

INDEX TO VOLUME 58

<i>Author</i>	<i>Title</i>	<i>Page</i>
ARNOLD, ANTON & NIER, FRANCIS	Numerical analysis of the deterministic particle method applied to the Wigner equation	645
BOHMAN, JAN & FRÖBERG, CARL-ERIK	The Γ -function revisited: Power series expansions and real-imaginary zero lines	315
DE BOOR, CARL & RON, AMOS	Computational aspects of polynomial interpolation in several variables	705
BRAMBLE, JAMES H. & PASCIAK, JOSEPH E.	The analysis of smoothers for multigrid algorithms	467
BROEZE, JAN & VAN DAALEN, EDWIN F. G.	Radiation boundary conditions for the two-dimensional wave equation from a variational principle	73
BROEZE, JAN	<i>See:</i> VAN DAALEN, EDWIN F. G., BROEZE, JAN & VAN GROESEN, EMBRECHT	55
CHALADUS, STEFAN	On the densest lattice packing of centrally symmetric octahedra	341
CHAN, RAYMOND H. & YEUNG, MAN-CHUNG	Circulant preconditioners for Toeplitz matrices with positive continuous generating functions	233
CHEN, C., THOMÉE, V. & WAHLBIN, L. B.	Finite element approximation of a parabolic integro-differential equation with a weakly singular kernel	587
CHUI, C. K., STÖCKLER, J. & WARD, J. D.	A Faber series approach to cardinal interpolation	255
COLBOURN, CHARLES J., MAGLIVERAS, SPYROS S. & MATHON, RUDOLF A.	Transitive Steiner and Kirkman triple systems of order 27	441
COSTABEL, M., PENZEL, F. & SCHNEIDER, R.	Error analysis of a boundary element collocation method for a screen problem in \mathbb{R}^3	575
COUZY, W.	<i>See:</i> VAN DER HOUWEN, P. J., SOMMEIJER, B. P. & COUZY, W.	135
CRISCI, M. R., RUSSO, E. & VECCIO, A.	Stability results for one-step discretized collocation methods in the numerical treatment of Volterra integral equations	119
VAN DAALEN, EDWIN F. G., BROEZE, JAN & VAN GROESEN, EMBRECHT	Variational principles and conservation laws in the derivation of radiation boundary conditions for wave equations	55
VAN DAALEN, EDWIN F. G.	<i>See:</i> BROEZE, JAN & VAN DAALEN, EDWIN F. G.	73
DAWSON, CLINT N. & DUPONT, TODD F.	Explicit/implicit conservative Galerkin domain decomposition procedures for parabolic problems	21
DEL CORSO, ILARIA	Factorization of prime ideal extensions in number rings	849
DI NATALE, M., GOTUSO, L., PAVANI, R. & ROUX, D.	On the choice of parameter in a method for the inversion of Fourier series	737
DÖRFLER, W.	Hierarchical bases for elliptic problems	513
DUBNER, HARVEY	Partitions approximated by finite cosine-series	729
DUPONT, TODD F.	<i>See:</i> DAWSON, CLINT N. & DUPONT, TODD F.	21
DURÁN, RICARDO & LIBERMAN, ELSA	On mixed finite element methods for the Reissner-Mindlin plate model	561
EDELMAN, ALAN	On the distribution of a scaled condition number	185

<i>Author</i>	<i>Title</i>	<i>Page</i>
EICHENAUER-HERRMANN, JÜRGEN & NIEDERREITER, HARALD	Lower bounds for the discrepancy of inversive congruential pseudorandom numbers with power of two modulus	775
ELLIOTT, CHARLES M. & LARSSON, STIG	Error estimates with smooth and nonsmooth data for a finite element method for the Cahn-Hilliard equation	603
ERNVALL, R. & METSÄNKYLÄ, T.	Computation of the zeros of p -adic L -functions	815
FÖRBERG, CARL-ERIK	<i>See:</i> BOHMAN, JAN & FÖRBERG, CARL-ERIK	315
GAO, F.	<i>See:</i> WASILKOWSKI, G. W. & GAO, F.	285
GATERMANN, KARIN, HOFFMANN, CHRISTOPH & OPFER, GERHARD	Explicit Faber polynomials on circular sectors	241
VAN DER GEER, GERARD, SCHOOF, RENÉ & VAN DER VLUGT, MARCEL	Weight formulas for ternary Melas codes	781
GLASSEY, R. T.	Convergence of an energy-preserving scheme for the Zakharov equations in one space dimension	83
GOLDFELD, DORIAN	On the computational complexity of modular symbols . .	807
GOTUSSO, L.	<i>See:</i> DI NATALE, M., GOTUSSO, L., PAVANI, R. & ROUX, D.	737
GOUVÊA, F. & MAZUR, B.	Families of modular eigenforms	793
GRADY, MICHAEL & NEWMAN, MORRIS	Some divisibility properties of the subgroup counting function for free products	347
VAN GROESEN, EMBRECHT	<i>See:</i> VAN DAALEN, EDWIN F. G., BROEZE, JAN & VAN GROESEN, EMBRECHT	55
GUO, BEN-YU & MILLER, J. J. H.	Iterative and Petrov-Galerkin methods for solving a system of one-dimensional nonlinear elliptic equations	531
HOFFMANN, CHRISTOPH	<i>See:</i> GATERMANN, KARIN, HOFFMANN, CHRISTOPH & OPFER, GERHARD	241
HONG, Y. P. & PAN, C.-T.	Rank-revealing QR factorizations and the singular value decomposition	213
HOU, THOMAS Y.	A new desingularization for vortex methods	103
VAN DER HOUWEN, P. J., SOMMELIER, B. P. & COUZY, W.	Embedded diagonally implicit Runge-Kutta algorithms on parallel computers	135
HUNSDORFER, WILLEM	Unconditional convergence of some Crank-Nicolson LOD methods for initial-boundary value problems	35
JAKUBEC, STANISLAV & MARKO, FRANTIŠEK	Witt equivalence classes of quartic number fields	355
KECHKAR, NASSERDINE & SILVESTER, DAVID	Analysis of locally stabilized mixed finite element methods for the Stokes problem	1
KEIPER, J. B.	Power series expansions of Riemann's ζ function	765
LARSSON, STIG	<i>See:</i> ELLIOTT, CHARLES M. & LARSSON, STIG	603
LEHMAN, J. LARRY	Levels of positive definite ternary quadratic forms	399
LEVILLAIN, VINCENT	Eigenvalue approximation by a mixed method for resonant inhomogeneous cavities with metallic boundaries	11
LIBERMAN, ELSA	<i>See:</i> DURÁN, RICARDO & LIBERMAN, ELSA	561
MAGLIVERAS, SPYROS S.	<i>See:</i> COLBOURN, CHARLES J., MAGLIVERAS, SPYROS S. & MATHON, RUDOLF A.	441
MARKO, FRANTIŠEK	<i>See:</i> JAKUBEC, STANISLAV & MARKO, FRANTIŠEK	355

<i>Author</i>	<i>Title</i>	<i>Page</i>
MATHON, RUDOLF A.	<i>See: COLBOURN, CHARLES J., MAGLIVERAS, SPYROS S. & MATHON, RUDOLF A.</i>	441
MAYER, DANIEL C.	Multiplicities of dihedral discriminants	831
MAZUR, B.	<i>See: GOUVÉA, F. & MAZUR, B.</i>	793
METSÄNKYLÄ, T.	<i>See: ERNVALL, R. & METSÄNKYLÄ, T.</i>	815
MILLER, J. J. H.	<i>See: GUO, BEN-YU & MILLER, J. J. H.</i>	531
NEWMAN, MORRIS	<i>See: GRADY, MICHAEL & NEWMAN, MORRIS</i>	347
NIEDERREITER, HARALD	<i>See: EICHENAUER-HERRMANN, JÜRGEN & NIEDERREITER, HARALD</i>	775
NIEDERREITER, HARALD	The existence of efficient lattice rules for multidimensional numerical integration	305
NIER, FRANCIS	<i>See: ARNOLD, ANTON & NIER, FRANCIS</i>	645
NIIJIMA, KOICHI	A posteriori error bounds for piecewise linear approximate solutions of elliptic equations of monotone type	549
NOTARIS, SOTIRIOS E.	On Gauss-Kronrod quadrature formulae of Chebyshev type	745
OLIVIER, M.	The computation of sextic fields with a cubic subfield and no quadratic subfield	419
OPFER, GERHARD	<i>See: GATERMANN, KARIN, HOFFMANN, CHRISTOPH & OPFER, GERHARD</i>	241
PAN, C.-T.	<i>See: HONG, Y. P. & PAN, C.-T.</i>	213
PASCIAK, JOSEPH E.	<i>See: BRAMBLE, JAMES H. & PASCIAK, JOSEPH E.</i>	467
PAVANI, R.	<i>See: DI NATALE, M., GOTUSO, L., PAVANI, R. & ROUX, D.</i>	737
PENZEL, F.	<i>See: COSTABEL, M., PENZEL, F. & SCHNEIDER, R.</i>	575
PERALTA, RENÉ	On the distribution of quadratic residues and nonresidues modulo a prime number	433
PLONKA, G. & TASCHE, M.	Efficient algorithms for periodic Hermite spline interpolation	693
RICHTER, GERARD R.	The discontinuous Galerkin method with diffusion	631
RON, AMOS	<i>See: DE BOOR, CARL & RON, AMOS</i>	705
ROUX, D.	<i>See: DI NATALE, M., GOTUSO, L., PAVANI, R. & ROUX, D.</i>	737
RUNDELL, WILLIAM & SACKS, PAUL E.	Reconstruction techniques for classical inverse Sturm-Liouville problems	161
RUSSO, E.	<i>See: CRISCI, M. R., RUSSO, E. & VECCHIO, A.</i>	119
SACKS, PAUL E.	<i>See: RUNDELL, WILLIAM & SACKS, PAUL E.</i>	161
SCHMITT, BERNHARD A.	Krylov approximations for matrix square roots in stiff boundary value problems	191
SCHNEIDER, R.	<i>See: COSTABEL, M., PENZEL, F. & SCHNEIDER, R.</i>	575
SCHOOF, RENÉ	<i>See: VAN DER GEER, GERARD, SCHOOF, RENÉ & VAN DER VLUGT, MARCEL</i>	781
SCOTT, L. RIDGWAY & ZHANG, SHANGYOU	Higher-dimensional nonnested multigrid methods	457
SHOUP, VICTOR	Searching for primitive roots in finite fields	369
SILVESTER, DAVID	<i>See: KECHKAR, NASSERDINE & SILVESTER, DAVID</i>	1
SKORUPPA, NILS-PETER	Computations of Siegel modular forms of genus two	381
SOMMEIJER, B. P.	<i>See: VAN DER HOUWEN, P. J., SOMMEIJER, B. P. & COUZY, W.</i>	135
STÖCKLER, J.	<i>See: CHUI, C. K., STÖCKLER, J. & WARD, J. D.</i>	255

<i>Author</i>	<i>Title</i>	<i>Page</i>
STRAIN, JOHN	A fast Laplace transform based on Laguerre functions	275
TASCHE, M.	<i>See:</i> PLONKA, G. & TASCHE, M.	693
TEMME, N. M.	Asymptotic inversion of incomplete gamma functions	755
THOMÉE, V.	<i>See:</i> CHEN, C., THOMÉE, V. & WAHLBIN, L. B.	587
TRAUB, J. F. & WOŹNIAKOWSKI, H.	The Monte Carlo algorithm with a pseudorandom generator	323
VASSILEVSKI, P. S.	Hybrid <i>V</i> -cycle algebraic multilevel preconditioners	489
VECCHIO, A.	<i>See:</i> CRISCI, M. R., RUSSO, E. & VECCHIO, A.	119
VAN DER VLUGT, MARCEL	<i>See:</i> VAN DER GEER, GERARD, SCHOOF, RENÉ & VAN DER VLUGT, MARCEL	781
WAHLBIN, L. B.	<i>See:</i> CHEN, C., THOMÉE, V. & WAHLBIN, L. B.	587
WALKINGTON, NOEL J.	Convergence of nonconforming finite element approximations to first-order linear hyperbolic equations	671
WARD, J. D.	<i>See:</i> CHUI, C. K., STÖCKLER, J. & WARD, J. D.	255
WASILKOWSKI, G. W. & GAO, F.	On the power of adaptive information for functions with singularities	285
WOŹNIAKOWSKI, H.	<i>See:</i> TRAUB, J. F. & WOŹNIAKOWSKI, H.	323
YEUNG, MAN-CHUNG	<i>See:</i> CHAN, RAYMOND H. & YEUNG, MAN-CHUNG	233
ZHANG, SHANGYOU	<i>See:</i> SCOTT, L. RIDGWAY & ZHANG, SHANGYOU	457

VOLUME 58



1992

MATHEMATICS OF COMPUTATION

A M E R I C A N M A T H E M A T I C A L S O C I E T Y

EDITED BY

James H. Bramble
E. W. Cheney
James W. Demmel
Walter Gautschi, *Managing Editor*
Eugene Isaacson
Heinz-Otto Kreiss
James N. Lyness
Harald Niederreiter
Jorge J. Nocedal
Syvert P. Nørsett
Andrew M. Odlyzko
Frank W. J. Olver
John E. Osborn
Stanley Osher
Carl Pomerance
René Schoof
L. Ridgway Scott
Daniel Shanks
Frank Stenger
Hans J. Stetter
G. W. Stewart
Nico M. Temme
Vidar Thomée
Lars B. Wahlbin
Hugh C. Williams
John W. Wrench, Jr.

PROVIDENCE, RHODE ISLAND USA

ISSN 0025-5718

MATHEMATICS OF COMPUTATION
TABLE OF CONTENTS
JANUARY 1992

Nasserdine Kechkar and David Silvester, Analysis of locally stabilized mixed finite element methods for the Stokes problem	1
Vincent Levillain, Eigenvalue approximation by a mixed method for resonant inhomogeneous cavities with metallic boundaries	11
Clint N. Dawson and Todd F. Dupont, Explicit/implicit conservative Galerkin domain decomposition procedures for parabolic problems	21
Willem Hundsdorfer, Unconditional convergence of some Crank-Nicolson LOD methods for initial-boundary value problems	35
Edwin F. G. van Daalen, Jan Broeze, and Embrechit van Groesen, Variational principles and conservation laws in the derivation of radiation boundary conditions for wave equations	55
Jan Broeze and Edwin F. G. van Daalen, Radiation boundary conditions for the two-dimensional wave equation from a variational principle	73
R. T. Glassey, Convergence of an energy-preserving scheme for the Zakharov equations in one space dimension	83
Thomas Y. Hou, A new desingularization for vortex methods	103
M. R. Crisci, E. Russo, and A. Vecchio, Stability results for one-step discretized collocation methods in the numerical treatment of Volterra integral equations	119
P. J. van der Houwen, B. P. Sommeijer, and W. Couzy, Embedded diagonally implicit Runge-Kutta algorithms on parallel computers	135
William Rundell and Paul E. Sacks, Reconstruction techniques for classical inverse Sturm-Liouville problems	161
Alan Edelman, On the distribution of a scaled condition number	185
Bernhard A. Schmitt, Krylov approximations for matrix square roots in stiff boundary value problems	191
Y. P. Hong and C.-T. Pan, Rank-revealing QR factorizations and the singular value decomposition	213
Raymond H. Chan and Man-Chung Yeung, Circulant preconditioners for Toeplitz matrices with positive continuous generating functions ..	233
Karin Gatermann, Christoph Hoffmann, and Gerhard Opfer, Explicit Faber polynomials on circular sectors	241
C. K. Chui, J. Stöckler, and J. D. Ward, A Faber series approach to cardinal interpolation	255
John Strain, A fast Laplace transform based on Laguerre functions	275
G. W. Wasilkowski and F. Gao, On the power of adaptive information for functions with singularities	285
Harald Niederreiter, The existence of efficient lattice rules for multidimensional numerical integration	305

Jan Bohman and Carl-Erik Fröberg , The Γ -function revisited: Power series expansions and real-imaginary zero lines	315
J. F. Traub and H. Woźniakowski , The Monte Carlo algorithm with a pseudorandom generator	323
Stefan Chaładus , On the densest lattice packing of centrally symmetric octahedra.....	341
Michael Grady and Morris Newman , Some divisibility properties of the subgroup counting function for free products	347
Stanislav Jakubec and František Marko , Witt equivalence classes of quartic number fields	355
Victor Shoup , Searching for primitive roots in finite fields	369
Nils-Peter Skoruppa , Computations of Siegel modular forms of genus two	381
J. Larry Lehman , Levels of positive definite ternary quadratic forms	399
M. Olivier , The computation of sextic fields with a cubic subfield and no quadratic subfield	419
René Peralta , On the distribution of quadratic residues and nonresidues modulo a prime number	433
Charles J. Colbourn, Spyros S. Magliveras, and Rudolf A. Mathon , Transitive Steiner and Kirkman triple systems of order 27	441
Reviews and Descriptions of Tables and Books	451
McCormick 1, Glowinski and Le Tallec 2, Golberg, Editor 3, Lindgren 4, Spigler, Editor 5	
Supplement to “Explicit Faber polynomials on circular sectors” by Karin Gatermann, Christoph Hoffmann, and Gerhard Opfer	S1
Supplement to “The existence of efficient lattice rules for multidimensional numerical integration” by Harald Niederreiter	S7
Supplement to “Levels of positive definite ternary quadratic forms” by J. Larry Lehman	S17
Supplement to “Transitive Steiner and Kirkman triple systems” by Charles J. Colbourn, Spyros S. Magliveras, and Rudolf A. Mathon .	S23

TABLE OF CONTENTS

APRIL 1992

L. Ridgway Scott and Shangyou Zhang , Higher-dimensional nonnested multigrid methods	457
James H. Bramble and Joseph E. Pasciak , The analysis of smoothers for multigrid algorithms	467
P. S. Vassilevski , Hybrid V -cycle algebraic multilevel preconditioners ...	489
W. Dörfler , Hierarchical bases for elliptic problems.....	513
Guo Ben-yu and J. J. H. Miller , Iterative and Petrov-Galerkin methods for solving a system of one-dimensional nonlinear elliptic equations	531

Koichi Niijima, A posteriori error bounds for piecewise linear approximate solutions of elliptic equations of monotone type.....	549
Ricardo Durán and Elsa Liberman, On mixed finite element methods for the Reissner-Mindlin plate model	561
M. Costabel, F. Penzel, and R. Schneider, Error analysis of a boundary element collocation method for a screen problem in \mathbb{R}^3	575
C. Chen, V. Thomée, and L. B. Wahlbin, Finite element approximation of a parabolic integro-differential equation with a weakly singular kernel	587
Charles M. Elliott and Stig Larsson, Error estimates with smooth and nonsmooth data for a finite element method for the Cahn-Hilliard equation.....	603
Gerard R. Richter, The discontinuous Galerkin method with diffusion ...	631
Anton Arnold and Francis Nier, Numerical analysis of the deterministic particle method applied to the Wigner equation	645
Noel J. Walkington, Convergence of nonconforming finite element approximations to first-order linear hyperbolic equations	671
G. Plonka and M. Tasche, Efficient algorithms for periodic Hermite spline interpolation	693
Carl de Boor and Amos Ron, Computational aspects of polynomial interpolation in several variables	705
Harvey Dubner, Partitions approximated by finite cosine-series	729
M. Di Natale, L. Gotusso, R. Pavani, and D. Roux, On the choice of parameter in a method for the inversion of Fourier series	737
Sotirios E. Notaris, On Gauss-Kronrod quadrature formulae of Chebyshev type	745
N. M. Temme, Asymptotic inversion of incomplete gamma functions ...	755
J. B. Keiper, Power series expansions of Riemann's ξ function	765
Jürgen Eichenauer-Herrmann and Harald Niederreiter, Lower bounds for the discrepancy of inversive congruential pseudorandom numbers with power of two modulus	775
Gerard van der Geer, René Schoof, and Marcel van der Vlugt, Weight formulas for ternary Melas codes	781
F. Gouvêa and B. Mazur, Families of modular eigenforms	793
Dorian Goldfeld, On the computational complexity of modular symbols .	807
R. Ernvall and T. Metsänkylä, Computation of the zeros of p-adic L-functions	815
Daniel C. Mayer, Multiplicities of dihedral discriminants	831
Ilaria Del Corso, Factorization of prime ideal extensions in number rings	849
Reviews and Descriptions of Tables and Books.....	855
Hämmerlin and Hoffmann 6 , Banks and Kunisch 7 , Roose, de Dier, and Spence, Editors 8 , Dongarra, Duff, Sorensen, and van der Vorst 9 , Rivlin 10 , Nevai and Pinkus, Editors 11 , Wolfram 12 , Chudnovsky and Jenks, Editors 13	
Index to Volume 58	865

Supplement to “Hierarchical bases for elliptic problems” by W. Dörfler . .	S29
Supplement to “Error estimates with smooth and nonsmooth data for a finite element method for the Cahn-Hilliard equation” by Charles M. Elliott and Stig Larsson	S33
Supplement to “Computation of the zeros of p-adic L-functions” by R. Ernvall and T. Metsänkylä	S37
Supplement to “Multiplicities of dihedral discriminants” by Daniel C. Mayer	S55