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# MATHEMATICS OF COMPUTATION 

## TABLE OF CONTENTS

JULY 1976

An Averaging Method for the Stiff Highly Oscillatory Problem<br>W. L. Miranker \& G. Wahba<br>383

Projection Methods With Different Trial and Test Spaces
M. S. Mock

400
Some New High-Order Multistep Formulae for Solving Stiff Equations

G. K. Gupta

417

On the Numerical Solution of Helmholtz's Equation by the Capacitance Matrix
Method ............................. WLodzimierz Proskurowski \& Olof Widlund 433
Accelerating Convergence of Eigenfunction Expansions
J. K. Shaw, L. W. Johnson \& R. D. Riess 469

A Class of Accelerated Conjugate Direction Methods for Linearly Constrained
Minimization Problems ........................... MiChaEl J. Best \& Klaus Ritter 478
The $T_{+m}$ Transformation ........................................................ Roland F. Streit 505
The Convergence of the Ben-Israel Iteration for Nonlinear Least Squares Prob-
lems ........................................................................................... PAUL T. BogGS 512
On the Global Convergence of Broyden's Method
J. J. Moré \& J. A. Trangenstein 523

Complex Roots of $\sin z=a z, \cos z=a z$, and $\cosh z=a z \ldots$ Henry E. Fettis 541
On Cartesian Products of Good Lattices ..................................... S. K. Zaremba 546
Extensions of the Mehler-Weisner and Other Results for the Hermite Function
M. E. COHEN 553
Computation of $\pi$ Using Arithmetic-Geometric Mean ........... Eugene Salamin 565
On the Distribution of Pseudo-Random Numbers Generated by the Linear Con-
gruential Method. III ................................................... Harald Niederreiter 571
On an Algorithm of Billevich for Finding Units in Algebraic Number Fields
Ray Steiner \& Ronald Rudman 598
Class Groups of Quadratic Fields ............................................ Duncan A. Buell 610
The Largest Degree of Irreducible Characters of the Symmetric Group
JoHN MCKAY 624
Groups of Square-Free Order, An Algorithm ........................................ J. Alonso 632
A Note on Diophantine Equation $Y^{2}+k=X^{5} \ldots . . . . . . . . . . . . . . . . . . . . . .$. JOSEF BLASS 638
On Asymptotic Properties of Aliquot Sequences ................................... P. Erdös 641
Triples of Sixth Powers with Equal Sums .................................. SimCha Brudno 646
Generalizations of a Classical Theorem in Number Theory
Richard H. Hudson 649

Reviews and Descriptions of Tables and Books ..... 664Angell 32, Brent 30, Davis \& Rabinowitz 28, The Institute of Math-ematical Statistics, Editors \& Harter \& Owen, Coeditors 31, Hilde-brand 24, Lawson \& Hanson 26, Maguire 29, Ord-Smith \& Stephen.son 33, Salzer, Levine \& Serben 27, Stol 25
Table Errata ..... 675Abramowitz \& Stegun 523, Erdélyi, Magnus, Oberhettinger \& Tri-comi 524, Horner 525, Meissel 526, Slater; Magnus, Oberhettinger\& Soni 527
Corrigenda ..... 679
Hendy
Statement of Priority ..... 680Aberth \& Ehrlich

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EDITED BY<br>FELIX E. BROWDER

## CONTENTS

Introduction ..... vii
Photographs of the speakers. ..... $x$
Hilbert's original article. ..... 1
Problems of present day mathematics. ..... 35
Hilbert's first problem: the continuum hypothesis ..... 81
Donald A. Martin
What have we learnt from Hilbert's second problem? ..... 93
G. Kreisel
Problem IV: Desarguesian spaces. ..... 131
Herbert Busemann
Hilbert's fifth problem and related problems on transformation groups. ..... 141
C. T. Yang
Hilbert's sixth problem: mathematical treatment of the axioms of physics.. ..... 147
A. S. Wightman
Hilbert's seventh problem: on the Gel'fond-Baker method and its applica- lions. ..... 241
R. TijdemanHilbert's 8th problem: an analogue.269
E. Bombieri
An overview of Deligne's proof of the Riemann hypothesis for varieties over finite fields (Hilbert's problem 8). ..... 275
Nicholas M. Katz
Problems concerning prime numbers (Hilbert's problem 8) ..... 307
Hugh L. Montgomery
Problem 9: the general reciprocity law ..... 311
J. Tate
Hilbert's tenth problem. Diophantine equations: positive aspects of a nega- tive solution. ..... 323
Martin Davis, Yuri Matijasevic and Julia Robinson
Hilbert's eleventh problem: the arithmetic theory of quadratic forms ..... 379
O. T. O'Meara
Some contemporary problems with origins in the Jugendtraum (Hilbert's problem 12). ..... 401
R. P. Langlands
The 13-th problem of Hilbert ..... 419
G. G. Lorentz
Hilbert's fourteenth problem-the finite generation of subrings such as rings of invariants ..... 431
David Mumford
Problem 15. Rigorous foundation of Schubert's enumerative calculus ..... 445
Steven L. Kleiman
Hilbert's seventeenth problem and related problems on definite forms ..... 483
Albrecht Pfister
Hilbert's problem 18: on crystalographic groups, fundamental domains, and on sphere packing ..... 491
J. Milnor
The solvability of boundary value problems (Hilbert's problem 19). ..... 507
James Serrin
Variational problems and elliptic equations (Hilbert's problem 20). ..... 525
Enrico Bombieri
An overview of Deligne's work on Hilbert's twenty-first problem. ..... 537
Nicholas M. Katz
On Hilbert's 22nd problem ..... 559
Lipman Bers
Hilbert's twenty-third problem: extensions of the calculus of variations. ..... 611
Guido Stampacchia

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The papers contain contributions in several areas of matrix computations, and include some of the most active research in numerical linear algebra.

We have organized the papers into general categories which deal, respectively, with sparse elimination, sparse eigenvalue calculations, optimization, mathematical software for sparse matrix computations, partial differential equations, and applications involving sparse matrix technology. We would like to emphasize, however, the considerable overlap between these categories; some papers could and should be considered in two or more of the general categories mentioned.

In a more general context this volume presents research in applied numerical analysis but with considerable influence from computer science. In particular most of the papers deal explicitly (or implicitly) with the design, analysis, implementation and application of computer algorithms. Such an emphasis includes not only the establishment of space and time complexity bounds, but also an attempt to understand the algorithms and the computing environment in enough detail to make design decisions for effective mathematical software to be used as tools in science and engineering.
SECTION HEADINGS: Design and Analysis of Elimination Algorithms. Eigenvalue Problems. Optimization, Least Squares and Linear Programming. Mathematical Software. Matrix Methods for Partial Difference Equations. Applications.
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Reviews and Descriptions of Tables and Books ..... 664
Angell 32, Brent 30, Davis \& Rabinowitz 28, The Institute of Math- ematical Statistics, Editors \& Harter \& Owen, Coeditors 31, Hilde- brand 24, Lawson \& Hanson 26, Maguire 29, Ord-Smith \& Stephen. son 33, Salzer, Levine \& Serben 27, Stol 25
Table Errata ..... 675 Comi 524, Horner 525, Meissel 526, Slater; Magnus, Oberhettinger \& SoNi 527
Corrigenda ..... 679
Hendy
Statement of Priority ..... 680Aberth \& Ehrlich

# MATHEMATICS OF COMPUTATION 

# TABLE OF CONTENTS 

JULY 1976

An Averaging Method for the Stiff Highly Oscillatory Problem
W. L. Miranker \& G. Wahba ..... 383
Projection Methods With Different Trial and Test Spaces M. S. Моск ..... 400
Some New High-Order Multistep Formulae for Solving Stiff Equations
G. K. Gupta ..... 417
On the Numerical Solution of Helmholtz's Equation by the Capacitance Matrix Method WL̄odzimierz Proskurowski \& Olof Widlund ..... 433
Accelerating Convergence of Eigenfunction Expansions
J. K. Shaw, L. W. Johnson \& R. D. Riess ..... 469
A Class of Accelerated Conjugate Direction Methods for Linearly Constrained Minimization Problems Michael J. Best \& Klaus Ritter ..... 478
The $T_{+m}$ Transformation Roland F. Streit ..... 505
The Convergence of the Ben-Israel Iteration for Nonlinear Least Squares Prob- lems Paul T. Boggs ..... 512
On the Global Convergence of Broyden's Method
J. J. More \& J. A. Trangenstein ..... 523
Complex Roots of $\sin z=a z, \cos z=a z$, and $\cosh z=a z \ldots$ Henry E. Fettis ..... 541
On Cartesian Products of Good Lattices S. K. Zaremba ..... 546
Extensions of the Mehler-Weisner and Other Results for the Hermite Function M. E. COhen ..... 553
Computation of $\pi$ Using Arithmetic-Geometric Mean Eugene Salamin ..... 565
On the Distribution of Pseudo-Random Numbers Generated by the Linear Con- gruential Method. III Harald Niederreiter ..... 571
On an Algorithm of Billevich for Finding Units in Algebraic Number Fields Ray Steiner \& Ronald Rudman ..... 598
Class Groups of Quadratic Fields Duncan A. Buell ..... 610
The Largest Degree of Irreducible Characters of the Symmetric Group John McKay ..... 624
Groups of Square-Free Order, An Algorithm J. Alonso ..... 632
A Note on Diophantine Equation $Y^{2}+k=X^{5}$ Josef Blass ..... 638
On Asymptotic Properties of Aliquot Sequences P. Erdös ..... 641
Triples of Sixth Powers with Equal Sums Simcha Brudno ..... 646
Generalizations of a Classical Theorem in Number Theory
Richard H. Hudson ..... 649
Properties of the Sequence $3 \cdot 2^{n}+1$ Solomon W. Golomb ..... 657


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