of optimization and related problems will be held at the University of Wisconsin at Madison. The symposium is supported by the AFOSR and is sponsored by the Mathematical Programming Society. Emphasis will be on algorithms implementable on parallel architectures. Refereed proceedings will be published by SIAM. Speakers include:

- Kristin P. Bennett, University of Connecticut, Storrs
- Ranato De Leone, Universities of Wisconsin and Camerino, Madison and Camerino, Italy
- John E. Dennis Jr., Rice University, Houston
- Jonathan Eckstein, Thinking Machines Corp., Cambridge
- Michael C. Ferris, University of Wisconsin, Madison
- Alexei A. Gaivoronski, ITALTEL and University of Milan, Italy
- Luigi Grippo, University of Rome "La Sapienza," Italy
- Z-Q. (Tom) Luo, McMaster University, Hamilton, Canada
- Rich Maclin, University of Wisconsin, Madison
- Sanjay Mehrotra, Northwestern University, Evanston
- Jorge J. Moré, Argonne National Laboratory, Argonne
- John M. Mulvey, Princeton University, Princeton
- Jong-Shi Pang, The Johns Hopkins University, Baltimore
- Klaus Ritter, Technical University of Munich, Germany
- J. Ben Rosen, University of California at San Diego, La Jolla
- Jude W. Shavlik, University of Wisconsin, Madison
- Paul Y. Tseng, University of Washington, Seattle
- Margaret H. Wright, AT&T Bell Laboratories, Murray Hill
- Stephen J. Wright, Argonne National Laboratories, Argonne
- Stavros Zenios, University of Pennsylvania, Philadelphia
- Xiru Zhang, Thinking Machines Corp., Cambridge

Invited speakers include:

- M. Bendsoe, DTH, Copenhagen
- R. Bixby, Rice University, Houston
- A. Conn, IBM, Yorktown Heights
- J. Desrosiers, HEC, Montreal
- P. Gill, UCSD, San Diego
- J.-L. Goffin, McGill, Montreal
- N. Gould, CERFACS, Toulouse
- S. Graves, MIT, Boston
- W. Hager, University of Florida, Gainesville
- D. Heam, University of Florida, Gainesville
- C. Kiwiel, Systems Research Institute, Warsaw
- C. Lemarechal, INRIA, Paris
- W. Murray, Stanford University, Palo Alto
- A. Nemirovski, CMI, Moscow
- J. Nocedal, Northwestern University, Evanston
- P. Pardalos, University of Florida, Gainesville
- C. Sherbrooke, Logistics Management Institute, Bethesda
- P. Toint, UNDP, Namur
- Y. Zheng, University of Pennsylvania, Philadelphia

Abstracts should be sent by June 1 (preferably by e-mail) to optdays@math.kth.se or by mail to Optimization Days, Division of Optimization and Systems Theory, KTH, 100 44 Stockholm, Sweden.

Any questions should be directed to the same addresses.

The organizing committee:
FOURTH
INTERNATIONAL
WORKSHOP ON
GENERALIZED
CONVEXITY

Janus Pannonius
University
Pécs, Hungary

Aug. 31-Sept. 2, 1992

The conference, which was organized by S. Komlós (Pécs), T. Rapcsák (Budapest) and S. Schaible (Riverside), followed previous workshops in Vancouver (1980), Canton (1986) and Pisa (1988). It was attended by some 90 participants, who gave a total of 46 lectures.

Topics included characterization of various kinds of generalized convex functions; nonsmooth optimization; optimality and duality; generalized monotone maps; fractional programming; multicriteria optimization; solution methods; and applications in management, economics and applied sciences. Proceedings will be published in Lecture Notes in Economics and Mathematical Systems, Springer-Verlag.

- S. SCHABLE

Sixth International Conference in Stochastic Programming and Meeting of The Committee on Stochastic Programming

Udine, Italy
September 1992

The Sixth International Conference in Stochastic Programming took place in Udine, Italy, in September 1992. The meeting was run on behalf of the Committee on Stochastic Programming (COSP) and follows the tradition of having such a conference every three years. The next conference will take place in Haifa, Israel, in 1995 under the leadership of Aharon Ben-Tal.

The Udine meeting was successful, both from a scientific and an organizational point of view. It showed that the field had moved forward since the previous conference. This is particularly true with respect to applications and algorithmic developments.

Thanks are due to the local committee consisting of Giovanni Andreattata (University of Padova, chairman), Gabriella Salinetti (University of Rome) and Paolo Serafini (University of Udine). Thanks also go to COSP and its chairman Roger J.-B. Wets (University of California, Davis) and secretary Jitka Dupačová (Charles University, Prague). The conference was sponsored by UNESCO, CNR (Italian National Research Council), Committee for Economics and Committee for Mathematics, CISM (Udine) and Department of Pure and Applied Mathematics (University of Padova, Italy).

A COSP meeting was held during the conference. Yves Smears and Roger J.-B. Wets resigned from COSP. Aharon Ben-Tal (Israel), John Mulvey (USA), Andrzej Ruszczyński (Poland) and Stein W. Wallace (Norway) were elected to join COSP. On the recommendation of the nominating committee, chaired by Kurt Marti, Stein W. Wallace was elected as chair. Andrzej Ruszczyński accepted the position of secretary for the next three years.

The present composition of COSP is thus:

Aharon Ben-Tal, John R. Birge, Michael Dempster, Jitka Dupačová, Kurt Marti, John Mulvey, András Prekopa, Andrzej Ruszczyński (secretary), Tamas Szántai, Stein W. Wallace (chair), William Ziemba and Yuri Ermoliev.

A major concern of the stochastic programming community is the establishment of a database for test examples. Also, some concerns exist about the appropriateness of the present standard input format. It is now clear that Karl Frauendorfer, K193302@CZHRZU1A.bitnet, and David Gay, dmg@research.att.com, will make a joint effort on these issues. Frauendorfer will take the main responsibility for the contents of the base, whereas Gay will run it. Gay already administers netlib's lp/data and lp/generators collections (linear programming test problems). Together, they also will consider the possibility of adding features to the standard input format. Anyone with ideas on the input format or with problems they think fit the problem base, should contact Frauendorfer or Gay. It is the hope of the present COSP chair that COSP, during the next three years, will be able to establish this problem base, and, that way, follow up work initiated by the previous COSP chair, Roger J.-B. Wets.

An electronic mailing list for people interested in stochastic programming will be set up. Anyone interested in being on the list should contact Andrzej Ruszczyński at rusz@iiasa.ac.at.
Technical Reports

UNIVERSITY OF SOUTHAMPTON
Faculty of Mathematical Studies
Highfield
Southampton SO9 5NH, UK
OR Preprint Series


H.P. Williams, "Constructing the Value Function for an Integer Linear Program Over a Cone," OR19.


H.P. Williams, "Computation Logic and Integer Programming Connections between the Methods of Logic, AI and OR," OR25.


C.A. Glass, "Feasibility of Scheduling Lot Sizes of Two Frequencies on One Machine," OR30.


D.J. Gove and A.K. Shahani, "Predicting Product Maturity," OR43.

C.A. Glass, "Dynamic Programming in a Pure Functional Language," OR44.


H.P. Williams, "Duality in Mathematics and Linear and Integer Programming," OR46.

C.A. Glass, C.N. Potts, and P. Shade, "Genetic Algorithms and Neighborhood Search for Scheduling Unrelated Parallel Machines," OR47.

H.P. Williams, "A Note: The Equivalence of a Theorem of Kronecker and a Theorem of Williams," OR48.
Eulerian Graphs and Related Topics
By H. Fleischner
Annals of Discrete Mathematics 45
1990
ISBN 0-444-88395-9

This is the first monograph on eulerian trails in finite graphs, or, more exactly, the first part of a work announced to consist of at least two volumes. How wide-ranging the work is, one may imagine from the almost 30 pages of historical introduction. In the introduction, one can study, for instance, the original paper of L. Euler on the Königsberg Bridges Problem in Latin, and also in an English translation.

In Chapter III, the basic concepts and preliminary results are combined. The definitions often are formalized in a way that the reader will find it hard to continue. Well-known theorems of other branches of graph theory are quoted without proof. All special results used in the following are proved, but related generalizations are sometimes not mentioned. In Chapter IV, the fundamental results on eulerian trails are proved on graphs, digraphs and mixed graphs. Chapter V gives some generalizations and other characterizations of eulerian graphs, for instance, by the parity of the number of paths joining any distinct vertices. An outlook on covering problems is added.

Chapter VI deals with various types of eulerian trails. First considered are trails avoiding certain prescribed transitions, where a pair of adjacent edges (if parallel, with one vertex marked) is a transition of a trail, if one of these edges directly succeeds to the other on the trail. For instance, the following interesting conjecture is proved for special graphs: Every connected, eulerian graph of minimum degree n has n−2 pairwise compatible eulerian trails, where two trails are called compatible, if a transition of one trail does not occur in the other. This would be best possible for n > 2, and it is proved that there are at least n−1 such trails.

Other conditions imposed on the trails are, for instance, in digraphs, that the trails are anti-directed, or in plane graphs, that the transitions occurring in the trail “correspond to the boundary” of the faces. This latter condition is considered in the greater part of Chapter VI.

The last chapter studies the transformation of eulerian trails defined by traversing a proper closed subtrail in the opposite direction. It is well known that every eulerian trail is reachable from any other by a sequence of such transformations. This may change if we consider classes of eulerian trails with properties as in Chapter VI and demand that we remain in this class in every step of the sequence of transformations. These investigations are the topic of Chapter VII.

The main chapters are complemented by a series of exercises. An extensive bibliography allows one to pursue special questions in the original papers.

W. MADER

By J.H. Mathews
Prentice Hall
1992
ISBN 0-13-624990-6

The aim of this textbook is to introduce students of various backgrounds to the basic methods of numerical analysis. Emphasis is placed on easy understanding. The book contains many examples, exercises and algorithms in pseudo-code. It covers the standard topics of numerical mathematics: Nonlinear equations, solution of linear systems, interpolation and polynomial approximation, curve fitting, numerical differentiation, numerical integration, numerical optimization, solution of ordinary and partial differential equations, eigenvalues and eigenvectors.

Those who read this review might want to know what the student is expected to learn about numerical optimization. That chapter takes 23 pages of a total of about 600 pages. After the necessary definitions and a statement of first and second derivative conditions, the following methods are explained: Golden ratio and quadratic approximation search in one variable, the Nelder-Mead method for the case of two variables and (only with a statement of the method) steepest descent in N variables. Of course, there is no space for optimization under constraints.
"I have made no attempt to include everything known, or even everything which is important. I have included what I feel every 'literate' theoretical computer scientist (or mathematician) should know about linear programming."

- KARLOFF

Summarizing, the author has made a reasonable choice of subjects. Emphasis on easy understanding and simplification is a question of taste. The reviewer would prefer a more substantial presentation in a follow up.

- W. WETTERLING

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Linear Programming

By Howard Karloff

Birkhauser Verlag
1991

ISBN 3-7643-3563-0

"Over the more than four decades that have elapsed since 1947, when the Simplex Algorithm was developed by George Dantzig, a voluminous theory of linear programming has been developed. This book is an attempt to present a small fraction of this theory to a 'mathematically sophisticated' reader. Here, a 'mathematically sophisticated' reader is an advanced undergraduate or graduate student who knows linear algebra and who has the ability to read and understand proofs. Except for a few exercises left to the reader, almost all details are included. I have tried to provide intuition and motivation as well.

"I have made no attempt to include everything known, or even everything which is important. I have included what I feel every 'literate' theoretical computer scientist (or mathematician) should know about linear programming."
Vol. 57, No. 2

Complexity Issues in Numerical Optimization

I. Adler and P.A. Beigun, “Polynomial algorithms for LP over a subset in the algebraic integers with applications to LP with circulant matrices”

K.S. Al-Sultan and K.G. Murty, “Exterior point algorithms for nearest points and convex quadratic programs”

D.S. Atkinson and P.M. Vaidya, “A scaling technique for finding the weighted analytic center of a polytope”

D.-Z. Du and Y. Zhang, “On better heuristics for Steiner minimum trees”

P. Gritzmann and V. Klee, “Deciding uniqueness in norm maximization”


J. Sun and L. Qi, “An interior point algorithm of O(1/ε) iterations for C-convex programming”

C.A. Tovey, “A polynomial-time algorithm for computing the yolk in fixed dimension”

S.A. Vavasis, “Approximation algorithms for indefinite quadratic programming”

G.W. Wasilkowski, “On average complexity of global optimization problems”

Y. Ye, “On the finite convergence of interior-point algorithms for linear programming”

P.M. Pardalos and S.A. Vavasis, “Open questions in complexity theory for numerical optimization”

E. Spedicato and E. Bodon, “Solution of linear least squares via the ABS algorithm”

A. Ioffe, “A Lagrange multiplier rule with small convex-valued subdifferentials for non-smooth problems of mathematical programming involving equality and non-functional constraints”

Vol. 57, No. 3

J.J. Forrest and D. Goldfarb, “Steepest-edge simplex algorithms for linear programming”

K. Martin, R.L. Rardin, and J. Wang, “Gainfree Leontief substitution flow problems”

B. De Moor, L. Vandenberghe, and J. Vandewalle, “The Generalized linear complementarity problem and an algorithm to find all its solutions”

S. D. Flamm, “On finite convergence and constraint identification of subgradient projection methods”

W.C. Pye, “Almost P matrices and the class Q”

B. Betro and F. Schoen, “Optimal and sub-optimal stopping rules for the multistart algorithms in global optimization”

M. Hartmann and M.H. Schneider, “An analog of Hoffman’s circulation and conditions for max-balanced flows”

Vol. 58, No. 2

J.-S. Pang, “Convergence of splitting and Newton methods for complementarity problems: An application of some sensitivity results”

M.S. Gowda and J.-S. Pang, “The basic theorem of complementarity revisited”

L. Breiman and A. Cutler, “A deterministic algorithm for global optimization”

A. Ruszkiewicz, “Parallel decomposition of multistage stochastic programming problems”

W.T. Rhee and M. Talagrand, “Dual bin packing with items of random sizes”

Y. Ye, K.O. Kortanek, J. Kaliski, and S. Huang, “Near boundary behavior of primal dual potential reduction algorithms for linear programming”

S. Shiraishi, “On connections between approximate second-order directional derivative and second-order Dini derivative for convex functions”

M. Queyrande, “Structure of a simple scheduling polyhedron”

N.G. Hall and R.V. Vohra, “Towards equitable distribution via proportional equity constraints”

Vol. 58, No. 1

R.J. Vanderbei and T.J. Carpenter, “Symmetric indefinite systems for interior point methods”

C. Choi and D. Goldfarb, “Exploiting special structure in a primal-dual path-following algorithm”


M. Queyrande and Y. Wang, “Hamiltonian path and symmetric traveling salesman polytopes”

Y. Ye, K.O. Kortanek, J. Kaliski, and S. Huang, “Near boundary behavior of primal dual potential reduction algorithms for linear programming”

S. Shiraishi, “On connections between approximate second-order directional derivative and second-order Dini derivative for convex functions”

M. Queyrande, “Structure of a simple scheduling polyhedron”

N.G. Hall and R.V. Vohra, “Towards equitable distribution via proportional equity constraints”
The Department of Industrial & Systems Engineering at the University of Florida invites applications for a tenure-track position at the rank of Assistant or Associate Professor. Applicants with research and teaching interests in combinatorial optimization and its applications in logistics, networks and/or manufacturing are sought.

The Department offers the B.S. degree in Industrial and Systems Engineering, the M.S. degree with options in Operations Research, Manufacturing Systems Engineering, Quality and Reliability Assurance, and Engineering Management, as well as the Ph.D. degree.

Applicants should have a strong background in engineering or applied mathematics and have (or be a candidate for) a doctorate in industrial engineering, operations research, or a related field. Applicants for the Associate Professor level should have experience beyond the Ph.D. degree and a record of proven research ability. The individual selected for this position will be expected to teach existing courses and to develop additional courses, to pursue sponsored research funding, and to supervise graduate students. A strong commitment to teaching and research excellence is required. The position is available starting Fall Semester 1993.

Send detailed resume, with names and addresses of three references, to: Chairman, Faculty Search Committee, Department of Industrial & Systems Engineering, 303 Weil Hall, University of Florida, Gainesville, FL 32611. Application deadline is June 1, 1993.

The University of Florida is an affirmative action/equal opportunity institution.

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Application for Membership

Mail to:

THE MATHEMATICAL PROGRAMMING SOCIETY, INC.
c/o International Statistical Institute
428 Prinses Beatrixlaan
2270 AZ Voorburg
The Netherlands

Cheques or money orders should be made payable to THE MATHEMATICAL PROGRAMMING SOCIETY, INC. in one of the currencies listed below. Dues for 1993, including subscription to the journal Mathematical Programming, are Dfl.100.00 (or $55.00 or DM85.00 or £32.50 or FF300.00 or Sw.Fr.80.00).

Student applications: Dues are one-half the above rates. Have a faculty member verify your student status and send application with dues to above address.

I wish to enroll as a member of the Society.
My subscription is for my personal use and not for the benefit of any library or institution. I enclose payment as follows:

Dues for 1993

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INSTITUTION
OPTIMA

Nº 39 March 1993

Information on the Third Integer Programming and Combinatorial Optimization Conference (IPCO) to be held April 29-May 1, 1993 is now available in directory /pub/ipco3 via FTP at the internet address cattivik.ian.rm.cnr.it (account ftp). A NATO Advance Study Institute on Algorithms for Continuous Optimization will be held Sept. 5-18, 1993. Contact Prof. Emilio Spedicato, Dipartimento Matematica, Università Piazza Rosate 9, 24100 Bergamo, Italy, Tel: +3935277514, Fax: +3935234693 or e-mail: teresa@ibguniv.bitnet. A NETFLOW93, A conference on Network Optimization Theory and Practice, will be held Oct. 3-7, 1993, in San Miniato, Italy. Contact: Federico Malucelli, Chairman, Local Organizing Committee, Netflow93, c/o Dipartimento di Informatica, Università di Pisa, Corso Italia 40, 56125 Pisa, Italy. e-mail: maluc@di.unipi.it. Phone: +39-50 510216. Fax: +39-50 510226. Deadline for the next OPTIMA is June 1, 1993.

Books for review should be sent to the Book Review Editor, Professor Dolf Talman
Department of Econometrics
Tilburg University
P.O. Box 90153
5000 LE Tilburg
Netherlands

Journal contents are subject to change by the publisher.

Donald W. Hearn, EDITOR
Dolf Talman, ASSOCIATE EDITOR
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Elsa Drake, DESIGNER

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