

NONLINEAR PROGRAMMING

Edited by

Richard W. Cottle and Carlton E. Lemke

Harold W. Kuhn, *Nonlinear programming: A historical view*

Garth P. McCormick, *Optimality criteria in nonlinear programming*

David G. Luenberger, *Algorithmic analysis in constrained optimization*

M. J. D. Powell, *Some global convergence properties of a variable metric algorithm for minimization without exact line searches*

B. Curtis Eaves, *A short course in solving equations with PL homotopies*

R. Tyrrell Rockafellar, *Lagrange multipliers in optimization*

O. L. Mangasarian, *Unconstrained methods in nonlinear programming*

J. E. Dennis, Jr., *A brief survey of convergence results for quasi-Newton methods*

These Proceedings are based on lectures delivered at the symposium on Nonlinear Programming held March 23 and 24, 1975, as part of the American Mathematical Society's annual New York meeting. This event was the ninth in a series of Symposia in Applied Mathematics jointly sponsored by the Society for Industrial and Applied Mathematics and the American Mathematical Society with financial support from the Energy Research and Development Agency (formerly the Atomic Energy Commission) and the National Science Foundation.

The organizing committee for the symposium consisted of R. W. Cottle (chairman), C. E. Lemke, S. M. Robinson, and J. B. Rosen. The committee's intent was to help bring to the attention of a larger mathematical audience some of the history, theory, applications and vigorous research activity of the Nonlinear Programming field. The editors feel that the results included in these Proceedings can be recommended as well to the worker in the field as to the interested initiate.

Volume 9, SIAM-AMS PROCEEDINGS

200 pages; list price \$15.60, member price \$11.70

Publication Date: May 30, 1976

To order specify SIAM/9. Prepayment required.

AMERICAN MATHEMATICAL SOCIETY

**P. O. Box 1571, Annex Station
Providence, Rhode Island 02901**

CORRIGENDUM	617
BELLMAN & WING	
MICROFICHE SUPPLEMENT	
Addendum to "The Orders of the Known Simple Groups as Far as One Trillion"	CRAIG CATO

MATHEMATICS OF COMPUTATION

TABLE OF CONTENTS

APRIL 1977

Multi-Level Adaptive Solutions to Boundary-Value Problems.....	ACHI BRANDT 333
Primal Hybrid Finite Element Methods for 2nd Order Elliptic Equations P. A. RAVIART & J. M. THOMAS	391
Interior Maximum Norm Estimates for Finite Element Methods A. H. SCHATZ & L. B. WAHLBIN	414
Application of Method of Collocation on Lines for Solving Nonlinear Hyperbolic Problems	E. N. HOUSTIS 443
Uniform Convergence of Galerkin's Method for Splines on Highly Nonuniform Meshes	FRANK NATTERER 457
On a Boundary Extrapolation Theorem by Kreiss	MOSHE GOLDBERG 469
Existence of a Solution to the Discrete Theodorsen Equation for Conformal Mappings	MARTIN H. GUTKNECHT 478
Computations of the Hill Functions of Higher Orders	A. J. JERRI 481
Comparison of Algorithms for Multivariate Rational Approximation JACKSON N. HENRY	485
Estimates of the Speed of Convergence of Continued Fraction Expansions of Functions	DAVID A. FIELD 495
A Continued Fraction Expansion for a Generalization of Dawson's Integral D. DIJKSTRA	503
Some Classes of Generating Functions for the Laguerre and Hermite Polynomials	M. E. COHEN 511
On Congruences Related to the First Case of Fermat's Last Theorem WELLS JOHNSON	519
On Projective Representations of Finite Wreath Products JOHN R. DURBIN & K. BOLLING FARMER	527
On Maximal Finite Irreducible Subgroups of $GL(n, \mathbf{Z})$. I. The Five and Seven Dimensional Cases	WILHELM PLESKEN & MICHAEL POHST 536
On Maximal Finite Irreducible Subgroups of $GL(n, \mathbf{Z})$. II. The Six Dimensional Case	WILHELM PLESKEN & MICHAEL POHST 552
The Orders of the Known Simple Groups as Far as One Trillion... CRAIG CATO	574
Certain Pure Cubic Fields With Class-Number One	H. C. WILLIAMS 578
Numbers Generated by the Reciprocal of $e^x - x - 1$	F. T. HOWARD 581
Prime Factors of Cyclotomic Class Numbers	D. H. LEHMER 599
Quasi-Amicable Numbers	PETER HAGIS, JR. & GRAHAM LORD 608
REVIEWS AND DESCRIPTIONS OF TABLES AND BOOKS	612
GILL 7, HINDEN 5, NEWMAN 6	
TABLE ERRATA	614
ERDÉLYI, MAGNUS, OBERHETTINGER & TRICOMI 533, GRADSHTEYN & RYZHIK 534, ABRAMOWITZ & STEGUN 535, EAGLE 536, BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE 537, WALL, CREWS & JOHNSON 538	