

2008 SIAM Book Catalog Subject Index

A

Accuracy

- Accuracy and Reliability in Scientific Computing* (Einarsson), 7
- Accuracy and Stability of Numerical Algorithms, Second Edition* (Higham), 13
- The SIAM 100-Digit Challenge: A Study in High-Accuracy Numerical Computing* (Bornemann et al.), 13

Acoustics

- Electromagnetic Material Interrogation Using Conductive Interfaces and Acoustic Wavefronts* (Banks et al.), 10
- Marine Acoustics: Direct and Inverse Problems* (Buchanan et al.), 6
- Mathematical Control Theory of Coupled PDEs* (Lasiecka), 9

Actuator Nonlinearities

- Neuro-Fuzzy Control of Industrial Systems with Actuator Nonlinearities* (Lewis et al.), 9

Adaptive Control

- Adaptive Control Tutorial* (Ioannou and Fidan), 9
- Boundary Control of PDEs: A Course on Backstepping Designs* (Krstic and Smyshlyaev), 5, 9

Adaptive Methods

- Applied Adaptive Statistical Methods: Tests of Significance and Confidence Intervals* (O'Gorman), 18
- Mathematical and Computational Techniques for Multilevel Adaptive Methods* (Rüde), 7

Advanced Architecture Computers

- Applications on Advanced Architecture Computers* (Astfalk), 6
- Numerical Linear Algebra for High-Performance Computers* (Dongarra et al.) 12

Aerodynamics

- Transonic Aerodynamics: Problems in Asymptotic Theory* (Cook), 10

Algebra. *see also* Differential-Algebraic equations (DAEs); Lie Algebra; Linear Algebra; Numerical Linear Algebra; Numerical Polynomial Algebra; Polynomial Algebra

- Algebraic Theory of Automata Networks: An Introduction* (Dömösi and Nehaniv), 9
- Perturbations: Theory and Methods* (Murdock), 10
- Templates for the Solution of Algebraic Eigenvalue Problems* (Bai et al.), 12
- Topics in Surface Modeling* (Hagen), 11

Algebraic Multigrid (AMG)

- Multigrid Methods* (McCormick), 7

Algorithmic Calculus

- Lectures on Modern Convex Optimization: Analysis, Algorithms, and Engineering Applications* (Ben-Tal and Nemirovski), 14

Algorithmic Differentiation

- Evaluating Derivatives: Principles and Techniques of Algorithmic Differentiation, Second Edition* (Griewank and Walther), 19

Algorithms

- Accuracy and Stability of Numerical Algorithms, Second Edition* (Higham), 13
- An Algorithmic Theory of Numbers, Graphs and Convexity* (Lovász), 9
- Applied Numerical Linear Algebra* (Demmel), 12
- Combinatorial Algorithms: An Update* (Wilf), 10
- Computational Frameworks for the Fast Fourier Transform* (Van Loan), 8

Book Catalog Subject Index

- Computational Science and Engineering* (Strang), 8
Data Clustering: Theory, Algorithms, and Applications (Gan et al.), 9
Data Structures and Network Algorithms (Tarjan), 8
Direct Methods for Sparse Linear Systems (Davis), 7
Distributed Computing: A Locality-Sensitivity Approach (Peleg), 10
Fast Reliable Algorithms for Matrices with Structure (Kailath and Sayed), 12
Knot Insertion and Deletion Algorithms for B-Spline Curves and Surfaces (Goldman and Lyche), 11
Lanczos Algorithms for Large Symmetric Eigenvalue Computations, Volume I: Theory (Cullum and Willoughby), 12
Matrix Algorithms, Volume I: Basic Decompositions (Stewart), 13
Matrix Algorithms, Volume II: Eigensystems (Stewart), 13
Solution of Partial Differential Equations on Vector and Parallel Computers (Ortega and Voigt), 14
Solving Nonlinear Equations with Newton's Method (Kelley), 7
Templates for the Solution of Algebraic Eigenvalue Problems: A Practical Guide (Bai et al.), 12
- Analysis of Means (ANOM)
The Analysis of Means: A Graphical Method for Comparing Means, Rates, and Proportions (Nelson et al.), 18
- Analysis of Variance (ANOVA) Models
Design and Analysis of Gauge R&R Studies: Making Decisions with Confidence Intervals in Random and Mixed ANOVA Models (Burdick et al.), 18
- Analytic Perturbation Theory
Invariant Subspaces of Matrices with Applications (Gohberg et al.), 12
- Animal Locomotion
Mathematical Biofluidynamics (Lighthill), 11
- Animation
Simulating, Analyzing, and Animating Dynamical Systems: A Guide to XPPAUT for Researchers and Students (Ermentrout), 10
- Annealing
Facts, Conjectures, and Improvements for Simulated Annealing (Salamon et al.), 15
- Applied Differential Equations
Computational Science and Engineering (Strang), 8
- Applied Linear Algebra
Computational Science and Engineering (Strang), 8
Matrix Analysis and Applied Linear Algebra (Meyer), 12
- Applied Mathematics
Applications of Stochastic Programming (Wallace and Ziemba), 15
Applied Mathematical Models in Human Physiology (Ottesen et al.), 6
Applied Numerical Linear Algebra (Demmel), 12
Applied Stochastic Processes and Control for Jump-Diffusions: Modeling, Analysis, and Computation (Hanson), 4, 8
Boundary Value Problems of Mathematical Physics, Volumes I & II (Stakgold), 16
Cardiovascular and Respiratory Systems: Modeling, Analysis, and Control (Batzel et al.), 17
Contemporary Problems in Statistical Physics (Weiss), 13
A Course in Mathematical Biology (de Vries et al.), 6
Discontinuous Galerkin Methods for Solving Elliptic and Parabolic Equations: Theory and Implementation (Rivière), 5, 14

Book Catalog Subject Index

- Electromagnetic Material Interrogation Using Conductive Interfaces and Acoustic Wavefronts* (Banks et al.), 10
- A First Course in Order Statistics* (Arnold et al.), 3, 17
- Graph Theory and Its Applications to Problems of Society* (Roberts), 10
- Industrial Mathematics: The 1998 CRSC Workshop* (Gremaud et al.), 11
- Initial-Boundary Value Problems and the Navier-Stokes Equations* (Kreiss and Lorenz), 16
- Introduction to Applied Mathematics* (Strang), 17
- An Introduction to Variational Inequalities and Their Applications* (Kinderlehrer and Stampacchia), 16
- Lagrange Multiplier Approach to Variational Problems and Applications* (Ito and Kunisch), 4, 14
- The Lanczos Method: Evolution and Application* (Komzsik), 12
- Lie-Backlund Transformation in Applications* (Anderson and Ibragimov), 15
- Linear Differential Operators* (Lanczos), 13
- Mathematical Modelling: Classroom Notes in Applied Mathematics* (Klamkin), 17
- Mathematics Applied to Continuum Mechanics* (Segel with Handelman), 13
- Mathematics Applied to Deterministic Problems in the Natural Sciences* (Lin and Segel), 10
- The Method of Equivalence and Its Applications* (Gardner), 15
- Multivariate Statistical Process Control with Industrial Applications* (Mason and Young), 18
- Numerical Analysis of Spectral Methods: Theory and Applications* (Gottlieb and Orszag), 13
- Problems in Applied Mathematics: Selections from SIAM Review* (Klamkin), 10
- Research Directions in Distributed Parameter Systems* (Smith and Demetriou), 9
- Reservoir Simulation: Mathematical Techniques in Oil Recovery* (Chen), 3, 17
- Shapes and Geometries: Analysis, Differential Calculus, and Optimization* (Delfour and Zolésio), 8
- Singular Perturbations and Hysteresis* (Mortell, O'Malley, Pokrovskii, and Sobolev), 16
- A Survey of Lie Groups and Lie Algebras with Applications and Computational Methods* (Belinfante and Kolman), 15
- An Uneasy Alliance: The Mathematics Research Center at the University of Wisconsin* (Chandra and Robinson), 11
- Wavelets: A Mathematical Tool for Signal Analysis* (Chui), 19
- Applied Stochastic Processes
- Applied Stochastic Processes and Control for Jump-Diffusions: Modeling, Analysis, and Computation* (Hanson), 4, 8
- Approximate Modeling
- Exact and Approximate Modeling of Linear Systems: A Behavioral Approach* (Markovsky et al.), 17
- Approximation Theory
- An Algorithmic Theory of Numbers, Graphs and Convexity* (Lovász), 9
- Approximation of Large-Scale Dynamical Systems* (Antoulas), 8
- Approximation of Population Processes* (Kurtz), 17
- Asymptotic Approximations of Integrals* (Wong), 11
- A First Course in Order Statistics* (Arnold et al.), 3, 17
- Fourier Analysis of Numerical Approximations of Hyperbolic Equations* (Vichnevetsky and Bowles), 14
- Functional Analysis and Approximation Theory in Numerical Analysis* (Varga), 14
- Introduction to Shape Optimization: Theory, Approximation, and Computation* (Haslinger and Mäkinen), 8
- Matrix Methods in Data Mining and Pattern Recognition* (Eldén), 9
- Multivariate Approximation Theory: Selected Topics* (Cheney), 7
- Ordinary Differential Equations in Theory and Practice* (Mattheij and Molenaar), 15
- Quantile Processes with Statistical Applications* (Csorgo), 18
- The Symmetric Eigenvalue Problem* (Parlett), 14

Book Catalog Subject Index

- The Theory of Best Approximation and Functional Analysis* (Singer), 17
Variational Methods for Eigenvalue Approximation (Weinberger), 14
- Architecture
Applications on Advanced Architecture Computers (Astfalk), 6
Numerical Linear Algebra for High-Performance Computers (Dongarra et al.), 12
- Arithmetic Complexity
Arithmetic Complexity of Computations (Winograd), 8
- Arnoldi Methods
ARPACK Users' Guide: Solution of Large-Scale Eigenvalue Problems with Implicitly Restarted Arnoldi Methods (Lehoucq et al.), 7
Matrix Algorithms, Volume II: Eigensystems (Stewart), 13
The Matrix Eigenvalue Problem: GR and Krylov Subspace Methods (Watkins), 5, 13
- ARPACK software
ARPACK Users' Guide: Solution of Large-Scale Eigenvalue Problems with Implicitly Restarted Arnoldi Methods (Lehoucq et al.), 7
- Artificial Neural Network Theory
Discrete Mathematics of Neural Networks: Selected Topics (Anthony), 9
- Asymptotics
Asymptotic Approximations of Integrals (Wong), 11
The Boundary Function Method for Singular Perturbation Problems (Vasil'eva et al.), 17
A First Course in Order Statistics (Arnold et al.), 3, 17
Functions of a Complex Variable: Theory and Technique (Carrier et al.), 16
Lectures on Mathematical Combustion (Buckmaster and Ludford), 6
The Mathematics of Combustion (Buckmaster), 6
Numerical Methods for Special Functions (Gil et al.), 4, 16
Problems in Applied Mathematics: Selections from SIAM Review (Klamkin), 10
Transonic Aerodynamics: Problems in Asymptotic Theory (Cook), 10
- Atmospheric & Oceanographic Sciences
Marine Acoustics: Direct and Inverse Problems (Buchanan et al.), 6
- Augmented Lagrangian Methods
Augmented Lagrangian and Operator-Splitting Methods in Nonlinear Mechanics (Glowinski and Le Tallec), 17
- Automata Networks
Algebraic Theory of Automata Networks: An Introduction (Dömösi and Nehaniv), 9
- Automatic Differentiation
Evaluating Derivatives: Principles and Techniques of Algorithmic Differentiation, Second Edition (Griewank and Walther), 19
- Automatic Information Organization and Retrieval
A Theory of Indexing (Salton), 8
- Automatic Procedures
Evaluation and Optimization of Electoral Systems (Grilli di Cortona et al.), 9
- Axiomatic Consensus Theory
Axiomatic Consensus Theory in Group Choice and Biomathematics (Day and McMorris), 6

B

B-Splines

Cardinal Spline Interpolation (Schoenberg), 11

Finite Element Methods with B-Splines (Höllig), 7

Knot Insertion and Deletion Algorithms for B-Spline Curves and Surfaces (Goldman and Lyche), 11

Backlund Transformations

Lie-Backlund Transformation in Applications (Anderson and Ibragimov), 15

Backstepping

Boundary Control of PDEs: A Course on Backstepping Designs (Krstic and Smyshlyaev), 5, 9

Banded Toeplitz Matrices

Spectral Properties of Banded Toeplitz Matrices (Böttcher and Grudsky), 12

Bayesian Approach

Bayesian Nonparametrics via Neural Networks (Lee), 18

Bayesian Statistics, A Review (Lindley), 18

Behavioral Approach

Exact and Approximate Modeling of Linear Systems: A Behavioral Approach (Markovsky et al.), 17

Behavioral Scoring

Credit Scoring and Its Applications (Thomas et al.), 10

Bellman-Isaacs Inequality

Extending H^∞ Control to Nonlinear Systems: Control of Nonlinear Systems to Achieve Performance Objectives (Helton and James), 8

Benchmarking

The Science of Computer Benchmarking (Hockney), 7

Best Approximation

The Theory of Best Approximation and Functional Analysis (Singer), 17

Bifurcations

Lectures on Geometric Methods in Mathematical Physics (Marsden), 13

The Mathematics of Combustion (Buckmaster), 6

Numerical Methods for Bifurcations of Dynamical Equilibria (Govaerts), 10

Binary Decision Diagrams

Branching Programs and Binary Decision Diagrams (Wegener), 10

Biofluidynamics

Mathematical Biofluidynamics (Lighthill), 11

Biological Sciences

Applied Mathematical Models in Human Physiology (Ottesen et al.), 6

Axiomatic Consensus Theory in Group Choice and Biomathematics (Day and McMorris), 6

Bioterrorism: Mathematical Modeling Applications in Homeland Security (Banks and Chavez), 6

Competition Models in Population Biology (Waltman), 6

A Course in Mathematical Biology (de Vries et al.), 6

An Introduction to Structured Population Dynamics (Cushing), 6

Mathematical Modelling: Classroom Notes in Applied Mathematics (Klamkin), 17

Mathematical Models in Biology (Edelstein-Keshet), 6

Mathematical Problems in the Biological Sciences (Rubinow), 6

Mathematics of Genetic Diversity (Kingman), 6

Stochastic Processes in the Neurosciences (Tuckwell), 6

Book Catalog Subject Index

Biomathematics

Axiomatic Consensus Theory in Group Choice and Biomathematics (Day and McMorris), 6

Biomedical Modeling

Applied Stochastic Processes and Control for Jump-Diffusions: Modeling, Analysis, and Computation (Hanson), 4, 8

Bioterrorism

Bioterrorism: Mathematical Modeling Applications in Homeland Security (Banks and Chavez), 6

Block-Toeplitz Systems

An Introduction to Iterative Toeplitz Solvers (Chan and Jin), 3, 12

Boltzmann Equations

The Cauchy Problem in Kinetic Theory (Glassey), 16

Boolean Functions

Branching Programs and Binary Decision Diagrams (Wegener), 10

Complexity Classifications of Boolean Constraint Satisfaction Problems (Creignou et al.), 9

Discrete Mathematics of Neural Networks: Selected Topics (Anthony), 9

Bootstrap

The Jackknife, the Bootstrap, and Other Resampling Plans (Efron), 18

Boundary Control

Boundary Control of PDEs: A Course on Backstepping Designs (Krstic and Smyshlyaev), 5, 9

Boundary Function Method

The Boundary Function Method for Singular Perturbation Problems (Vasil'eva et al.), 17

Boundary Stabilization

Boundary Stabilization of Thin Plates (Lagnese), 17

Boundary Value Problems

Boundary Value Problems of Mathematical Physics, Volumes I & II (Stakgold), 16

Computer Methods for Ordinary Differential Equations and Differential-Algebraic Equations (Ascher and Petzold), 6

Finite Element Solution of Boundary Value Problems: Theory and Computation (Axelsson and Barker), 15

Ill-Posed Problems for Integrodifferential Equations in Mechanics and Electromagnetic Theory (Bloom), 10

Notes on Time Decay and Scattering for Some Hyperbolic Problems (Morawetz), 16

Numerical Analysis of Spectral Methods: Theory and Applications (Gottlieb and Orszag), 13

Numerical Solution of Boundary Value Problems for Ordinary Differential Equations (Ascher et al.), 15

The Numerical Solution of Elliptic Equations (Birkhoff), 13

Numerical Solution of Two Point Boundary Value Problems (Keller), 13

Problems in Applied Mathematics: Selections from SIAM Review (Klamkin), 10

Solution of Partial Differential Equations on Vector and Parallel Computers (Ortega and Voigt), 14

Spectral Methods in MATLAB (Trefethen), 8

A Unified Approach to Boundary Value Problems (Fokas), 19

Branching

Branching in the Presence of Symmetry (Sattinger), 15

Branching Programs and Binary Decision Diagrams (Wegener), 10

Broadband Communications Systems

Stochastic Modeling in Broadband Communications Systems (Kaj), 16

BV Spaces

Variational Analysis in Sobolev and BV Spaces (Attouch et al.), 14

C

C++

Solving PDEs in C++: Numerical Methods in a Unified Object-Oriented Approach (Shapira), 7

Calculus

Ants, Bikes, and Clocks: Problem Solving for Undergraduates (Briggs), 10

Calculus (Strang), 17

Industrial Mathematics: A Course in Solving Real-World Problems (Friedman and Littman), 10

Lectures on Modern Convex Optimization: Analysis, Algorithms, and Engineering Applications (Ben-Tal and Nemirovski), 14

Cardinal Spline Interpolation

Cardinal Spline Interpolation (Schoenberg), 11

Cardiovascular Systems

Cardiovascular and Respiratory Systems: Modeling, Analysis, and Control (Batzel et al.), 17

Case Studies

Statistical Case Studies: A Collaboration Between Academe and Industry (Student Edition) (Peck and Haugh), 18

Statistical Case Studies for Industrial Process Improvement (Czitrom and Spagon), 18

Wavelets and Their Applications: Case Studies (Kobayashi), 19

Cauchy Problems

The Cauchy Problem in Kinetic Theory (Glasse), 16

Improperly Posed Problems in Partial Differential Equations (Payne), 16

Center for Research and Scientific Computation (CRSC) Workshops

Industrial Mathematics: The 1998 CRSC Workshop (Gremaud et al.), 11

Chain Rule

Evaluating Derivatives: Principles and Techniques of Algorithmic Differentiation, Second Edition (Griewank and Walther), 19

Chebyshev Expansions

Numerical Methods for Special Functions (Gil et al.), 4, 16

Chemical Kinetics

Dynamics of Internal Layers and Diffusive Interfaces (Fife), 6

Lectures on Mathematical Combustion (Buckmaster and Ludford), 6

The Mathematics of Combustion (Buckmaster), 6

Chemistry

Contemporary Problems in Statistical Physics (Weiss), 13

Circulant Preconditioners

An Introduction to Iterative Toeplitz Solvers (Chan and Jin), 3, 12

Classification

Data Clustering: Theory, Algorithms, and Applications (Gan et al.), 9

Matrix Methods in Data Mining and Pattern Recognition (Eldén), 9

Clinical Applications

Cardiovascular and Respiratory Systems: Modeling, Analysis, and Control (Batzel et al.), 17

Mathematical Theories of Populations: Demographics, Genetics and Epidemics (Hoppensteadt), 17

Closeness

Pitman's Measure of Closeness: A Comparison of Statistical Estimators (Keating et al.), 18

Cluster Analysis

Book Catalog Subject Index

- Data Clustering: Theory, Algorithms, and Applications* (Gan et al.), 9
- Codes
 - Performance Optimization of Numerically Intensive Codes* (Goedecker and Hoisie), 7
- Combination of Observations Least Subject to Errors
 - Theory of the Combination of Observations Least Subject to Errors* (Gauss and Stewart), 7
- Combinatorial Algorithms
 - Combinatorial Algorithms: An Update* (Wilf), 10
 - Methods of Mathematical Economics: Linear and Nonlinear Programming, Fixed-Point Theorems* (Franklin), 14
- Combinatorial Data Analysis
 - Combinatorial Data Analysis: Optimization by Dynamic Programming* (Hubert et al.), 9
- Combinatorial Optimization
 - An Algorithmic Theory of Numbers, Graphs and Convexity* (Lovász), 9
 - Combinatorial Optimization: Packing and Covering* (Cornuéjols), 9
 - Discrete Convex Analysis* (Murota), 10
 - Probability Theory and Combinatorial Optimization* (Steele), 10
 - The Sharpest Cut: The Impact of Manfred Padberg and His Work* (Grötschel), 14
 - The Structural Representation of Proximity Matrices with MATLAB* (Hubert et al.), 18
 - The Vehicle Routing Problem* (Toth and Vigo), 10
- Combinatorics
 - Problems in Applied Mathematics: Selections from SIAM Review* (Klamkin), 10
 - Russian-English / English-Russian Dictionary on Probability, Statistics, and Combinatorics* (Borovkov), 18
- Combustion
 - Lectures on Mathematical Combustion* (Buckmaster and Ludford), 6
 - The Mathematics of Combustion* (Buckmaster), 6
- Communications
 - Mathematical Principles of Optical Fiber Communications* (Shaw), 6
 - Stochastic Modeling in Broadband Communications Systems* (Kaj), 16
- Competition Models
 - Competition Models in Population Biology* (Waltman), 6
- Complex Analysis. *see* Real & Complex Analysis
- Complexity
 - Arithmetic Complexity of Computations* (Winograd), 8
 - Complexity Classifications of Boolean Constraint Satisfaction Problems* (Creignou et al.), 9
 - Feasible Computations and Provable Complexity Properties* (Hartmanis), 8
- Computational Fluid Dynamics
 - Fourier Analysis of Numerical Approximations of Hyperbolic Equations* (Vichnevetsky and Bowles), 14
 - Perspectives in Flow Control and Optimization* (Gunzburger), 8
- Computational Integration
 - Computational Integration* (Krommer and Ueberhuber), 7
- Computational Mathematics
 - Accuracy and Reliability in Scientific Computing* (Einarsson), 7
 - Applications on Advanced Architecture Computers* (Astfalk), 6
 - Applied Stochastic Processes and Control for Jump-Diffusions: Modeling, Analysis, and Computation* (Hanson), 4, 8
 - Arithmetic Complexity of Computations* (Winograd), 8

- ARPACK Users' Guide: Solution of Large-Scale Eigenvalue Problems with Implicitly Restarted Arnoldi Methods* (Lehoucq et al.), 7
- Computational Frameworks for the Fast Fourier Transform* (Van Loan), 8
- Computational Integration* (Krommer and Ueberhuber), 7
- Computational Methods for Multiphase Flows in Porous Media* (Chen et al.), 7
- Computational Science and Engineering* (Strang), 8
- Computer Methods for Ordinary Differential Equations and Differential-Algebraic Equations* (Ascher and Petzold), 6
- A Course in Mathematical Biology* (de Vries et al.), 6
- Design Sensitivity Analysis: Computational Issues of Sensitivity Equation Methods* (Stanley and Stewart), 8
- Direct Methods for Sparse Linear Systems* (Davis), 7
- Discontinuous Galerkin Methods for Solving Elliptic and Parabolic Equations: Theory and Implementation* (Rivière), 5, 14
- Distributed Computing: A Locality-Sensitivity Approach* (Peleg), 10
- Domain-Based Parallelism and Problem Decomposition Methods in Computational Science and Engineering* (Keyes et al.), 7
- Evaluating Derivatives: Principles and Techniques of Algorithmic Differentiation, Second Edition* (Griewank and Walther), 19
- Feasible Computations and Provable Complexity Properties* (Hartmanis), 8
- Finite Element Methods with B-Splines* (Höllig), 7
- Finite Element Solution of Boundary Value Problems: Theory and Computation* (Axelsson and Barker), 15
- Handbook for Matrix Computations* (Coleman and Van Loan), 7
- The Immersed Interface Method: Numerical Solutions of PDEs Involving Interfaces and Irregular Domains* (Li and Ito), 7
- Introduction to Linear Algebra, Third Edition* (Strang), 13
- Introduction to Shape Optimization: Theory, Approximation, and Computation* (Haslinger and Mäkinen), 8
- Iterative Solution of Nonlinear Equations in Several Variables* (Ortega and Rheinboldt), 14
- Lanczos Algorithms for Large Symmetric Eigenvalue Computations, Volume I: Theory* (Cullum and Willoughby), 12
- The Lanczos and Conjugate Gradient Algorithms: From Theory to Finite Precision Computations* (Meurant), 12
- Lectures on Finite Precision Computations* (Chaitin-Chatelin and Frayssé), 6
- Mathematical and Computational Techniques for Multilevel Adaptive Methods* (Rüde), 7
- Mathematical Aspects of Numerical Grid Generation* (Castillo), 6
- Mathematical Modeling in Optical Science* (Bao et al.), 14
- MATLAB Guide, Second Edition* (Higham and Higham), 7
- Matrix Methods in Data Mining and Pattern Recognition* (Eldén), 9
- Methods and Applications of Interval Analysis* (Moore), 7
- Multigrid Methods* (McCormick), 7
- A Multigrid Tutorial, Second Edition* (Briggs et al.), 6
- Multilevel Projection Methods for Partial Differential Equations* (McCormick), 7
- Multivariate Approximation Theory: Selected Topics* (Cheney), 7
- Numerical Computing with IEEE Floating Point Arithmetic* (Overton), 7
- Numerical Computing with MATLAB* (Moler), 7
- Numerical Methods for Evolutionary Differential Equations* (Ascher), 3, 6

Book Catalog Subject Index

- Numerical Methods for Least Squares Problems* (Björck), 6
Numerical Methods for Special Functions (Gil et al.), 4, 16
Numerical Methods in Scientific Computing, Volume I (Dahlquist and Björck), 3, 13
Numerical Polynomial Algebra (Stetter), 8
The Numerical Solution of Elliptic Equations (Birkhoff), 13
Numerical Solution of Elliptic Problems (Birkhoff and Lynch), 13
Numerical Solution of Initial-Value Problems in Differential-Algebraic Equations (Brenan et al.), 6
Parallel Algorithms for Matrix Computations (Gallivan et al.), 7
Parallel Processing for Scientific Computing (Heroux et al.), 7
Partial Differential Equations: Modeling, Analysis, Computation (Mattheij et al.), 16
Performance Optimization of Numerically Intensive Codes (Goedecker and Hoisie), 7
Probabilistic Expert Systems (Shafer), 8
Rank-Deficient & Discrete Ill-Posed Problems: Numerical Aspects of Linear Inversion (Hansen), 7
The Science of Computer Benchmarking (Hockney), 7
Scientific Computation on Mathematical Problems and Conjectures (Varga), 14
Solving Least Squares Problems (Lawson and Hanson), 7
Solving Nonlinear Equations with Newton's Method (Kelley), 7
Solving PDEs in C++: Numerical Methods in a Unified Object-Oriented Approach (Shapira), 7
Spectral Methods in MATLAB (Trefethen), 8
A Survey of Lie Groups and Lie Algebras with Applications and Computational Methods (Belinfante and Kolman), 15
Symbolic Computation Applications to Scientific Computing (Grossman), 7
The Symmetric Eigenvalue Problem (Parlett), 14
Theory of the Combination of Observations Least Subject to Errors (Gauss and Stewart), 7
The Total Least Squares Problem: Computational Aspects and Analysis (Van Huffel and Vandewalle), 13
A Tutorial on Elliptic PDE Solvers and Their Parallelization (Douglas, Haase, and Langer), 7
Understanding Search Engines: Mathematical Modeling and Text Retrieval, Second Edition (Berry and Browne), 6
- Computational Methods
Computational Methods for Inverse Problems (Vogel), 16
Computational Methods for Multiphase Flows in Porous Media (Chen et al.), 7
Computational Methods for Option Pricing (Achdou and Pironneau), 13
Electromagnetic Material Interrogation Using Conductive Interfaces and Acoustic Wavefronts (Banks et al.), 10
Partial Differential Equations: Modeling, Analysis, Computation (Mattheij et al.), 16
Reservoir Simulation: Mathematical Techniques in Oil Recovery (Chen), 3, 17
- Computational Similarity
The Science of Computer Benchmarking (Hockney), 7
- Computer-Aided Design (CAD)
Advances in Linear Matrix Inequality Methods in Control (El Ghaoui and Niculescu), 8
Classical Control Using H^∞ Methods: Theory, Optimization, and Design (Helton and Merino), 9
Designing Fair Curves and Surfaces: Shape Quality in Geometric Modeling and Computer-Aided Design (Sapidis), 11
Knot Insertion and Deletion Algorithms for B-Spline Curves and Surfaces (Goldman and Lyche), 11
- Computer-Aided Geometric Design (CAGD)
Knot Insertion and Deletion Algorithms for B-Spline Curves and Surfaces (Goldman and Lyche), 11

Book Catalog Subject Index

Computer-Aided Systems Design

Numerical Computing with Simulink, Volume I: Creating Simulations (Gran), 4, 17

Computer Benchmarking

The Science of Computer Benchmarking (Hockney), 7

Computer Graphics

Introduction to Numerical Continuation Methods (Allgower and Georg), 13

Computer Intensive Methods

Mathematica Laboratories for Mathematical Statistics: Emphasizing Simulation and Computer Intensive Methods (Baglivo), 18

Computer Laboratories

Mathematica Laboratories for Mathematical Statistics: Emphasizing Simulation and Computer Intensive Methods (Baglivo), 18

Computer Science

Arithmetic Complexity of Computations (Winograd), 8

Computational Science and Engineering (Strang), 8

Data Structures and Network Algorithms (Tarjan), 8

Distributed Computing: A Locality-Sensitivity Approach (Peleg), 10

Feasible Computations and Provable Complexity Properties (Hartmanis), 8

Lectures on the Logic of Computer Programming (Manna), 8

Lectures on the Measurement and Evaluation of the Performance of Computing Systems (Rosen), 8

Probabilistic Expert Systems (Shafer), 8

A Theory of Indexing (Salton), 8

Computerized Tomography

Introduction to the Mathematics of Medical Imaging, Second Edition (Epstein), 3, 12

Mathematical Methods in Image Reconstruction (Natterer and Wübbeling), 12

The Mathematics of Computerized Tomography (Natterer), 12

Principles of Computerized Tomographic Imaging (Kak and Slaney), 12

Computers

Applications on Advanced Architecture Computers (Astfalk), 6

LAPACK Users' Guide, Third Edition (Anderson et al.), 12

Numerical Linear Algebra for High-Performance Computers (Dongarra et al.), 12

Parallel Algorithms for Matrix Computations (Gallivan et al), 7

Solution of Partial Differential Equations on Vector and Parallel Computers (Ortega and Voigt), 14

Computing Systems

Lectures on the Measurement and Evaluation of the Performance of Computing Systems (Rosen), 8

Confidence Intervals

Applied Adaptive Statistical Methods: Tests of Significance and Confidence Intervals (O'Gorman), 18

Design and Analysis of Gauge R&R Studies: Making Decisions with Confidence Intervals in Random and Mixed ANOVA Models (Burdick et al.), 18

Conjugate Duality

Conjugate Duality and Optimization (Rockafellar), 15

Conjugate Gradient Algorithms

Iterative Methods for Linear and Nonlinear Equations (Kelley), 15

The Lanczos and Conjugate Gradient Algorithms: From Theory to Finite Precision Computations (Meurant), 12

Conjugate Gradient Method

An Introduction to Iterative Toeplitz Solvers (Chan and Jin), 3, 12

Book Catalog Subject Index

Conservation Laws

Hyperbolic and Viscous Conservation Laws (Liu), 11

Hyperbolic Systems of Conservation Laws and the Mathematical Theory of Shock Waves (Lax), 11

Conservation Principles

Continuum Modeling in the Physical Sciences (van Groesen and Molenaar), 13

Constrained Optimization

Iterative Methods for Optimization (Kelley), 15

Nonlinear Programming (Mangasarian), 15

Contact Problems

Contact Problems in Elasticity: A Study of Variational Inequalities and Finite Element Methods (Kikuchi and Oden), 17

Continuum Mechanics

Mathematics Applied to Continuum Mechanics (Segel with Handelman), 13

Continuum Modeling

Continuum Modeling in the Physical Sciences (van Groesen and Molenaar), 13

Control. *see* Design and Control

Control & Systems Theory

Adaptive Control Tutorial (Ioannou and Fidan), 9

Advances in Linear Matrix Inequality Methods in Control (El Ghaoui and Niculescu), 8

Applied Dynamic Programming for Optimization of Dynamical Systems (Robinett III et al.), 9

Applied Stochastic Processes and Control for Jump-Diffusions: Modeling, Analysis, and Computation (Hanson), 4, 8

Approximation of Large-Scale Dynamical Systems (Antoulas), 8

Boundary Control of PDEs: A Course on Backstepping Designs (Krstic and Smyshlyaev), 5, 9

Cardiovascular and Respiratory Systems: Modeling, Analysis, and Control (Batzel et al.), 17

Classical Control Using H^∞ Methods: An Introduction to Design (Helton and Merino), 9

Classical Control Using H^∞ Methods: Theory, Optimization, and Design (Helton and Merino), 9

Control and Estimation in Distributed Parameter Systems (Banks), 8

Control in an Information Rich World: Report of the Panel on Future Directions in Control, Dynamics, and Systems (Murray), 9

Control Perspectives on Numerical Algorithms and Matrix Problems (Bhaya and Kaszkurewicz), 8

Dynamic Noncooperative Game Theory, Second Edition (Basar and Olsder), 8

Extending H^∞ Control to Nonlinear Systems: Control of Nonlinear Systems to Achieve Performance Objectives (Helton and James), 8

Indefinite-Quadratic Estimation and Control: A Unified Approach to H^2 and H^∞ Theories (Hassibi et al.), 8

Interior-Point Polynomial Algorithms in Convex Programming (Nesterov and Nemirovskii), 15

Introduction to Shape Optimization: Theory, Approximation, and Computation (Haslinger and Mäkinen), 8

Linear Feedback Control: Analysis and Design with MATLAB (Xue et al.), 5, 9

Linear Matrix Inequalities in System and Control Theory (Boyd et al.), 8

Mathematical Control Theory of Coupled PDEs (Lasiecka), 9

Mathematical Optimization and Economic Theory (Intriligator), 10

Methods of Dynamic and Nonsmooth Optimization (Clarke), 8

Multivariate Statistical Process Control with Industrial Applications (Mason and Young), 18

Neuro-Fuzzy Control of Industrial Systems with Actuator Nonlinearities (Lewis et al.), 9

Nonlinear Output Regulation: Theory and Applications (Huang), 9

Nonlinear Systems Analysis, Second Edition (Vidyasagar), 9

Book Catalog Subject Index

- Optimization and Nonsmooth Analysis* (Clarke), 8
Perspectives in Flow Control and Optimization (Gunzburger), 8
Practical Methods for Optimal Control Using Nonlinear Programming (Betts), 8
Real-Time PDE-Constrained Optimization (Biegler et al.), 14
Research Directions in Distributed Parameter Systems (Smith and Demetriou), 9
Shapes and Geometries: Analysis, Differential Calculus, and Optimization (Delfour and Zolésio), 8
Singular Perturbation Methods in Control: Analysis and Design (Kokotovic et al.), 9
Some Aspects of the Optimal Control of Distributed Parameter Systems (Lions), 9
Stability and Stabilization of Time-Delay Systems: An Eigenvalue-Based Approach (Michiels and Niculescu), 5, 9
Stochastic Processes, Estimation, and Control (Speyer and Chung), 19
Strongly Stabilizable Distributed Parameter Systems (Oostveen), 9
- Convergence Theorems
Discontinuous Galerkin Methods for Solving Elliptic and Parabolic Equations: Theory and Implementation (Rivière), 5, 14
Numerical Analysis: A Second Course (Ortega), 14
The Symmetric Eigenvalue Problem (Parlett), 14
Weak Convergence of Measures Applications in Probability: Applications in Probability (Billingsley), 16
- Convex Analysis
Convex Analysis and Variational Problems (Ekeland and Témam), 15
Discrete Convex Analysis (Murota), 10
Optimal Design of Experiments (Pukelsheim), 19
- Convex Optimization
Lagrange Multiplier Approach to Variational Problems and Applications (Ito and Kunisch), 4, 14
A Mathematical View of Interior-Point Methods in Convex Optimization (Renegar), 15
Trust-Region Methods (Conn et al.), 14
- Convex Programming
Convex Analysis and Variational Problems (Ekeland and Témam), 15
Interior-Point Polynomial Algorithms in Convex Programming (Nesterov and Nemirovskii), 15
Primal-Dual Interior-Point Methods (Wright), 15
- Convexity
An Algorithmic Theory of Numbers, Graphs and Convexity (Lovász), 9
Integer Programming: Facets, Subadditivity, and Duality for Group and Semi-group Problems (Johnson), 14
Lectures on Modern Convex Optimization: Analysis, Algorithms, and Engineering Applications (Ben-Tal and Nemirovski), 14
- Couple Formation
Gender-Structured Population Modeling: Mathematical Methods, Numerics, and Simulations (Ianneli et al.), 17
- Coupled Partial Differential Equations
Mathematical Control Theory of Coupled PDEs (Lasiecka), 9
- Credit Scoring
Credit Scoring and Its Applications (Thomas et al.), 10
- CSparse
Direct Methods for Sparse Linear Systems (Davis), 7
- Curves and Surfaces
Curve and Surface Design (Hagen), 11

Book Catalog Subject Index

Designing Fair Curves and Surfaces: Shape Quality in Geometric Modeling and Computer-Aided Design (Sapidis), 11

Knot Insertion and Deletion Algorithms for B-Spline Curves and Surfaces (Goldman and Lyche), 11

Mathematical Aspects of Geometric Modeling (Micchelli), 11

Topics in Surface Modeling (Hagen), 11

D

Data Analysis

Combinatorial Data Analysis: Optimization by Dynamic Programming (Hubert et al.), 9

Credit Scoring and Its Applications (Thomas et al.), 10

Recurrent Events Data Analysis for Product Repairs, Disease Recurrence, and Other Applications (Nelson), 18

Time Series: Data Analysis and Theory (Brillinger), 18

Data Clustering

Data Clustering: Theory, Algorithms, and Applications (Gan et al.), 9

Data Compression

Ten Lectures on Wavelets (Daubechies), 19

Wavelets: Tools for Science & Technology (Jaffard et al.), 19

Data Contamination

Mining Imperfect Data: Dealing with Contamination and Incomplete Records (Pearson), 9

Data Mining

Data Clustering: Theory, Algorithms, and Applications (Gan et al.), 9

Matrix Methods in Data Mining and Pattern Recognition (Eldén), 9

Mining Imperfect Data: Dealing with Contamination and Incomplete Records (Pearson), 9

Data Structures

Data Structures and Network Algorithms (Tarjan), 8

Deblurring

Deblurring Images: Matrices, Spectra, and Filtering (Hansen et al.), 12

Delay Systems

Research Directions in Distributed Parameter Systems (Smith and Demetriou), 9

Deletion Algorithms

Knot Insertion and Deletion Algorithms for B-Spline Curves and Surfaces (Goldman and Lyche), 11

Demographics

Approximation of Population Processes (Kurtz), 17

Competition Models in Population Biology (Waltman), 6

Gender-Structured Population Modeling: Mathematical Methods, Numerics, and Simulations (Ianneli et al.), 17

An Introduction to Structured Population Dynamics (Cushing), 6

Mathematical Models: Mechanical Vibrations, Population Dynamics, and Traffic Flow (Haberman), 17

Mathematical Theories of Populations: Demographics, Genetics and Epidemics (Hoppensteadt), 17

Multiple Decision Procedures: Theory and Methodology of Selecting and Ranking Populations (Gupta and Panchapakesan), 18

Selecting and Ordering Populations: A New Statistical Methodology (Gibbons et al.), 18

Derivatives

Evaluating Derivatives: Principles and Techniques of Algorithmic Differentiation, Second Edition (Griewank and Walther), 19

Book Catalog Subject Index

Design and Control

Applied Stochastic Processes and Control for Jump-Diffusions: Modeling, Analysis, and Computation (Hanson), 4, 8

Boundary Control of PDEs: A Course on Backstepping Designs (Krstic and Smyshlyaev), 5, 9

Classical Control Using H^∞ Methods: An Introduction to Design (Helton and Merino), 9

Classical Control Using H^∞ Methods: Theory, Optimization, and Design (Helton and Merino), 9

Experimental Design for Formulation (Smith), 19

Lagrange Multiplier Approach to Variational Problems and Applications (Ito and Kunisch), 4, 14

Linear Feedback Control: Analysis and Design with MATLAB (Xue et al.), 5, 9

Optimal Design of Experiments (Pukelsheim), 19

Sequential Analysis and Optimal Design (Chernoff), 18

Stability and Stabilization of Time-Delay Systems: An Eigenvalue-Based Approach (Michiels and Niculescu), 5, 9

Statistical Design and Analysis of Experiments (John), 18

Design Sensitivity Analysis

Design Sensitivity Analysis: Computational Issues of Sensitivity Equation Methods (Stanley and Stewart), 8

Deterministic Problems

Mathematics Applied to Deterministic Problems in the Natural Sciences (Lin and Segel), 10

Deviations

Large Deviations and Applications (Varadhan), 19

Some Limit Theorems in Statistics (Bahadur), 18

Dictionary

Russian-English / English-Russian Dictionary on Probability, Statistics, and Combinatorics (Borovkov), 18

Difference Methods

Partial Differential Equations: Modeling, Analysis, Computation (Mattheij et al.), 16

Differential-Algebraic equations (DAEs)

Computer Methods for Ordinary Differential Equations and Differential-Algebraic Equations (Ascher and Petzold), 6

Nonholonomic Motion of Rigid Mechanical Systems from a DAE Viewpoint (Rabier and Rheinboldt), 15

Numerical Solution of Initial-Value Problems in Differential-Algebraic Equations (Brenan et al.), 6

Perturbations: Theory and Methods (Murdock), 10

Practical Methods for Optimal Control Using Nonlinear Programming (Betts), 8

Differential Calculus

Shapes and Geometries: Analysis, Differential Calculus, and Optimization (Delfour and Zolésio), 8

Differential Dynamical Systems

Differential Dynamical Systems (Meiss), 5, 15

Differential Equations. *see also* Ordinary Differential Equations (ODEs); Partial Differential Equations (PDEs)

Calculus (Strang), 17

Computational Science and Engineering (Strang), 8

Computer Methods for Ordinary Differential Equations and Differential-Algebraic Equations (Ascher and Petzold), 6

Differential Dynamical Systems (Meiss), 5, 15

Foundations of Stochastic Differential Equations in Infinite Dimensional Spaces (Ito), 16

Book Catalog Subject Index

- Functions of a Complex Variable: Theory and Technique* (Carrier et al.), 16
- Ill-Posed Problems for Integrodifferential Equations in Mechanics and Electromagnetic Theory* (Bloom), 10
- The Immersed Interface Method: Numerical Solutions of PDEs Involving Interfaces and Irregular Domains* (Li and Ito), 7
- Industrial Mathematics: A Course in Solving Real-World Problems* (Friedman and Littman), 10
- Linear Differential Operators* (Lanczos), 13
- Multilevel Projection Methods for Partial Differential Equations* (McCormick), 7
- Numerical Methods for Evolutionary Differential Equations* (Ascher), 3, 6
- Ordinary Differential Equations* (Carrier and Pearson), 15
- Ordinary Differential Equations, Second Edition* (Hartman), 15
- Perturbations: Theory and Methods* (Murdock), 10
- Sinc Methods for Quadrature and Differential Equations* (Lund and Bowers), 14
- Differential Topology
- Techniques of Differential Topology in Relativity* (Penrose), 16
- Differentiation
- Evaluating Derivatives: Principles and Techniques of Algorithmic Differentiation, Second Edition* (Griewank and Walther), 19
- Diffusive Interfaces
- Dynamics of Internal Layers and Diffusive Interfaces* (Fife), 6
- Dimensional Analysis
- Continuum Modeling in the Physical Sciences* (van Groesen and Molenaar), 13
- Direct Methods
- Direct Methods for Sparse Linear Systems* (Davis), 7
- Discontinuous Galerkin (DG) Methods
- Discontinuous Galerkin Methods for Solving Elliptic and Parabolic Equations: Theory and Implementation* (Rivière), 5, 14
- Discrete Convex Analysis
- Discrete Convex Analysis* (Murota), 10
- Discrete Fourier Transform (DFT)
- The DFT: An Owner's Manual for the Discrete Fourier Transform* (Briggs and Henson), 16
- Discrete Mathematics
- Algebraic Theory of Automata Networks: An Introduction* (Dömösi and Nehaniv), 9
- An Algorithmic Theory of Numbers, Graphs and Convexity* (Lovász), 9
- Branching Programs and Binary Decision Diagrams* (Wegener), 10
- Combinatorial Algorithms: An Update* (Wilf), 10
- Combinatorial Data Analysis: Optimization by Dynamic Programming* (Hubert et al.), 9
- Combinatorial Optimization: Packing and Covering* (Cornuéjols), 9
- Complexity Classifications of Boolean Constraint Satisfaction Problems* (Creignou et al.), 9
- Discrete Convex Analysis* (Murota), 10
- Discrete Mathematics of Neural Networks: Selected Topics* (Anthony), 9
- Distributed Computing: A Locality-Sensitivity Approach* (Peleg), 10
- Evaluation and Optimization of Electoral Systems* (Grilli di Cortona et al.), 9
- Graph Classes: A Survey* (Brandstädt et al.), 9
- Graph Theory and Its Applications to Problems of Society* (Roberts), 10
- Probability Theory and Combinatorial Optimization* (Steele), 10
- Rank-Deficient & Discrete Ill-Posed Problems: Numerical Aspects of Linear Inversion* (Hansen), 7

Book Catalog Subject Index

- Topics in Intersection Graph Theory* (McKee and McMorris), 9
- The Vehicle Routing Problem* (Toth and Vigo), 10
- Discrete Optimization
 - Discrete Convex Analysis* (Murota), 10
- Discretization Error
 - Numerical Analysis: A Second Course* (Ortega), 14
- Disease
 - Recurrent Events Data Analysis for Product Repairs, Disease Recurrence, and Other Applications* (Nelson), 18
- Distributed Computing
 - Distributed Computing: A Locality-Sensitivity Approach* (Peleg), 10
 - ScaLAPACK Users' Guide* (Blackford et al.), 12
- Distributed Network Algorithms
 - Distributed Computing: A Locality-Sensitivity Approach* (Peleg), 10
- Distributed Parameter Systems
 - Control and Estimation in Distributed Parameter Systems* (Banks), 8
 - Research Directions in Distributed Parameter Systems* (Smith and Demetriou), 9
 - Some Aspects of the Optimal Control of Distributed Parameter Systems* (Lions), 9
 - Strongly Stabilizable Distributed Parameter Systems* (Oostveen), 9
- Distribution Theory
 - Distribution Theory for Tests Based on the Sample Distribution Function* (Durbin), 18
 - A First Course in Order Statistics* (Arnold et al.), 3, 17
 - Robust Statistical Procedures, Second Edition* (Huber), 18
- Distributional Method
 - Asymptotic Approximations of Integrals* (Wong), 11
- Diversity
 - Mathematics of Genetic Diversity* (Kingman), 6
- Domain-Based Parallelism
 - Domain-Based Parallelism and Problem Decomposition Methods in Computational Science and Engineering* (Keyes et al.), 7
- Duality
 - Conjugate Duality and Optimization* (Rockafellar), 15
 - Convex Analysis and Variational Problems* (Ekeland and Témam), 15
 - Integer Programming: Facets, Subadditivity, and Duality for Group and Semi-group Problems* (Johnson), 14
- Dynamic Noncooperative Game Theory
 - Dynamic Noncooperative Game Theory, Second Edition* (Basar and Olsder), 8
- Dynamic Optimization
 - Methods of Dynamic and Nonsmooth Optimization* (Clarke), 8
- Dynamic Programming
 - Applied Dynamic Programming for Optimization of Dynamical Systems* (Robinett III et al.), 9
 - Combinatorial Data Analysis: Optimization by Dynamic Programming* (Hubert et al.), 9
- Dynamical Coupled Partial Differential Equations (PDEs)
 - Mathematical Control Theory of Coupled PDEs* (Lasiecka), 9
- Dynamical Systems
 - Adaptive Control Tutorial* (Ioannou and Fidan), 9
 - Applied Dynamic Programming for Optimization of Dynamical Systems* (Robinett III et al.), 9

Book Catalog Subject Index

Applied Numerical Linear Algebra (Demmel), 12
Approximation of Large-Scale Dynamical Systems (Antoulas), 8
Control Perspectives on Numerical Algorithms and Matrix Problems (Bhaya and Kaszkurewicz), 8
Differential Dynamical Systems (Meiss), 5, 15
Dynamics of Internal Layers and Diffusive Interfaces (Fife), 6
An Introduction to Structured Population Dynamics (Cushing), 6
Mathematical Models: Mechanical Vibrations, Population Dynamics, and Traffic Flow (Haberman), 17
Navier-Stokes Equations and Nonlinear Functional Analysis, Second Edition (Témam), 11
Numerical Computing with Simulink, Volume I: Creating Simulations (Gran), 4, 17
Numerical Methods for Bifurcations of Dynamical Equilibria (Govaerts), 10
Perturbations: Theory and Methods (Murdock), 10
Simulating, Analyzing, and Animating Dynamical Systems: A Guide to XPPAUT for Researchers and Students (Ermentrout), 10
Stability and Stabilization of Time-Delay Systems: An Eigenvalue-Based Approach (Michiels and Niculescu), 5, 9
The Stability of Dynamical Systems (LaSalle), 10

E

Economics

Applications on Advanced Architecture Computers (Astfalk), 6
Credit Scoring and Its Applications (Thomas et al.), 10
Mathematical Optimization and Economic Theory (Intriligator), 10
Methods of Mathematical Economics: Linear and Nonlinear Programming, Fixed-Point Theorems (Franklin), 14

Education

Ants, Bikes, and Clocks: Problem Solving for Undergraduates (Briggs), 10
Handbook of Writing for the Mathematical Sciences, Second Edition (Higham), 10
Industrial Mathematics: A Course in Solving Real-World Problems (Friedman and Littman), 10
Learning LATEX (Griffiths and Higham), 10
Mathematics Applied to Deterministic Problems in the Natural Sciences (Lin and Segel), 10
Problems in Applied Mathematics: Selections from SIAM Review (Klamkin), 10

Eigensystems

Matrix Algorithms, Volume II: Eigensystems (Stewart), 13

Eigenvalues

Applied Numerical Linear Algebra (Demmel), 12
ARPACK Users' Guide: Solution of Large-Scale Eigenvalue Problems with Implicitly Restarted Arnoldi Methods (Lehoucq et al.), 7
Boundary Value Problems of Mathematical Physics, Volumes I & II (Stakgold), 16
Lanczos Algorithms for Large Symmetric Eigenvalue Computations, Volume I: Theory (Cullum and Willoughby), 12
Linear Ordinary Differential Equations (Coddington and Carlson), 15
The Matrix Eigenvalue Problem: GR and Krylov Subspace Methods (Watkins), 5, 13
Numerical Analysis: A Second Course (Ortega), 14
The Numerical Solution of Elliptic Equations (Birkhoff), 13
Parallel Algorithms for Matrix Computations (Gallivan et al.), 7
Perturbation Bounds for Matrix Eigenvalues (Bhatia), 12

Book Catalog Subject Index

- Spectral Methods in MATLAB* (Trefethen), 8
Spectral Properties of Banded Toeplitz Matrices (Böttcher and Grudsky), 12
Stability and Stabilization of Time-Delay Systems: An Eigenvalue-Based Approach (Michiels and Niculescu), 5, 9
The Symmetric Eigenvalue Problem (Parlett), 14
Templates for the Solution of Algebraic Eigenvalue Problems: A Practical Guide (Bai et al.), 12
Variational Methods for Eigenvalue Approximation (Weinberger), 14
- Elasticity
Contact Problems in Elasticity: A Study of Variational Inequalities and Finite Element Methods (Kikuchi and Oden), 17
Mathematics Applied to Continuum Mechanics (Segel with Handelman), 13
Topics in Finite Elasticity (Gurtin), 17
Variational Methods in Nonlinear Elasticity (Pedregal), 17
- Electoral Systems
Evaluation and Optimization of Electoral Systems (Grilli di Cortona et al.), 9
- Electro-Diffusion
Electro-Diffusion of Ions (Rubinstein), 11
- Electromagnetic Scattering Theory
An Introduction to Inverse Scattering and Inverse Spectral Problems (Chadan et al.), 15
- Electromagnetic Theory
Electromagnetic Material Interrogation Using Conductive Interfaces and Acoustic Wavefronts (Banks et al.), 10
Ill-Posed Problems for Integrodifferential Equations in Mechanics and Electromagnetic Theory (Bloom), 10
- Ellipsoid Method
An Algorithmic Theory of Numbers, Graphs and Convexity (Lovász), 9
- Elliptic Equations
Discontinuous Galerkin Methods for Solving Elliptic and Parabolic Equations: Theory and Implementation (Rivière), 5, 14
The Numerical Solution of Elliptic Equations (Birkhoff), 13
PLTMG: A Software Package for Solving Elliptic Partial Differential Equations: Users' Guide 8.0 (Bank), 15
Solution of Partial Differential Equations on Vector and Parallel Computers (Ortega and Voigt), 14
A Tutorial on Elliptic PDE Solvers and Their Parallelization (Douglas et al.), 7
- Elliptic Problems
The Finite Element Method for Elliptic Problems (Ciarlet), 13
Numerical Solution of Elliptic Problems (Birkhoff and Lynch), 13
Parallel Algorithms for Matrix Computations (Gallivan et al.), 7
- Engineering
Advances in Linear Matrix Inequality Methods in Control (El Ghaoui and Niculescu), 8
Applied Dynamic Programming for Optimization of Dynamical Systems (Robinett III et al.), 9
Boundary Value Problems of Mathematical Physics, Volumes I & II (Stakgold), 16
Classical Control Using H^∞ Methods: An Introduction to Design (Helton and Merino), 9
Classical Control Using H^∞ Methods: Theory, Optimization, and Design (Helton and Merino), 9
Computational Science and Engineering (Strang), 8

Book Catalog Subject Index

- Electromagnetic Material Interrogation Using Conductive Interfaces and Acoustic Wavefronts* (Banks et al.), 10
- Engineering Reliability* (Barlow), 18
- Extending H^∞ Control to Nonlinear Systems: Control of Nonlinear Systems to Achieve Performance Objectives* (Helton and James), 8
- Initial-Boundary Value Problems and the Navier-Stokes Equations* (Kreiss and Lorenz), 16
- Lectures on Modern Convex Optimization: Analysis, Algorithms, and Engineering Applications* (Ben-Tal and Nemirovski), 14
- Matrix Analysis for Scientists and Engineers* (Laub), 12
- Numerical Solution of Elliptic Problems* (Birkhoff and Lynch), 13
- Real-Time PDE-Constrained Optimization* (Biegler et al.), 14
- Reservoir Simulation: Mathematical Techniques in Oil Recovery* (Chen), 3, 17
- Sinc Methods for Quadrature and Differential Equations* (Lund and Bowers), 14
- Symbolic Computation Applications to Scientific Computing* (Grossman), 7
- Wavelets: A Mathematical Tool for Signal Analysis* (Chui), 19
- Wavelets: Tools for Science & Technology* (Jaffard et al.), 19
- Wavelets and Filter Banks* (Strang and Nguyen), 17
- Epidemics
- Approximation of Population Processes* (Kurtz), 17
- Bioterrorism: Mathematical Modeling Applications in Homeland Security* (Banks and Chavez), 6
- Mathematical Theories of Populations: Demographics, Genetics and Epidemics* (Hoppensteadt), 17
- Equivalence
- The Method of Equivalence and Its Applications* (Gardner), 15
- Error Analysis
- Accuracy and Reliability in Scientific Computing* (Einarsson), 7
- Exact and Approximate Modeling of Linear Systems: A Behavioral Approach* (Markovskiy et al.), 17
- The Jackknife, the Bootstrap, and Other Resampling Plans* (Efron), 18
- Methods and Applications of Interval Analysis* (Moore), 7
- Estimation
- Control and Estimation in Distributed Parameter Systems* (Banks), 8
- Indefinite-Quadratic Estimation and Control: A Unified Approach to H^2 and H^∞ Theories* (Hassibi et al.), 8
- Inverse Problem Theory and Methods for Model Parameter Estimation* (Tarantola), 15
- Nonparametric Function Estimation, Modeling, and Simulation* (Thompson and Tapia), 19
- Pitman's Measure of Closeness: A Comparison of Statistical Estimators* (Keating et al.), 18
- Some Limit Theorems in Statistics* (Bahadur), 18
- Stochastic Processes, Estimation, and Control* (Speyer and Chung), 19
- Evolutionary Differential Equations
- Numerical Methods for Evolutionary Differential Equations* (Ascher), 3, 6
- Experimental Design
- The Analysis of Means: A Graphical Method for Comparing Means, Rates, and Proportions* (Nelson et al.), 18
- Basic Concepts of Probability and Statistics, Second Edition* (Hodges and Lehmann), 18
- Experimental Design for Formulation* (Smith), 19
- Optimal Design of Experiments* (Pukelsheim), 19
- Statistical Design and Analysis of Experiments* (John), 18
- Expert Judgment

Book Catalog Subject Index

- Eliciting and Analyzing Expert Judgment: A Practical Guide* (Meyer and Booker), 18
- Expert Systems
 - Probabilistic Expert Systems* (Shafer), 8
- Exponential Asymptotics
 - Asymptotic Approximations of Integrals* (Wong), 11
- Exponential Euler Splines
 - Cardinal Spline Interpolation* (Schoenberg), 11
- Extremum Principles
 - Mathematics Applied to Continuum Mechanics* (Segel with Handelman), 13

- F**
- Facet Analysis
 - Integer Programming: Facets, Subadditivity, and Duality for Group and Semi-group Problems* (Johnson), 14
- Fair Curves and Surfaces
 - Designing Fair Curves and Surfaces: Shape Quality in Geometric Modeling and Computer-Aided Design* (Sapidis), 11
- Fast Adaptive Composite (FAC) Grid Methods
 - Multilevel Adaptive Methods for Partial Differential Equations* (McCormick), 16
- Fast Adaptive Methods
 - Mathematical and Computational Techniques for Multilevel Adaptive Methods* (Rüde), 7
- Fast Fourier Transform
 - Computational Frameworks for the Fast Fourier Transform* (Van Loan), 8
 - The DFT: An Owner's Manual for the Discrete Fourier Transform* (Briggs and Henson), 16
- Feedback Control
 - Linear Feedback Control: Analysis and Design with MATLAB* (Xue et al.), 5, 9
 - Optimal Control of Viscous Flow* (Sritharan), 11
- Fiber Optics
 - Mathematical Principles of Optical Fiber Communications* (Shaw), 6
- Field Equations
 - Solitons in Mathematics and Physics* (Newell), 11
- Filter Banks
 - Wavelets and Filter Banks* (Strang and Nguyen), 17
- Filtering
 - Deblurring Images: Matrices, Spectra, and Filtering* (Hansen et al.), 12
- Financial Engineering
 - Applied Stochastic Processes and Control for Jump-Diffusions: Modeling, Analysis, and Computation* (Hanson), 4, 8
 - Computational Methods for Option Pricing* (Achdou and Pironneau), 13
- Finite Difference Methods
 - Finite Difference Methods for Ordinary and Partial Differential Equations: Steady-State and Time-Dependent Problems* (LeVeque), 13
 - Finite Difference Schemes and Partial Differential Equations, Second Edition* (Strikwerda), 14
- Finite Elasticity
 - Topics in Finite Elasticity* (Gurtin), 17
- Finite Element Methods

Book Catalog Subject Index

- An Analysis of the Finite Element Method, Second Edition* (Strang and Fix), 14
Computational Methods for Multiphase Flows in Porous Media (Chen et al.), 7
Contact Problems in Elasticity: A Study of Variational Inequalities and Finite Element Methods (Kikuchi and Oden), 17
The Finite Element Method for Elliptic Problems (Ciarlet), 13
Finite Element Methods with B-Splines (Höllig), 7
Finite Element Solution of Boundary Value Problems: Theory and Computation (Axelsson and Barker), 15
Understanding and Implementing the Finite Element Method (Gockenbach), 16
- Finite Precision Computations
The Lanczos and Conjugate Gradient Algorithms: From Theory to Finite Precision Computations (Meurant), 12
Lectures on Finite Precision Computations (Chaitin-Chatelin and Frayssé), 6
- Fixed-Point Theorems
Methods of Mathematical Economics: Linear and Nonlinear Programming, Fixed-Point Theorems (Franklin), 14
- Flame Theory
Dynamics of Internal Layers and Diffusive Interfaces (Fife), 6
Lectures on Mathematical Combustion (Buckmaster and Ludford), 6
- Floating Point Arithmetic
Accuracy and Reliability in Scientific Computing (Einarsson), 7
Numerical Computing with IEEE Floating Point Arithmetic (Overton), 7
- Flows
An Introduction to Modeling and Simulation of Particulate Flows (Zohdi), 17
Perspectives in Flow Control and Optimization (Gunzburger), 8
- Fluid Dynamics
Fourier Analysis of Numerical Approximations of Hyperbolic Equations (Vichnevetsky and Bowles), 14
- Fluid Mechanics
Asymptotic Approximations of Integrals (Wong), 11
Computational Methods for Multiphase Flows in Porous Media (Chen et al.), 7
Electro-Diffusion of Ions (Rubinstein), 11
Hyperbolic and Viscous Conservation Laws (Liu), 11
Hyperbolic Systems of Conservation Laws and the Mathematical Theory of Shock Waves (Lax), 11
An Introduction to Modeling and Simulation of Particulate Flows (Zohdi), 17
Introduction to the Numerical Analysis of Incompressible Viscous Flows (Layton), 19
Mathematical Analysis of Viscoelastic Flows (Renardy), 11
Mathematical Biofluidynamics (Lighthill), 11
Mathematics Applied to Continuum Mechanics (Segel with Handelman), 13
Navier-Stokes Equations and Nonlinear Functional Analysis, Second Edition (Témam), 11
Numerical Simulation in Fluid Dynamics: A Practical Introduction (Griebel et al.), 11
Optimal Control of Viscous Flow (Sriharan), 11
Perspectives in Flow Control and Optimization (Gunzburger), 8
Solitons and the Inverse Scattering Transform (Ablowitz and Segur), 10
Solitons in Mathematics and Physics (Newell), 11
Transonic Aerodynamics: Problems in Asymptotic Theory (Cook), 10
Vortex Methods and Vortex Motion (Gustafson and Sethian), 11
- Formulation

Book Catalog Subject Index

Experimental Design for Formulation (Smith), 19

Fortran

LAPACK95 Users' Guide (Barker et al.), 12

LINPACK Users' Guide (Dongarra, Bunch, Moler, and Stewart), 12

Fourier Analysis

Computational Science and Engineering (Strang), 8

Fourier Analysis of Numerical Approximations of Hyperbolic Equations (Vichnevetsky and Bowles), 14

Introduction to the Mathematics of Medical Imaging, Second Edition (Epstein), 3, 12

Numerical Methods in Scientific Computing, Volume I (Dahlquist and Björck), 3, 13

Fourier Transform

Computational Frameworks for the Fast Fourier Transform (Van Loan), 8

The DFT: An Owner's Manual for the Discrete Fourier Transform (Briggs and Henson), 16

Time Series: Data Analysis and Theory (Brillinger), 18

Fractals

Wavelets: Tools for Science & Technology (Jaffard et al.), 19

Free Boundary Problems

An Introduction to Variational Inequalities and Their Applications (Kinderlehrer and Stampacchia), 16

Free Space Problems

Notes on Time Decay and Scattering for Some Hyperbolic Problems (Morawetz), 16

Functional & Integral Equations

Mining Imperfect Data: Dealing with Contamination and Incomplete Records (Pearson), 9

A Primer on Integral Equations of the First Kind (Wing and Zahrt), 11

Functional Analysis

Functional Analysis and Approximation Theory in Numerical Analysis (Varga), 14

The Theory of Best Approximation and Functional Analysis (Singer), 17

Fuzzy Logic

Fuzzy Logic and Probability Applications: Bridging the Gap (Ross et al.), 16

Fuzzy Systems

Neuro-Fuzzy Control of Industrial Systems with Actuator Nonlinearities (Lewis et al.), 9

G

Galerkin Methods

Discontinuous Galerkin Methods for Solving Elliptic and Parabolic Equations: Theory and Implementation (Rivière), 5, 14

Game Theory

Dynamic Noncooperative Game Theory, Second Edition (Basar and Olsder), 8

Gauge Studies

Design and Analysis of Gauge R&R Studies: Making Decisions with Confidence Intervals in Random and Mixed ANOVA Models (Burdick et al.), 18

Statistical Case Studies for Industrial Process Improvement (Czitrom and Spagon), 18

Gauss, Karl Friedrich

Theory of the Combination of Observations Least Subject to Errors (Gauss and Stewart), 7

Gender-Structured Population Modeling

Gender-Structured Population Modeling: Mathematical Methods, Numerics, and Simulations (Ianneli et al.), 17

Generalized Sensitivity Analysis

Book Catalog Subject Index

- Mining Imperfect Data: Dealing with Contamination and Incomplete Records* (Pearson), 9
- Genetics
 - Graph Theory and Its Applications to Problems of Society* (Roberts), 10
 - Mathematical Theories of Populations: Demographics, Genetics and Epidemics* (Hoppensteadt), 17
 - Mathematics of Genetic Diversity* (Kingman), 6
- Geodesy
 - Linear Algebra, Geodesy, and GPS* (Strang and Borre), 13
- Geometric Design
 - Cardinal Spline Interpolation* (Schoenberg), 11
 - Curve and Surface Design* (Hagen), 11
 - Designing Fair Curves and Surfaces: Shape Quality in Geometric Modeling and Computer-Aided Design* (Sapidis), 11
 - Knot Insertion and Deletion Algorithms for B-Spline Curves and Surfaces* (Goldman and Lyche), 11
 - Mathematical Aspects of Geometric Modeling* (Micchelli), 11
 - Topics in Surface Modeling* (Hagen), 11
- Geometric Methods
 - Lectures on Geometric Methods in Mathematical Physics* (Marsden), 13
- Geometric Modeling
 - Designing Fair Curves and Surfaces: Shape Quality in Geometric Modeling and Computer-Aided Design* (Sapidis), 11
 - Mathematical Aspects of Geometric Modeling* (Micchelli), 11
- Geometry
 - Applications on Advanced Architecture Computers* (Astfalk), 6
 - Geometric Probability* (Solomon), 16
 - Optimization and Nonsmooth Analysis* (Clarke), 8
 - Problems in Applied Mathematics: Selections from SIAM Review* (Klamkin), 10
 - Shapes and Geometries: Analysis, Differential Calculus, and Optimization* (Delfour and Zolésio), 8
- Geophysical Sciences
 - The Mathematics of Reservoir Simulation* (Ewing), 11
 - Reservoir Simulation: Mathematical Techniques in Oil Recovery* (Chen), 3, 17
- Global Positioning System (GPS)
 - Linear Algebra, Geodesy, and GPS* (Strang and Borre), 13
- GR Methods
 - The Matrix Eigenvalue Problem: GR and Krylov Subspace Methods* (Watkins), 5, 13
- Gradient-based Optimization
 - Iterative Methods for Optimization* (Kelley), 15
- Gradient Dynamical Systems
 - Control Perspectives on Numerical Algorithms and Matrix Problems* (Bhaya and Kaszkurewicz), 8
- Graph Algorithms
 - Data Structures and Network Algorithms* (Tarjan), 8
- Graph Theory
 - An Algorithmic Theory of Numbers, Graphs and Convexity* (Lovász), 9
 - Distributed Computing: A Locality-Sensitivity Approach* (Peleg), 10
 - Graph Classes: A Survey* (Brandstädt, Le, and Spinrad), 9
 - Graph Theory and Its Applications to Problems of Society* (Roberts), 10
 - Problems in Applied Mathematics: Selections from SIAM Review* (Klamkin), 10
 - Topics in Intersection Graph Theory* (McKee and McMorris), 9

Book Catalog Subject Index

Graphical Methods

The Analysis of Means: A Graphical Method for Comparing Means, Rates, and Proportions (Nelson et al.), 18

Green, George

George Green: Mathematician & Physicist, 1793-1841: The Background to His Life and Work, Second Edition (Cannell), 11

Green's Functions

Boundary Value Problems of Mathematical Physics, Volumes I & II (Stakgold), 16

Marine Acoustics: Direct and Inverse Problems (Buchanan et al.), 6

Grids

Mathematical Aspects of Numerical Grid Generation (Castillo), 6

Multigrid Methods (McCormick), 7

A Multigrid Tutorial, Second Edition (Briggs et al.), 6

Group Problems

Integer Programming: Facets, Subadditivity, and Duality for Group and Semi-group Problems (Johnson), 14

Group Theory

Axiomatic Consensus Theory in Group Choice and Biomathematics (Day and McMorris), 6

Gy, Pierre

A Primer for Sampling Solids, Liquids and Gases: Based on the Seven Sampling Errors of Pierre Gy (Smith), 19

H

H² Theories

Indefinite-Quadratic Estimation and Control: A Unified Approach to H² and H[∞] Theories (Hassibi et al.), 8

Hamiltonian Systems

Lectures on Geometric Methods in Mathematical Physics (Marsden), 13

Handbooks

Handbook for Matrix Computations (Coleman and Van Loan), 7

Handbook of Writing for the Mathematical Sciences, Second Edition (Higham), 10

Learning LATEX (Griffiths and Higham), 10

High-Performance Computers

Numerical Linear Algebra for High-Performance Computers (Dongarra et al.), 12

H[∞] Control

Extending H[∞] Control to Nonlinear Systems: Control of Nonlinear Systems to Achieve Performance Objectives (Helton and James), 8

H[∞] Methods

Classical Control Using H[∞] Methods: An Introduction to Design (Helton and Merino), 9

Classical Control Using H[∞] Methods: Theory, Optimization, and Design (Helton and Merino), 9

H[∞] Theories

Indefinite-Quadratic Estimation and Control: A Unified Approach to H² and H[∞] Theories (Hassibi et al.), 8

History

George Green: Mathematician & Physicist, 1793-1841: The Background to His Life and Work, Second Edition (Cannell), 11

An Interview with Jim Wilkinson (Nash), 11

Book Catalog Subject Index

- Matrix Analysis and Applied Linear Algebra* (Meyer), 12
The Sharpest Cut: The Impact of Manfred Padberg and His Work (Grötschel), 14
An Uneasy Alliance: The Mathematics Research Center at the University of Wisconsin (Chandra and Robinson), 11
- Homeland Security
Bioterrorism: Mathematical Modeling Applications in Homeland Security (Banks and Chavez), 6
- Hotelling's T2 Statistic
Multivariate Statistical Process Control with Industrial Applications (Mason and Young), 18
- Hyperbolic Equations
Fourier Analysis of Numerical Approximations of Hyperbolic Equations (Vichnevetsky and Bowles), 14
- Hyperbolic Problems
Notes on Time Decay and Scattering for Some Hyperbolic Problems (Morawetz), 16
- Hyperbolic Systems
Hyperbolic and Viscous Conservation Laws (Liu), 11
Hyperbolic Systems of Conservation Laws and the Mathematical Theory of Shock Waves (Lax), 11
- Hysteresis
Singular Perturbations and Hysteresis (Mortell et al.), 16
- I
- IEEE Floating Point Arithmetic
Numerical Computing with IEEE Floating Point Arithmetic (Overton), 7
- Ill-Posed Problems
Ill-Posed Problems for Integrodifferential Equations in Mechanics and Electromagnetic Theory (Bloom), 10
Rank-Deficient & Discrete Ill-Posed Problems: Numerical Aspects of Linear Inversion (Hansen), 7
Spline Models for Observational Data (Wahba), 19
- Image Processing
Deblurring Images: Matrices, Spectra, and Filtering (Hansen et al.), 12
Image Processing and Analysis: Variational, PDE, Wavelet, and Stochastic Methods (Chan and Shen), 11
Introduction to the Mathematics of Medical Imaging, Second Edition (Epstein), 3, 12
Mathematical Methods in Image Reconstruction (Natterer and Wübbeling), 12
The Mathematics of Computerized Tomography (Natterer), 12
Principles of Computerized Tomographic Imaging (Kak and Slaney), 12
- Imaging
Electromagnetic Material Interrogation Using Conductive Interfaces and Acoustic Wavefronts (Banks et al.), 10
Introduction to the Mathematics of Medical Imaging, Second Edition (Epstein), 3, 12
Mathematical Methods in Image Reconstruction (Natterer and Wübbeling), 12
The Mathematics of Computerized Tomography (Natterer), 12
Principles of Computerized Tomographic Imaging (Kak and Slaney), 12
- Immersed Interface Method (IIM)
The Immersed Interface Method: Numerical Solutions of PDEs Involving Interfaces and Irregular Domains (Li and Ito), 7
- Improperly Posed Problems
Improperly Posed Problems in Partial Differential Equations (Payne), 16

Book Catalog Subject Index

Incompressible Viscous Flows

Introduction to the Numerical Analysis of Incompressible Viscous Flows (Layton), 19

Indefinite-Quadratic Estimation

Indefinite-Quadratic Estimation and Control: A Unified Approach to H^2 and H^∞ Theories (Hassibi et al.), 8

Indexing

A Theory of Indexing (Salton), 8

Industrial Mathematics

Curve and Surface Design (Hagen), 11

Designing Fair Curves and Surfaces: Shape Quality in Geometric Modeling and Computer-Aided Design (Sapidis), 11

Industrial Mathematics: A Course in Solving Real-World Problems (Friedman and Littman), 10

Industrial Mathematics: The 1998 CRSC Workshop (Gremaud et al.), 11

The Lanczos Method: Evolution and Application (Komzsik), 12

Multivariate Statistical Process Control with Industrial Applications (Mason and Young), 18

Statistical Case Studies: A Collaboration Between Academe and Industry (Student Edition) (Peck and Haugh), 18

Industrial Process Improvement

Statistical Case Studies for Industrial Process Improvement (Czitrom and Spagon), 18

Industrial Statistics

Statistical Design and Analysis of Experiments (John), 18

Industrial Systems

Neuro-Fuzzy Control of Industrial Systems with Actuator Nonlinearities (Lewis et al.), 9

Infinite Dimensional Spaces

Foundations of Stochastic Differential Equations in Infinite Dimensional Spaces (Ito), 16

Information State Equations

Extending H^∞ Control to Nonlinear Systems: Control of Nonlinear Systems to Achieve Performance Objectives (Helton and James), 8

Information Storage and Retrieval

Ten Lectures on Wavelets (Daubechies), 19

Information Systems

Control in an Information Rich World: Report of the Panel on Future Directions in Control, Dynamics, and Systems (Murray), 9

A Theory of Indexing (Salton), 8

Initial-Boundary Value Problems

Ill-Posed Problems for Integrodifferential Equations in Mechanics and Electromagnetic Theory (Bloom), 10

Initial-Boundary Value Problems and the Navier-Stokes Equations (Kreiss and Lorenz), 16

Numerical Analysis of Spectral Methods: Theory and Applications (Gottlieb and Orszag), 13

Solution of Partial Differential Equations on Vector and Parallel Computers (Ortega and Voigt), 14

Initial-Value Problems

The Cauchy Problem in Kinetic Theory (Glassey), 16

Computer Methods for Ordinary Differential Equations and Differential-Algebraic Equations (Ascher and Petzold), 6

Numerical Solution of Initial-Value Problems in Differential-Algebraic Equations (Brenan et al.), 6

Integer Programming

Combinatorial Optimization: Packing and Covering (Cornuéjols), 9

Book Catalog Subject Index

- Integer Programming: Facets, Subadditivity, and Duality for Group and Semi-group Problems* (Johnson), 14
- The Sharpest Cut: The Impact of Manfred Padberg and His Work* (Grötschel), 14
- Integral Equations
- Functions of a Complex Variable: Theory and Technique* (Carrier et al.), 16
- A Primer on Integral Equations of the First Kind* (Wing and Zahrt), 11
- Integral Transforms
- Introduction to the Mathematics of Medical Imaging, Second Edition* (Epstein), 3, 12
- Integrals
- Asymptotic Approximations of Integrals* (Wong), 11
- Computational Integration* (Krommer and Ueberhuber), 7
- Problems in Applied Mathematics: Selections from SIAM Review* (Klamkin), 10
- Integrodifferential Equations
- Ill-Posed Problems for Integrodifferential Equations in Mechanics and Electromagnetic Theory* (Bloom), 10
- Intelligent Control
- Neuro-Fuzzy Control of Industrial Systems with Actuator Nonlinearities* (Lewis et al.), 9
- Interdisciplinary Research
- An Uneasy Alliance: The Mathematics Research Center at the University of Wisconsin* (Chandra and Robinson), 11
- Interface Problems
- Electromagnetic Material Interrogation Using Conductive Interfaces and Acoustic Wavefronts* (Banks et al.), 10
- The Immersed Interface Method: Numerical Solutions of PDEs Involving Interfaces and Irregular Domains* (Li and Ito), 7
- Interior-Point Methods
- Advances in Linear Matrix Inequality Methods in Control* (El Ghaoui and Niculescu), 8
- A Mathematical View of Interior-Point Methods in Convex Optimization* (Renegar), 15
- Optimization Software Guide* (Moré and Wright), 15
- Primal-Dual Interior-Point Methods* (Wright), 15
- Interior-Point Polynomial Algorithms
- Interior-Point Polynomial Algorithms in Convex Programming* (Nesterov and Nemirovskii), 15
- Internal Layers
- Dynamics of Internal Layers and Diffusive Interfaces* (Fife), 6
- Intersection Graph Theory
- Topics in Intersection Graph Theory* (McKee and McMorris), 9
- Interval Analysis
- Accuracy and Reliability in Scientific Computing* (Einarsson), 7
- Design and Analysis of Gauge R&R Studies: Making Decisions with Confidence Intervals in Random and Mixed ANOVA Models* (Burdick et al.), 18
- Methods and Applications of Interval Analysis* (Moore), 7
- Interviews
- An Interview with Jim Wilkinson* (Nash), 11
- The SIAM 100-Digit Challenge: A Study in High-Accuracy Numerical Computing* (Bornemann et al.), 13
- Invariant Imbedding
- An Introduction to Invariant Imbedding* (Bellman and Wing), 15
- Invariant Subspaces

Book Catalog Subject Index

Invariant Subspaces of Matrices with Applications (Gohberg et al.), 12

Inverse Problems

Computational Methods for Inverse Problems (Vogel), 16

An Introduction to Invariant Imbedding (Bellman and Wing), 15

Inverse Problem Theory and Methods for Model Parameter Estimation (Tarantola), 15

Research Directions in Distributed Parameter Systems (Smith and Demetriou), 9

Spline Models for Observational Data (Wahba), 19

Inverse Scattering

An Introduction to Inverse Scattering and Inverse Spectral Problems (Chadan et al.), 15

Solitons and the Inverse Scattering Transform (Ablowitz and Segur), 10

Solitons in Mathematics and Physics (Newell), 11

Inverse Spectral Problems

An Introduction to Inverse Scattering and Inverse Spectral Problems (Chadan et al.), 15

Ions

Electro-Diffusion of Ions (Rubinstein), 11

Iterative Methods

Applied Numerical Linear Algebra (Demmel), 12

Control Perspectives on Numerical Algorithms and Matrix Problems (Bhaya and Kaszkurewicz), 8

An Introduction to Iterative Toeplitz Solvers (Chan and Jin), 3, 12

Iterative Methods for Linear and Nonlinear Equations (Kelley), 15

Iterative Methods for Optimization (Kelley), 15

Iterative Methods for Solving Linear Systems (Greenbaum), 13

Iterative Methods for Sparse Linear Systems, Second Edition (Saad), 12

Iterative Solution of Nonlinear Equations in Several Variables (Ortega and Rheinboldt), 14

Mathematical Aspects of Geometric Modeling (Micchelli), 11

Numerical Analysis: A Second Course (Ortega), 14

Templates for the Solution of Linear Systems: Building Blocks for Iterative Methods (Barrett et al.), 12

J

Jackknife

The Jackknife, the Bootstrap, and Other Resampling Plans (Efron), 18

Jacobi-Davidson Method

Matrix Algorithms, Volume II: Eigensystems (Stewart), 13

Janson Inequalities

Ten Lectures on the Probabilistic Method, Second Edition (Spencer), 16

Jump-Diffusions

Applied Stochastic Processes and Control for Jump-Diffusions: Modeling, Analysis, and Computation
(Hanson), 4, 8

K

Kiefer Information Matrix Ordering

Optimal Design of Experiments (Pukelsheim), 19

Kinetic Theory

The Cauchy Problem in Kinetic Theory (Glasse), 16

Knot Insertion

Book Catalog Subject Index

- Knot Insertion and Deletion Algorithms for B-Spline Curves and Surfaces* (Goldman and Lyche), 11
- Krylov Sequence Methods
 - Matrix Algorithms, Volume II: Eigensystems* (Stewart), 13
- Krylov Subspace Methods
 - The Matrix Eigenvalue Problem: GR and Krylov Subspace Methods* (Watkins), 5, 13
 - The Symmetric Eigenvalue Problem* (Parlett), 14

L

- Lagrange Multiplier Theory
 - Lagrange Multiplier Approach to Variational Problems and Applications* (Ito and Kunisch), 4, 14
- Lagrangian Methods
 - Augmented Lagrangian and Operator-Splitting Methods in Nonlinear Mechanics* (Glowinski and Le Tallec), 17
- Lanczos Algorithms
 - Lanczos Algorithms for Large Symmetric Eigenvalue Computations, Volume I: Theory* (Cullum and Willoughby), 12
 - The Lanczos and Conjugate Gradient Algorithms: From Theory to Finite Precision Computations* (Meurant), 12
 - The Lanczos Method: Evolution and Application* (Komzsik), 12
 - Matrix Algorithms, Volume II: Eigensystems* (Stewart), 13
 - The Matrix Eigenvalue Problem: GR and Krylov Subspace Methods* (Watkins), 5, 13
- LAPACK software
 - LAPACK Users' Guide, Third Edition* (Anderson et al.), 12
 - LAPACK95 Users' Guide* (Barker et al.), 12
 - ScaLAPACK Users' Guide* (Blackford et al.), 12
- Large Deviations
 - Large Deviations and Applications* (Varadhan), 19
 - Some Limit Theorems in Statistics* (Bahadur), 18
- Large-Scale Dynamical Systems
 - Approximation of Large-Scale Dynamical Systems* (Antoulas), 8
- Large-Scale Eigenvalue Problems
 - ARPACK Users' Guide: Solution of Large-Scale Eigenvalue Problems with Implicitly Restarted Arnoldi Methods* (Lehoucq et al.), 7
- Large-Scale Linear Systems
 - Iterative Methods for Sparse Linear Systems, Second Edition* (Saad), 12
- LATEX
 - Learning LATEX* (Griffiths and Higham), 10
- Least Squares Problems
 - Applied Numerical Linear Algebra* (Demmel), 12
 - Exact and Approximate Modeling of Linear Systems: A Behavioral Approach* (Markovsky et al.), 17
 - Inverse Problem Theory and Methods for Model Parameter Estimation* (Tarantola), 15
 - LINPACK Users' Guide* (Dongarra et al.), 12
 - Numerical Methods for Least Squares Problems* (Björck), 6
 - Parallel Algorithms for Matrix Computations* (Gallivan et al.), 7
 - Solving Least Squares Problems* (Lawson and Hanson), 7
 - The Structural Representation of Proximity Matrices with MATLAB* (Hubert et al.), 18

Book Catalog Subject Index

The Total Least Squares Problem: Computational Aspects and Analysis (Van Huffel and Vandewalle), 13

Least Subject to Errors

Theory of the Combination of Observations Least Subject to Errors (Gauss and Stewart), 7

Lectures

Afternotes Goes to Graduate School: Lectures on Advanced Numerical Analysis (Stewart), 14

Afternotes on Numerical Analysis (Stewart), 14

Lectures on Finite Precision Computations (Chaitin-Chatelin and Frayssé), 6

Lectures on Geometric Methods in Mathematical Physics (Marsden), 13

Lectures on Mathematical Combustion (Buckmaster and Ludford), 6

Lectures on Modern Convex Optimization: Analysis, Algorithms, and Engineering Applications (Ben-Tal and Nemirovski), 14

Lectures on the Logic of Computer Programming (Manna), 8

Lectures on the Measurement and Evaluation of the Performance of Computing Systems (Rosen), 8

Mathematical Analysis of Viscoelastic Flows (Renardy), 11

Methods of Dynamic and Nonsmooth Optimization (Clarke), 8

Numerical Linear Algebra (Trefethen and Bau III), 13

Numerical Solution of Two Point Boundary Value Problems (Keller), 13

Random Number Generation and Quasi-Monte Carlo Methods (Niederreiter), 17

Ten Lectures on the Probabilistic Method, Second Edition (Spencer), 16

Ten Lectures on Wavelets (Daubechies), 19

Liapunov Functions

Control Perspectives on Numerical Algorithms and Matrix Problems (Bhaya and Kaszkurewicz), 8

Liapunov's Direct Method

The Stability of Dynamical Systems (LaSalle), 10

Lie Algebra

The Method of Equivalence and Its Applications (Gardner), 15

A Survey of Lie Groups and Lie Algebras with Applications and Computational Methods (Belinfante and Kolman), 15

Lie-Backlund Transformations

Lie-Backlund Transformation in Applications (Anderson and Ibragimov), 15

Lie Groups

A Survey of Lie Groups and Lie Algebras with Applications and Computational Methods (Belinfante and Kolman), 15

Limit Theorems

Some Limit Theorems in Statistics (Bahadur), 18

Weak Convergence of Measures Applications in Probability: Applications in Probability (Billingsley), 16

Linear Algebra

Applied Numerical Linear Algebra (Demmel), 12

Approximation of Large-Scale Dynamical Systems (Antoulas), 8

Direct Methods for Sparse Linear Systems (Davis), 7

Fast Reliable Algorithms for Matrices with Structure (Kailath and Sayed), 12

Functions of Matrices: Theory and Computation (Higham), 4, 12

An Introduction to Iterative Toeplitz Solvers (Chan and Jin), 3, 12

Introduction to Linear Algebra, Third Edition (Strang), 13

Introduction to Matrix Analysis, Second Edition (Bellman), 12

Invariant Subspaces of Matrices with Applications (Gohberg et al.), 12

Iterative Methods for Sparse Linear Systems, Second Edition (Saad), 12

Book Catalog Subject Index

- Lanczos Algorithms for Large Symmetric Eigenvalue Computations, Volume I: Theory* (Cullum and Willoughby), 12
- The Lanczos and Conjugate Gradient Algorithms: From Theory to Finite Precision Computations* (Meurant), 12
- The Lanczos Method: Evolution and Application* (Komzsik), 12
- LAPACK Users' Guide, Third Edition* (Anderson et al.), 12
- LAPACK95 Users' Guide* (Barker et al.), 12
- Linear Algebra, Geodesy, and GPS* (Strang and Borre), 13
- Linear Ordinary Differential Equations* (Coddington and Carlson), 15
- LINPACK Users' Guide* (Dongarra et al.), 12
- Matrix Algorithms, Volume I: Basic Decompositions* (Stewart), 13
- Matrix Algorithms, Volume II: Eigensystems* (Stewart), 13
- Matrix Analysis and Applied Linear Algebra* (Meyer), 12
- Matrix Analysis for Scientists and Engineers* (Laub), 12
- The Matrix Eigenvalue Problem: GR and Krylov Subspace Methods* (Watkins), 5, 13
- Nonnegative Matrices in the Mathematical Sciences* (Berman and Plemmons), 12
- Numerical Linear Algebra* (Trefethen and Bau III), 13
- Numerical Linear Algebra for High-Performance Computers* (Dongarra et al.), 12
- Optimal Design of Experiments* (Pukelsheim), 19
- Perturbation Bounds for Matrix Eigenvalues* (Bhatia), 12
- ScaLAPACK Users' Guide* (Blackford et al.), 12
- Spectral Properties of Banded Toeplitz Matrices* (Böttcher and Grudsky), 12
- Templates for the Solution of Algebraic Eigenvalue Problems: A Practical Guide* (Bai et al.), 12
- Templates for the Solution of Linear Systems: Building Blocks for Iterative Methods* (Barrett et al.), 12
- The Total Least Squares Problem: Computational Aspects and Analysis* (Van Huffel and Vandewalle), 13
- Understanding and Implementing the Finite Element Method* (Gockenbach), 16
- Linear Differential Operators
- Linear Differential Operators* (Lanczos), 13
- Linear Equations
- Iterative Methods for Linear and Nonlinear Equations* (Kelley), 15
- Linear Ordinary Differential Equations* (Coddington and Carlson), 15
- Numerical Analysis: A Second Course* (Ortega), 14
- Linear Feedback Control
- Linear Feedback Control: Analysis and Design with MATLAB* (Xue et al.), 5, 9
- Linear Inversion
- Rank-Deficient & Discrete Ill-Posed Problems: Numerical Aspects of Linear Inversion* (Hansen), 7
- Linear Matrix Inequalities
- Advances in Linear Matrix Inequality Methods in Control* (El Ghaoui and Niculescu), 8
- Linear Matrix Inequalities in System and Control Theory* (Boyd et al.), 8
- Linear Models
- Design and Analysis of Gauge R&R Studies: Making Decisions with Confidence Intervals in Random and Mixed ANOVA Models* (Burdick et al.), 18
- Linear Programming
- Linear Programming with MATLAB* (Ferris et al.), 4, 14
- Methods of Mathematical Economics: Linear and Nonlinear Programming, Fixed-Point Theorems* (Franklin), 14
- Optimization Software Guide* (Moré and Wright), 15

Book Catalog Subject Index

- Primal-Dual Interior-Point Methods* (Wright), 15
- Linear Renewal Theory
 - Nonlinear Renewal Theory in Sequential Analysis* (Woodroffe), 19
- Linear Statistical Models
 - Optimal Design of Experiments* (Pukelsheim), 19
- Linear Systems
 - Direct Methods for Sparse Linear Systems* (Davis), 7
 - Exact and Approximate Modeling of Linear Systems: A Behavioral Approach* (Markovsky et al.), 17
 - Invariant Subspaces of Matrices with Applications* (Gohberg et al.), 12
 - Iterative Methods for Solving Linear Systems* (Greenbaum), 13
 - Iterative Methods for Sparse Linear Systems, Second Edition* (Saad), 12
 - Linear Feedback Control: Analysis and Design with MATLAB* (Xue et al.), 5, 9
 - Matrix Analysis for Scientists and Engineers* (Laub), 12
 - Parallel Algorithms for Matrix Computations* (Gallivan et al.), 7
 - Singular Perturbation Methods in Control: Analysis and Design* (Kokotovic et al.), 9
- Linear Theory
 - Solitons and the Inverse Scattering Transform* (Ablowitz and Segur), 10
- Linear Viscoelasticity
 - Mathematical Problems in Linear Viscoelasticity* (Fabrizio and Morro), 17
- Link-Structure Algorithms
 - Understanding Search Engines: Mathematical Modeling and Text Retrieval, Second Edition* (Berry and Browne), 6
- LINPACK software
 - LINPACK Users' Guide* (Dongarra et al.), 12
- Locality-Sensitivity Approach
 - Distributed Computing: A Locality-Sensitivity Approach* (Peleg), 10
- Loewner Matrix Ordering
 - Optimal Design of Experiments* (Pukelsheim), 19
- Logic
 - Fuzzy Logic and Probability Applications: Bridging the Gap* (Ross et al.), 16
 - Lectures on the Logic of Computer Programming* (Manna), 8
- Lovász Local Lemma
 - Ten Lectures on the Probabilistic Method, Second Edition* (Spencer), 16

M

- Magnetic Resonance Imaging
 - Introduction to the Mathematics of Medical Imaging, Second Edition* (Epstein), 3, 12
- Mapping Theorems
 - Weak Convergence of Measures Applications in Probability: Applications in Probability* (Billingsley), 16
- Marine Acoustics
 - Marine Acoustics: Direct and Inverse Problems* (Buchanan et al.), 6
- Markov Processes
 - Stochastic Processes in the Neurosciences* (Tuckwell), 6
- Materials Science
 - Smart Material Systems: Model Development* (Smith), 13
- Mathematica Laboratories

Book Catalog Subject Index

- Mathematica *Laboratories for Mathematical Statistics: Emphasizing Simulation and Computer Intensive Methods* (Baglivo), 18
- Mathematical Biofluidynamics
Mathematical Biofluidynamics (Lighthill), 11
- Mathematical Biology
A Course in Mathematical Biology (de Vries et al.), 6
- Mathematical Economics
Methods of Mathematical Economics: Linear and Nonlinear Programming, Fixed-Point Theorems (Franklin), 14
- Mathematical Modeling
Ants, Bikes, and Clocks: Problem Solving for Undergraduates (Briggs), 10
Applied Mathematical Models in Human Physiology (Ottesen et al.), 6
Applied Stochastic Processes and Control for Jump-Diffusions: Modeling, Analysis, and Computation (Hanson), 4, 8
Approximation of Large-Scale Dynamical Systems (Antoulas), 8
Bioterrorism: Mathematical Modeling Applications in Homeland Security (Banks and Chavez), 6
Competition Models in Population Biology (Waltman), 6
Continuum Modeling in the Physical Sciences (van Groesen and Molenaar), 13
A Course in Mathematical Biology (de Vries et al.), 6
Credit Scoring and Its Applications (Thomas et al.), 10
Differential Dynamical Systems (Meiss), 5, 15
Evaluation and Optimization of Electoral Systems (Grilli di Cortona et al.), 9
Industrial Mathematics: The 1998 CRSC Workshop (Gremaud et al.), 11
Mathematical Aspects of Geometric Modeling (Micchelli), 11
Mathematical Modeling in Optical Science (Bao et al.), 14
Mathematical Modelling: Classroom Notes in Applied Mathematics (Klamkin), 17
Mathematical Models: Mechanical Vibrations, Population Dynamics, and Traffic Flow (Haberman), 17
Mathematical Models in Biology (Edelstein-Keshet), 6
Mathematics Applied to Deterministic Problems in the Natural Sciences (Lin and Segel), 10
Ordinary Differential Equations in Theory and Practice (Mattheij and Molenaar), 15
Smart Material Systems: Model Development (Smith), 13
Stochastic Processes (Parzen), 16
Understanding Search Engines: Mathematical Modeling and Text Retrieval, Second Edition (Berry and Browne), 6
- Mathematical Physics
Boundary Value Problems of Mathematical Physics, Volumes I & II (Stakgold), 16
Contemporary Problems in Statistical Physics (Weiss), 13
Continuum Modeling in the Physical Sciences (van Groesen and Molenaar), 13
Functions of a Complex Variable: Theory and Technique (Carrier et al.), 16
George Green: Mathematician & Physicist, 1793-1841: The Background to His Life and Work, Second Edition (Cannell), 11
Lectures on Geometric Methods in Mathematical Physics (Marsden), 13
Mathematics Applied to Continuum Mechanics (Segel with Handelman), 13
- Mathematical Programming. *see* Optimization Theory & Mathematical Programming
- Mathematical Statistics. *see also* Statistics
Mathematica Laboratories for Mathematical Statistics: Emphasizing Simulation and Computer Intensive Methods (Baglivo), 18

Book Catalog Subject Index

Mathematical Typesetting

Learning LATEX (Griffiths and Higham), 10

Mathematical Writing

Handbook of Writing for the Mathematical Sciences, Second Edition (Higham), 10

Mathematics Research Center (MRC) (University of Wisconsin)

An Uneasy Alliance: The Mathematics Research Center at the University of Wisconsin (Chandra and Robinson), 11

MATLAB software

Applied Numerical Linear Algebra (Demmel), 12

Computational Frameworks for the Fast Fourier Transform (Van Loan), 8

Computational Science and Engineering (Strang), 8

Deblurring Images: Matrices, Spectra, and Filtering (Hansen et al.), 12

Linear Feedback Control: Analysis and Design with MATLAB (Xue et al.), 5, 9

Linear Programming with MATLAB (Ferris et al.), 4, 14

MATLAB Guide, Second Edition (Higham and Higham), 7

Numerical Computing with MATLAB (Moler), 7

Spectral Methods in MATLAB (Trefethen), 8

The Structural Representation of Proximity Matrices with MATLAB (Hubert et al.), 18

Wavelets and Filter Banks (Strang and Nguyen), 17

Matrices

Control Perspectives on Numerical Algorithms and Matrix Problems (Bhaya and Kaszkurewicz), 8

Deblurring Images: Matrices, Spectra, and Filtering (Hansen et al.), 12

Fast Reliable Algorithms for Matrices with Structure (Kailath and Sayed), 12

Functions of Matrices: Theory and Computation (Higham), 4, 12

Introduction to Linear Algebra, Third Edition (Strang), 13

Invariant Subspaces of Matrices with Applications (Gohberg et al.), 12

Matrix Methods in Data Mining and Pattern Recognition (Eldén), 9

Nonnegative Matrices in the Mathematical Sciences (Berman and Plemmons), 12

Problems in Applied Mathematics: Selections from SIAM Review (Klamkin), 10

Spectral Properties of Banded Toeplitz Matrices (Böttcher and Grudsky), 12

The Structural Representation of Proximity Matrices with MATLAB (Hubert et al.), 18

The Symmetric Eigenvalue Problem (Parlett), 14

Matrix Algorithms

Direct Methods for Sparse Linear Systems (Davis), 7

Fast Reliable Algorithms for Matrices with Structure (Kailath and Sayed), 12

Matrix Algorithms, Volume I: Basic Decompositions (Stewart), 13

Matrix Algorithms, Volume II: Eigensystems (Stewart), 13

Matrix Analysis

Functions of Matrices: Theory and Computation (Higham), 4, 12

Introduction to Matrix Analysis, Second Edition (Bellman), 12

Introduction to Matrix Analytic Methods in Stochastic Modeling (Latouche and Ramaswami), 16

Matrix Analysis and Applied Linear Algebra (Meyer), 12

Matrix Analysis for Scientists and Engineers (Laub), 12

Matrix Computations

Functions of Matrices: Theory and Computation (Higham), 4, 12

Handbook for Matrix Computations (Coleman and Van Loan), 7

Parallel Algorithms for Matrix Computations (Gallivan et al.), 7

Book Catalog Subject Index

- The Total Least Squares Problem: Computational Aspects and Analysis* (Van Huffel and Vandewalle), 13
- Matrix Eigenvalues
The Matrix Eigenvalue Problem: GR and Krylov Subspace Methods (Watkins), 5, 13
Perturbation Bounds for Matrix Eigenvalues (Bhatia), 12
- Matrix Functions
Functions of Matrices: Theory and Computation (Higham), 4, 12
Invariant Subspaces of Matrices with Applications (Gohberg et al.), 12
- Matrix Inequalities
Advances in Linear Matrix Inequality Methods in Control (El Ghaoui and Niculescu), 8
Linear Matrix Inequalities in System and Control Theory (Boyd et al.), 8
- Maxwell's Equations
Notes on Time Decay and Scattering for Some Hyperbolic Problems (Morawetz), 16
- Mean Cumulative Function (MCF)
Recurrent Events Data Analysis for Product Repairs, Disease Recurrence, and Other Applications (Nelson), 18
- Means
The Analysis of Means: A Graphical Method for Comparing Means, Rates, and Proportions (Nelson et al.), 18
- Measurement System Analysis
Design and Analysis of Gauge R&R Studies: Making Decisions with Confidence Intervals in Random and Mixed ANOVA Models (Burdick et al.), 18
- Measures Applications
Weak Convergence of Measures Applications in Probability: Applications in Probability (Billingsley), 16
- Mechanical Systems
Lagrange Multiplier Approach to Variational Problems and Applications (Ito and Kunisch), 4, 14
Nonholonomic Motion of Rigid Mechanical Systems from a DAE Viewpoint (Rabier and Rheinboldt), 15
Problems in Applied Mathematics: Selections from SIAM Review (Klamkin), 10
- Mechanical Vibrations
Mathematical Models: Mechanical Vibrations, Population Dynamics, and Traffic Flow (Haberman), 17
- Mechanics. *see also* Solid Mechanics
Ill-Posed Problems for Integrodifferential Equations in Mechanics and Electromagnetic Theory (Bloom), 10
Mathematics Applied to Continuum Mechanics (Segel with Handelman), 13
- Medical Imaging
Introduction to the Mathematics of Medical Imaging, Second Edition (Epstein), 3, 12
The Mathematics of Computerized Tomography (Natterer), 12
Principles of Computerized Tomographic Imaging (Kak and Slaney), 12
- Mesh Adaptation
Computational Methods for Option Pricing (Achdou and Pironneau), 13
- Mesh Generation
Introduction to Numerical Continuation Methods (Allgower and Georg), 13
- Minimization
Nonlinear Programming: Sequential Unconstrained Minimization Techniques (Fiacco and McCormick), 14
- Minmax Theorems
Convex Analysis and Variational Problems (Ekeland and T  mam), 15
- Modeling. *see also* Mathematical Modeling; Simulation & Modeling

Book Catalog Subject Index

- Ants, Bikes, and Clocks: Problem Solving for Undergraduates* (Briggs), 10
Applied Mathematical Models in Human Physiology (Ottesen et al.), 6
Applied Stochastic Processes and Control for Jump-Diffusions: Modeling, Analysis, and Computation (Hanson), 4, 8
Basic Concepts of Probability and Statistics, Second Edition (Hodges and Lehmann), 18
Bioterrorism: Mathematical Modeling Applications in Homeland Security (Banks and Chavez), 6
Cardiovascular and Respiratory Systems: Modeling, Analysis, and Control (Batzel et al.), 17
Competition Models in Population Biology (Waltman), 6
Continuum Modeling in the Physical Sciences (van Groesen and Molenaar), 13
A Course in Mathematical Biology (de Vries et al.), 6
Designing Fair Curves and Surfaces: Shape Quality in Geometric Modeling and Computer-Aided Design (Sapidis), 11
Differential Dynamical Systems (Meiss), 5, 15
Exact and Approximate Modeling of Linear Systems: A Behavioral Approach (Markovsky et al.), 17
Introduction to Matrix Analytic Methods in Stochastic Modeling (Latouche and Ramaswami), 16
An Introduction to Modeling and Simulation of Particulate Flows (Zohdi), 17
Inverse Problem Theory and Methods for Model Parameter Estimation (Tarantola), 15
Mathematical Aspects of Geometric Modeling (Micchelli), 11
Mathematical Modeling in Optical Science (Bao et al.), 14
Mathematical Models in Biology (Edelstein-Keshet), 6
Nonparametric Function Estimation, Modeling, and Simulation (Thompson and Tapia), 19
Partial Differential Equations: Modeling, Analysis, Computation (Mattheij et al.), 16
Smart Material Systems: Model Development (Smith), 13
Spline Models for Observational Data (Wahba), 19
Stochastic Modeling in Broadband Communications Systems (Kaj), 16
Topics in Surface Modeling (Hagen), 11
Understanding Search Engines: Mathematical Modeling and Text Retrieval, Second Edition (Berry and Browne), 6
- Molecular Dynamics
Applications on Advanced Architecture Computers (Astfalk), 6
- Monte Carlo Methods
Inverse Problem Theory and Methods for Model Parameter Estimation (Tarantola), 15
Large Deviations and Applications (Varadhan), 19
Random Number Generation and Quasi-Monte Carlo Methods (Niederreiter), 17
- Multigrid Methods
Mathematical and Computational Techniques for Multilevel Adaptive Methods (Rüde), 7
Mathematical Aspects of Numerical Grid Generation (Castillo), 6
Multigrid Methods (McCormick), 7
A Multigrid Tutorial, Second Edition (Briggs, Henson, and McCormick), 6
Multilevel Adaptive Methods for Partial Differential Equations (McCormick), 16
- Multilevel Adaptive Methods
Mathematical and Computational Techniques for Multilevel Adaptive Methods (Rüde), 7
Multilevel Adaptive Methods for Partial Differential Equations (McCormick), 16
- Multilevel Projection Methods
Multilevel Projection Methods for Partial Differential Equations (McCormick), 7
- Multiphase Flow Equations
Computational Methods for Multiphase Flows in Porous Media (Chen et al.), 7

Book Catalog Subject Index

Multivariate Approximation Theory

Multivariate Approximation Theory: Selected Topics (Cheney), 7

Multivariate Splines

Multivariate Splines (Chui), 18

Multivariate Statistical Process Control

Multivariate Statistical Process Control with Industrial Applications (Mason and Young), 18

N

Nash Equilibrium

Dynamic Noncooperative Game Theory, Second Edition (Basar and Olsder), 8

Natural Sciences

Mathematics Applied to Deterministic Problems in the Natural Sciences (Lin and Segel), 10

Navier-Stokes Equations

Initial-Boundary Value Problems and the Navier-Stokes Equations (Kreiss and Lorenz), 16

Navier-Stokes Equations and Nonlinear Functional Analysis, Second Edition (Témam), 11

Network Algorithms

Data Structures and Network Algorithms (Tarjan), 8

Distributed Computing: A Locality-Sensitivity Approach (Peleg), 10

Network Optimization

Data Structures and Network Algorithms (Tarjan), 8

Neural Networks

Bayesian Nonparametrics via Neural Networks (Lee), 18

Discrete Mathematics of Neural Networks: Selected Topics (Anthony), 9

Neuro-Fuzzy Control

Neuro-Fuzzy Control of Industrial Systems with Actuator Nonlinearities (Lewis et al.), 9

Neurosciences

Stochastic Processes in the Neurosciences (Tuckwell), 6

Newton's Method

Lagrange Multiplier Approach to Variational Problems and Applications (Ito and Kunisch), 4, 14

Solving Nonlinear Equations with Newton's Method (Kelley), 7

Noise Analysis

Image Processing and Analysis: Variational, PDE, Wavelet, and Stochastic Methods (Chan and Shen),
11

Introduction to the Mathematics of Medical Imaging, Second Edition (Epstein), 3, 12

Principles of Computerized Tomographic Imaging (Kak and Slaney), 12

Noise Reduction

Wavelets and Their Applications: Case Studies (Kobayashi), 19

Noncooperative Game Theory

Dynamic Noncooperative Game Theory, Second Edition (Basar and Olsder), 8

Nonholonomic Motion

Nonholonomic Motion of Rigid Mechanical Systems from a DAE Viewpoint (Rabier and Rheinboldt), 15

Nonlinear Control

Adaptive Control Tutorial (Ioannou and Fidan), 9

Boundary Control of PDEs: A Course on Backstepping Designs (Krstic and Smyshlyaev), 5, 9

Nonlinear Convex Optimization

Trust-Region Methods (Conn et al.), 14

Book Catalog Subject Index

Nonlinear Elasticity

Variational Methods in Nonlinear Elasticity (Pedregal), 17

Nonlinear Equations

Iterative Methods for Linear and Nonlinear Equations (Kelley), 15

Iterative Solution of Nonlinear Equations in Several Variables (Ortega and Rheinboldt), 14

Methods for Solving Systems of Nonlinear Equations, Second Edition (Rheinboldt), 16

Numerical Analysis: A Second Course (Ortega), 14

Numerical Methods for Unconstrained Optimization and Nonlinear Equations (Dennis, Jr. and Schnabel), 14

Solving Nonlinear Equations with Newton's Method (Kelley), 7

Nonlinear Functional Analysis

Navier-Stokes Equations and Nonlinear Functional Analysis, Second Edition (Témam), 11

Nonlinear Mechanics

Augmented Lagrangian and Operator-Splitting Methods in Nonlinear Mechanics (Glowinski and Le Tallec), 17

Nonlinear Output Regulation

Nonlinear Output Regulation: Theory and Applications (Huang), 9

Nonlinear Programming

Methods of Mathematical Economics: Linear and Nonlinear Programming, Fixed-Point Theorems (Franklin), 14

Nonlinear Programming (Mangasarian), 15

Nonlinear Programming: Sequential Unconstrained Minimization Techniques (Fiacco and McCormick), 14

Practical Methods for Optimal Control Using Nonlinear Programming (Betts), 8

Nonlinear Renewal Theory

Nonlinear Renewal Theory in Sequential Analysis (Woodroffe), 19

Nonlinear Systems

Extending H^∞ Control to Nonlinear Systems: Control of Nonlinear Systems to Achieve Performance Objectives (Helton and James), 8

Introduction to Numerical Continuation Methods (Allgower and Georg), 13

Mathematical Models: Mechanical Vibrations, Population Dynamics, and Traffic Flow (Haberman), 17

Nonlinear Output Regulation: Theory and Applications (Huang), 9

Nonlinear Systems Analysis, Second Edition (Vidyasagar), 9

Singular Perturbation Methods in Control: Analysis and Design (Kokotovic et al.), 9

Time Series: Data Analysis and Theory (Brillinger), 18

Nonlinearities

Neuro-Fuzzy Control of Industrial Systems with Actuator Nonlinearities (Lewis et al.), 9

Nonnegative Matrices

Nonnegative Matrices in the Mathematical Sciences (Berman and Plemmons), 12

Nonparametric Function Estimation

Nonparametric Function Estimation, Modeling, and Simulation (Thompson and Tapia), 19

Nonsmooth Analysis

Methods of Dynamic and Nonsmooth Optimization (Clarke), 8

Optimization and Nonsmooth Analysis (Clarke), 8

Nonsmooth Optimization

Methods of Dynamic and Nonsmooth Optimization (Clarke), 8

Book Catalog Subject Index

Numbers

An Algorithmic Theory of Numbers, Graphs and Convexity (Lovász), 9

Numerical Algorithms

Accuracy and Stability of Numerical Algorithms, Second Edition (Higham), 13

Computational Frameworks for the Fast Fourier Transform (Van Loan), 8

Computational Methods for Option Pricing (Achdou and Pironneau), 13

Control Perspectives on Numerical Algorithms and Matrix Problems (Bhaya and Kaszkurewicz), 8

Lagrange Multiplier Approach to Variational Problems and Applications (Ito and Kunisch), 4, 14

Lanczos Algorithms for Large Symmetric Eigenvalue Computations, Volume I: Theory (Cullum and Willoughby), 12

Mathematical Methods in Image Reconstruction (Natterer and Wübbeling), 12

Trust-Region Methods (Conn et al.), 14

Numerical Analysis

Accuracy and Stability of Numerical Algorithms, Second Edition (Higham), 13

Afternotes Goes to Graduate School: Lectures on Advanced Numerical Analysis (Stewart), 14

Afternotes on Numerical Analysis (Stewart), 14

An Algorithmic Theory of Numbers, Graphs and Convexity (Lovász), 9

An Analysis of the Finite Element Method, Second Edition (Strang and Fix), 14

Analytical and Numerical Methods for Volterra Equations (Linz), 13

Cardiovascular and Respiratory Systems: Modeling, Analysis, and Control (Batzel et al.), 17

Computational Methods for Option Pricing (Achdou and Pironneau), 13

Discontinuous Galerkin Methods for Solving Elliptic and Parabolic Equations: Theory and Implementation (Rivière), 5, 14

Finite Difference Methods for Ordinary and Partial Differential Equations: Steady-State and Time-Dependent Problems (LeVeque), 13

Finite Difference Schemes and Partial Differential Equations, Second Edition (Strikwerda), 14

The Finite Element Method for Elliptic Problems (Ciarlet), 13

Fourier Analysis of Numerical Approximations of Hyperbolic Equations (Vichnevetsky and Bowles), 14

Functional Analysis and Approximation Theory in Numerical Analysis (Varga), 14

Functions of Matrices: Theory and Computation (Higham), 4, 12

Introduction to Numerical Continuation Methods (Allgower and Georg), 13

Introduction to the Numerical Analysis of Incompressible Viscous Flows (Layton), 19

Iterative Methods for Solving Linear Systems (Greenbaum), 13

Iterative Solution of Nonlinear Equations in Several Variables (Ortega and Rheinboldt), 14

Linear Differential Operators (Lanczos), 13

A Multigrid Tutorial, Second Edition (Briggs et al.), 6

Numerical Analysis: A Second Course (Ortega), 14

Numerical Analysis of Spectral Methods: Theory and Applications (Gottlieb and Orszag), 13

Numerical Methods in Scientific Computing, Volume I (Dahlquist and Björck), 3, 13

Numerical Polynomial Algebra (Stetter), 8

The Numerical Solution of Elliptic Equations (Birkhoff), 13

Numerical Solution of Elliptic Problems (Birkhoff and Lynch), 13

Numerical Solution of Two Point Boundary Value Problems (Keller), 13

Scientific Computation on Mathematical Problems and Conjectures (Varga), 14

The SIAM 100-Digit Challenge: A Study in High-Accuracy Numerical Computing (Bornemann et al.), 13

Sinc Methods for Quadrature and Differential Equations (Lund and Bowers), 14

Solution of Partial Differential Equations on Vector and Parallel Computers (Ortega and Voigt), 14

Book Catalog Subject Index

- Spectral Properties of Banded Toeplitz Matrices* (Böttcher and Grudsky), 12
The Symmetric Eigenvalue Problem (Parlett), 14
Variational Methods for Eigenvalue Approximation (Weinberger), 14
- Numerical Computing
Numerical Computing with IEEE Floating Point Arithmetic (Overton), 7
Numerical Computing with MATLAB (Moler), 7
Numerical Computing with Simulink, Volume I: Creating Simulations (Gran), 4, 17
The SIAM 100-Digit Challenge: A Study in High-Accuracy Numerical Computing (Bornemann et al.), 13
- Numerical Continuation Methods
Introduction to Numerical Continuation Methods (Allgower and Georg), 13
- Numerical Grid Generation
Mathematical Aspects of Numerical Grid Generation (Castillo), 6
- Numerical Integration
Computational Integration (Krommer and Ueberhuber), 7
- Numerical Linear Algebra
Applied Numerical Linear Algebra (Demmel), 12
Approximation of Large-Scale Dynamical Systems (Antoulas), 8
Functions of Matrices: Theory and Computation (Higham), 4, 12
LAPACK Users' Guide, Third Edition (Anderson et al.), 12
LAPACK95 Users' Guide (Barker et al.), 12
Numerical Linear Algebra (Trefethen and Bau III), 13
Numerical Linear Algebra for High-Performance Computers (Dongarra et al.), 12
Parallel Algorithms for Matrix Computations (Gallivan et al.), 7
Spectral Properties of Banded Toeplitz Matrices (Böttcher and Grudsky), 12
The Total Least Squares Problem: Computational Aspects and Analysis (Van Huffel and Vandewalle), 13
- Numerical Methods
Control Perspectives on Numerical Algorithms and Matrix Problems (Bhaya and Kaszkurewicz), 8
The Immersed Interface Method: Numerical Solutions of PDEs Involving Interfaces and Irregular Domains (Li and Ito), 7
An Introduction to Modeling and Simulation of Particulate Flows (Zohdi), 17
Lectures on Finite Precision Computations (Chaitin-Chatelin and Frayssé), 6
Multigrid Methods (McCormick), 7
Numerical Computing with MATLAB (Moler), 7
Numerical Methods for Bifurcations of Dynamical Equilibria (Govaerts), 10
Numerical Methods for Evolutionary Differential Equations (Ascher), 3, 6
Numerical Methods for Least Squares Problems (Björck), 6
Numerical Methods for Special Functions (Gil et al.), 4, 16
Numerical Methods for Unconstrained Optimization and Nonlinear Equations (Dennis, Jr. and Schnabel), 14
Numerical Methods in Scientific Computing, Volume I (Dahlquist and Björck), 3, 13
Numerical Solution of Boundary Value Problems for Ordinary Differential Equations (Ascher et al.), 15
Numerical Solution of Initial-Value Problems in Differential-Algebraic Equations (Brenan et al.), 6
Partial Differential Equations: Analytical and Numerical Methods (Gockenbach), 16
Performance Optimization of Numerically Intensive Codes (Goedecker and Hoisie), 7
Rank-Deficient & Discrete Ill-Posed Problems: Numerical Aspects of Linear Inversion (Hansen), 7
Simulating, Analyzing, and Animating Dynamical Systems: A Guide to XPPAUT for Researchers and Students (Ermentrout), 10

Book Catalog Subject Index

- Smart Material Systems: Model Development* (Smith), 13
- Solving Least Squares Problems* (Lawson and Hanson), 7
- Solving PDEs in C++: Numerical Methods in a Unified Object-Oriented Approach* (Shapira), 7
- Understanding and Implementing the Finite Element Method* (Gockenbach), 16
- Numerical Optimization
 - Trust-Region Methods* (Conn et al.), 14
- Numerical Polynomial Algebra
 - Numerical Polynomial Algebra* (Stetter), 8
- Numerical Simulations
 - Computational Methods for Multiphase Flows in Porous Media* (Chen et al.), 7
 - Numerical Simulation in Fluid Dynamics: A Practical Introduction* (Griebel et al.), 11
- Numerical Solutions
 - Numerical Solution of Boundary Value Problems for Ordinary Differential Equations* (Ascher et al.), 15
 - Numerical Solution of Initial-Value Problems in Differential-Algebraic Equations* (Brenan et al.), 6
- Numerically Intensive Codes
 - Performance Optimization of Numerically Intensive Codes* (Goedecker and Hoisie), 7

- O**
- Object-Oriented Approaches
 - Solving PDEs in C++: Numerical Methods in a Unified Object-Oriented Approach* (Shapira), 7
- Observational Data
 - The Analysis of Means: A Graphical Method for Comparing Means, Rates, and Proportions* (Nelson et al.), 18
 - Spline Models for Observational Data* (Wahba), 19
- Observations Least Subject to Errors
 - Theory of the Combination of Observations Least Subject to Errors* (Gauss and Stewart), 7
- Oceanographic Sciences. *see* Atmospheric & Oceanographic Sciences
- Oil Recovery
 - Reservoir Simulation: Mathematical Techniques in Oil Recovery* (Chen), 3, 17
- 100-Digit Challenge*
 - The SIAM 100-Digit Challenge: A Study in High-Accuracy Numerical Computing* (Bornemann et al.), 13
- Operator-Splitting Methods
 - Augmented Lagrangian and Operator-Splitting Methods in Nonlinear Mechanics* (Glowinski and Le Tallec), 17
- Optical Fiber Communications
 - Mathematical Principles of Optical Fiber Communications* (Shaw), 6
- Optical Science
 - Mathematical Modeling in Optical Science* (Bao et al.), 14
- Optics
 - Mathematical Modeling in Optical Science* (Bao et al.), 14
 - Mathematical Principles of Optical Fiber Communications* (Shaw), 6
 - Solitons and the Inverse Scattering Transform* (Ablowitz and Segur), 10
- Optimal Control
 - Applied Stochastic Processes and Control for Jump-Diffusions: Modeling, Analysis, and Computation* (Hanson), 4, 8
 - Cardiovascular and Respiratory Systems: Modeling, Analysis, and Control* (Batzel et al.), 17

Book Catalog Subject Index

Mathematical Control Theory of Coupled PDEs (Lasiecka), 9
Optimal Control of Viscous Flow (Sritharan), 11
Optimization and Nonsmooth Analysis (Clarke), 8
Practical Methods for Optimal Control Using Nonlinear Programming (Betts), 8
Real-Time PDE-Constrained Optimization (Biegler et al.), 14
Some Aspects of the Optimal Control of Distributed Parameter Systems (Lions), 9

Optimal Design

Optimal Design of Experiments (Pukelsheim), 19
Sequential Analysis and Optimal Design (Chernoff), 18

Optimization

An Algorithmic Theory of Numbers, Graphs and Convexity (Lovász), 9
Applications on Advanced Architecture Computers (Astfalk), 6
Applied Dynamic Programming for Optimization of Dynamical Systems (Robinett III et al.), 9
Classical Control Using H^∞ Methods: An Introduction to Design (Helton and Merino), 9
Classical Control Using H^∞ Methods: Theory, Optimization, and Design (Helton and Merino), 9
Combinatorial Data Analysis: Optimization by Dynamic Programming (Hubert et al.), 9
Combinatorial Optimization: Packing and Covering (Cornuéjols), 9
Conjugate Duality and Optimization (Rockafellar), 15
Data Structures and Network Algorithms (Tarjan), 8
Discrete Convex Analysis (Murota), 10
Evaluation and Optimization of Electoral Systems (Grilli di Cortona et al.), 9
Introduction to Shape Optimization: Theory, Approximation, and Computation (Haslinger and Mäkinen), 8
Iterative Methods for Optimization (Kelley), 15
Lectures on Modern Convex Optimization: Analysis, Algorithms, and Engineering Applications (Ben-Tal and Nemirovski), 14
Mathematical Optimization and Economic Theory (Intriligator), 10
A Mathematical View of Interior-Point Methods in Convex Optimization (Renegar), 15
Methods of Dynamic and Nonsmooth Optimization (Clarke), 8
Numerical Methods for Unconstrained Optimization and Nonlinear Equations (Dennis, Jr. and Schnabel), 14
Optimization and Nonsmooth Analysis (Clarke), 8
Performance Optimization of Numerically Intensive Codes (Goedecker and Hoisie), 7
Perspectives in Flow Control and Optimization (Gunzburger), 8
Probability Theory and Combinatorial Optimization (Steele), 10
Problems in Applied Mathematics: Selections from SIAM Review (Klamkin), 10
Real-Time PDE-Constrained Optimization (Biegler et al.), 14
Shapes and Geometries: Analysis, Differential Calculus, and Optimization (Delfour and Zolésio), 8
Trust-Region Methods (Conn et al.), 14
Variational Analysis in Sobolev and BV Spaces (Attouch et al.), 14
The Vehicle Routing Problem (Toth and Vigo), 10

Optimization Theory & Mathematical Programming

Applications of Stochastic Programming (Wallace and Ziemba), 15
Conjugate Duality and Optimization (Rockafellar), 15
Facts, Conjectures, and Improvements for Simulated Annealing (Salamon et al.), 15
Integer Programming: Facets, Subadditivity, and Duality for Group and Semi-group Problems (Johnson), 14

Book Catalog Subject Index

- Interior-Point Polynomial Algorithms in Convex Programming* (Nesterov and Nemirovskii), 15
Inverse Problem Theory and Methods for Model Parameter Estimation (Tarantola), 15
Iterative Methods for Linear and Nonlinear Equations (Kelley), 15
Iterative Methods for Optimization (Kelley), 15
Lagrange Multiplier Approach to Variational Problems and Applications (Ito and Kunisch), 4, 14
Lectures on Modern Convex Optimization: Analysis, Algorithms, and Engineering Applications (Ben-Tal and Nemirovski), 14
Linear Programming with MATLAB (Ferris et al.), 4, 14
Mathematical Optimization and Economic Theory (Intriligator), 10
A Mathematical View of Interior-Point Methods in Convex Optimization (Renegar), 15
Methods of Mathematical Economics: Linear and Nonlinear Programming, Fixed-Point Theorems (Franklin), 14
Nonlinear Programming (Mangasarian), 15
Nonlinear Programming: Sequential Unconstrained Minimization Techniques (Fiacco and McCormick), 14
Numerical Methods for Unconstrained Optimization and Nonlinear Equations (Dennis, Jr. and Schnabel), 14
Optimization and Nonsmooth Analysis (Clarke), 8
Optimization Software Guide (Moré and Wright), 15
Primal-Dual Interior-Point Methods (Wright), 15
Real-Time PDE-Constrained Optimization (Biegler et al.), 14
The Sharpest Cut: The Impact of Manfred Padberg and His Work (Grötschel), 14
Trust-Region Methods (Conn, Gould, and Toint), 14
Variational Analysis in Sobolev and BV Spaces (Attouch et al.), 14
- Option Pricing
Computational Methods for Option Pricing (Achdou and Pironneau), 13
- Order Statistics
A First Course in Order Statistics (Arnold et al.), 3, 17
Selecting and Ordering Populations: A New Statistical Methodology (Gibbons et al.), 18
- Ordinary Differential Equations (ODEs)
Branching in the Presence of Symmetry (Sattinger), 15
Computer Methods for Ordinary Differential Equations and Differential-Algebraic Equations (Ascher and Petzold), 6
Control Perspectives on Numerical Algorithms and Matrix Problems (Bhaya and Kaszkurewicz), 8
Differential Dynamical Systems (Meiss), 5, 15
Finite Difference Methods for Ordinary and Partial Differential Equations: Steady-State and Time-Dependent Problems (LeVeque), 13
- Linear Ordinary Differential Equations (Coddington and Carlson), 15
Mathematical Models: Mechanical Vibrations, Population Dynamics, and Traffic Flow (Haberman), 17
The Method of Equivalence and Its Applications (Gardner), 15
Nonholonomic Motion of Rigid Mechanical Systems from a DAE Viewpoint (Rabier and Rheinboldt), 15
Numerical Analysis: A Second Course (Ortega), 14
Numerical Methods for Evolutionary Differential Equations (Ascher), 3, 6
Numerical Solution of Boundary Value Problems for Ordinary Differential Equations (Ascher et al.), 15
Ordinary Differential Equations (Carrier and Pearson), 15
Ordinary Differential Equations, Second Edition (Hartman), 15
Ordinary Differential Equations in Theory and Practice (Mattheij and Molenaar), 15

Book Catalog Subject Index

- Practical Methods for Optimal Control Using Nonlinear Programming* (Betts), 8
Problems in Applied Mathematics: Selections from SIAM Review (Klamkin), 10
Spectral Methods in MATLAB (Trefethen), 8
A Survey of Lie Groups and Lie Algebras with Applications and Computational Methods (Belinfante and Kolman), 15
- Orthogonal Polynomials
Orthogonal Polynomials and Special Functions (Askey), 16
- Orthogonal Systems
Numerical Methods in Scientific Computing, Volume I (Dahlquist and Björck), 3, 13
- Orthogonality
Introduction to Linear Algebra, Third Edition (Strang), 13
- Output Regulation
Nonlinear Output Regulation: Theory and Applications (Huang), 9
- P**
- Padberg, Manfred
The Sharpest Cut: The Impact of Manfred Padberg and His Work (Grötschel), 14
- Panel on Future Directions in Control, Dynamics, and Systems
Control in an Information Rich World: Report of the Panel on Future Directions in Control, Dynamics, and Systems (Murray), 9
- Parabolic Equations
Discontinuous Galerkin Methods for Solving Elliptic and Parabolic Equations: Theory and Implementation (Rivière), 5, 14
- Parallel Algorithms
Parallel Algorithms for Matrix Computations (Gallivan et al.), 7
Parallel Processing for Scientific Computing (Heroux et al.), 7
- Parallel Computing
Parallel Algorithms for Matrix Computations (Gallivan et al.), 7
Solution of Partial Differential Equations on Vector and Parallel Computers (Ortega and Voigt), 14
A Tutorial on Elliptic PDE Solvers and Their Parallelization (Douglas et al.), 7
- Parallel Integration
Computational Integration (Krommer and Ueberhuber), 7
- Parallel Processing
Parallel Processing for Scientific Computing (Heroux et al.), 7
- Parallelism
Domain-Based Parallelism and Problem Decomposition Methods in Computational Science and Engineering (Keyes et al.), 7
- Parallelization
A Tutorial on Elliptic PDE Solvers and Their Parallelization (Douglas et al.), 7
- Partial Differential Equations (PDEs)
Applications on Advanced Architecture Computers (Astfalk), 6
Boundary Control of PDEs: A Course on Backstepping Designs (Krstic and Smyshlyaev), 5, 9
Boundary Value Problems of Mathematical Physics, Volumes I & II (Stakgold), 16
The Cauchy Problem in Kinetic Theory (Glasse), 16
Computational Methods for Inverse Problems (Vogel), 16
Computational Methods for Option Pricing (Achdou and Pironneau), 13

Book Catalog Subject Index

- Convex Analysis and Variational Problems* (Ekeland and Témam), 15
- Design Sensitivity Analysis: Computational Issues of Sensitivity Equation Methods* (Stanley and Stewart), 8
- Discontinuous Galerkin Methods for Solving Elliptic and Parabolic Equations: Theory and Implementation* (Rivière), 5, 14
- Extending H^∞ Control to Nonlinear Systems: Control of Nonlinear Systems to Achieve Performance Objectives* (Helton and James), 8
- Finite Difference Methods for Ordinary and Partial Differential Equations: Steady-State and Time-Dependent Problems* (LeVeque), 13
- Finite Difference Schemes and Partial Differential Equations, Second Edition* (Strikwerda), 14
- Finite Element Solution of Boundary Value Problems: Theory and Computation* (Axelsson and Barker), 15
- Image Processing and Analysis: Variational, PDE, Wavelet, and Stochastic Methods* (Chan and Shen), 11
- The Immersed Interface Method: Numerical Solutions of PDEs Involving Interfaces and Irregular Domains* (Li and Ito), 7
- Improperly Posed Problems in Partial Differential Equations* (Payne), 16
- Industrial Mathematics: The 1998 CRSC Workshop* (Gremaud et al.), 11
- Initial-Boundary Value Problems and the Navier-Stokes Equations* (Kreiss and Lorenz), 16
- An Introduction to Invariant Imbedding* (Bellman and Wing), 15
- An Introduction to Inverse Scattering and Inverse Spectral Problems* (Chadan et al.), 15
- An Introduction to Variational Inequalities and Their Applications* (Kinderlehrer and Stampacchia), 16
- Lagrange Multiplier Approach to Variational Problems and Applications* (Ito and Kunisch), 4, 14
- Lie-Backlund Transformation in Applications* (Anderson and Ibragimov), 15
- Mathematical Control Theory of Coupled PDEs* (Lasiecka), 9
- Mathematical Models: Mechanical Vibrations, Population Dynamics, and Traffic Flow* (Haberman), 17
- Multilevel Adaptive Methods for Partial Differential Equations* (McCormick), 16
- Multilevel Projection Methods for Partial Differential Equations* (McCormick), 7
- Notes on Time Decay and Scattering for Some Hyperbolic Problems* (Morawetz), 16
- Numerical Methods for Evolutionary Differential Equations* (Ascher), 3, 6
- Partial Differential Equations: Analytical and Numerical Methods* (Gockenbach), 16
- Partial Differential Equations: Modeling, Analysis, Computation* (Mattheij et al.), 16
- PLTMG: A Software Package for Solving Elliptic Partial Differential Equations: Users' Guide 8.0* (Bank), 15
- Real-Time PDE-Constrained Optimization* (Biegler et al.), 14
- Research Directions in Distributed Parameter Systems* (Smith and Demetriou), 9
- Solution of Partial Differential Equations on Vector and Parallel Computers* (Ortega and Voigt), 14
- Solving PDEs in C++: Numerical Methods in a Unified Object-Oriented Approach* (Shapira), 7
- Spectral Methods in MATLAB* (Trefethen), 8
- A Tutorial on Elliptic PDE Solvers and Their Parallelization* (Douglas et al.), 7
- Understanding and Implementing the Finite Element Method* (Gockenbach), 16
- Variational Analysis in Sobolev and BV Spaces* (Attouch et al.), 14
- Partial Differential Inequality
- Extending H^∞ Control to Nonlinear Systems: Control of Nonlinear Systems to Achieve Performance Objectives* (Helton and James), 8
- Particulate Flows

Book Catalog Subject Index

- An Introduction to Modeling and Simulation of Particulate Flows* (Zohdi), 17
- Pattern Recognition
Matrix Methods in Data Mining and Pattern Recognition (Eldén), 9
- Performance Evaluation
Lectures on the Measurement and Evaluation of the Performance of Computing Systems (Rosen), 8
- Performance Optimization
Extending H^∞ Control to Nonlinear Systems: Control of Nonlinear Systems to Achieve Performance Objectives (Helton and James), 8
Performance Optimization of Numerically Intensive Codes (Goedecker and Hoisie), 7
- Perturbation Methods
Partial Differential Equations: Modeling, Analysis, Computation (Mattheij et al.), 16
- Perturbations
Accuracy and Stability of Numerical Algorithms, Second Edition (Higham), 13
The Boundary Function Method for Singular Perturbation Problems (Vasil'eva et al.), 17
Invariant Subspaces of Matrices with Applications (Gohberg et al.), 12
Perturbation Bounds for Matrix Eigenvalues (Bhatia), 12
Perturbations: Theory and Methods (Murdock), 10
Singular Perturbation Methods in Control: Analysis and Design (Kokotovic et al.), 9
Singular Perturbations and Hysteresis (Mortell et al.), 16
- Petroleum Engineering
Computational Methods for Multiphase Flows in Porous Media (Chen et al.), 7
Reservoir Simulation: Mathematical Techniques in Oil Recovery (Chen), 3, 17
- Physical Sciences
Boundary Value Problems of Mathematical Physics, Volumes I & II (Stakgold), 16
The Cauchy Problem in Kinetic Theory (Glassey), 16
Continuum Modeling in the Physical Sciences (van Groesen and Molenaar), 13
Differential Dynamical Systems (Meiss), 5, 15
Facts, Conjectures, and Improvements for Simulated Annealing (Salamon et al.), 15
Mathematical Modelling: Classroom Notes in Applied Mathematics (Klamkin), 17
Mathematics Applied to Deterministic Problems in the Natural Sciences (Lin and Segel), 10
- Physics. *see also* Mathematical Physics; Quantum Physics
Contemporary Problems in Statistical Physics (Weiss), 13
Continuum Modeling in the Physical Sciences (van Groesen and Molenaar), 13
George Green: Mathematician & Physicist, 1793-1841: The Background to His Life and Work, Second Edition (Cannell), 11
Lectures on Geometric Methods in Mathematical Physics (Marsden), 13
Solitons and the Inverse Scattering Transform (Ablowitz and Segur), 10
Solitons in Mathematics and Physics (Newell), 11
- Physiology
Applied Mathematical Models in Human Physiology (Ottesen et al.), 6
Cardiovascular and Respiratory Systems: Modeling, Analysis, and Control (Batzel et al.), 17
- Pitman's Measure of Closeness
Pitman's Measure of Closeness: A Comparison of Statistical Estimators (Keating et al.), 18
- Plate and Shell Models
Smart Material Systems: Model Development (Smith), 13
- Plates

Book Catalog Subject Index

- Boundary Stabilization of Thin Plates* (Lagnese), 17
- PLTMG software
PLTMG: A Software Package for Solving Elliptic Partial Differential Equations: Users' Guide 8.0 (Bank), 15
- Polynomials
Interior-Point Polynomial Algorithms in Convex Programming (Nesterov and Nemirovskii), 15
Mathematical Aspects of Geometric Modeling (Micchelli), 11
Numerical Polynomial Algebra (Stetter), 8
Orthogonal Polynomials and Special Functions (Askey), 16
Problems in Applied Mathematics: Selections from SIAM Review (Klamkin), 10
- Populations
Approximation of Population Processes (Kurtz), 17
Competition Models in Population Biology (Waltman), 6
Gender-Structured Population Modeling: Mathematical Methods, Numerics, and Simulations (Iannelli et al.), 17
An Introduction to Structured Population Dynamics (Cushing), 6
Mathematical Models: Mechanical Vibrations, Population Dynamics, and Traffic Flow (Haberman), 17
Mathematical Theories of Populations: Demographics, Genetics and Epidemics (Hoppensteadt), 17
Multiple Decision Procedures: Theory and Methodology of Selecting and Ranking Populations (Gupta and Panchapakesan), 18
Recurrent Events Data Analysis for Product Repairs, Disease Recurrence, and Other Applications (Nelson), 18
Selecting and Ordering Populations: A New Statistical Methodology (Gibbons et al.), 18
- Porous Media
Computational Methods for Multiphase Flows in Porous Media (Chen et al.), 7
- Power Series Methods
Numerical Methods in Scientific Computing, Volume I (Dahlquist and Björck), 3, 13
- Pricing
Computational Methods for Option Pricing (Achedou and Pironneau), 13
- Primal-Dual Interior-Point Methods
Primal-Dual Interior-Point Methods (Wright), 15
- Probabilistic Expert Systems
Probabilistic Expert Systems (Shafer), 8
- Probabilistic Method
Ten Lectures on the Probabilistic Method, Second Edition (Spencer), 16
- Probability
Basic Concepts of Probability and Statistics, Second Edition (Hodges and Lehmann), 18
Foundations of Stochastic Differential Equations in Infinite Dimensional Spaces (Ito), 16
Fuzzy Logic and Probability Applications: Bridging the Gap (Ross et al.), 16
Geometric Probability (Solomon), 16
Introduction to Matrix Analytic Methods in Stochastic Modeling (Latouche and Ramaswami), 16
Inverse Problem Theory and Methods for Model Parameter Estimation (Tarantola), 15
Probability (Breiman), 16
Probability Theory and Combinatorial Optimization (Steele), 10
Problems in Applied Mathematics: Selections from SIAM Review (Klamkin), 10
Russian-English / English-Russian Dictionary on Probability, Statistics, and Combinatorics (Borovkov), 18

Book Catalog Subject Index

- Stochastic Modeling in Broadband Communications Systems* (Kaj), 16
Stochastic Processes (Parzen), 16
Ten Lectures on the Probabilistic Method, Second Edition (Spencer), 16
Weak Convergence of Measures Applications in Probability: Applications in Probability (Billingsley), 16
- Problem Decomposition Methods
Domain-Based Parallelism and Problem Decomposition Methods in Computational Science and Engineering (Keyes et al.), 7
- Problem Solving
Ants, Bikes, and Clocks: Problem Solving for Undergraduates (Briggs), 10
Fuzzy Logic and Probability Applications: Bridging the Gap (Ross et al.), 16
Industrial Mathematics: A Course in Solving Real-World Problems (Friedman and Littman), 10
- Product Repairs
Recurrent Events Data Analysis for Product Repairs, Disease Recurrence, and Other Applications (Nelson), 18
- Programming. *see* Optimization Theory & Mathematical Programming
- Prokhorov's Theorem
Weak Convergence of Measures Applications in Probability: Applications in Probability (Billingsley), 16
- Proportions
The Analysis of Means: A Graphical Method for Comparing Means, Rates, and Proportions (Nelson et al.), 18
- Proximity Matrices
The Structural Representation of Proximity Matrices with MATLAB (Hubert et al.), 18
- Pseudorandom Number Generation
Random Number Generation and Quasi-Monte Carlo Methods (Niederreiter), 17
- Publishing
Handbook of Writing for the Mathematical Sciences, Second Edition (Higham), 10
Learning LATEX (Griffiths and Higham), 10
- Q**
- Quadratic Equations
Indefinite-Quadratic Estimation and Control: A Unified Approach to H^2 and H^∞ Theories (Hassibi et al.), 8
- Quadrature
Sinc Methods for Quadrature and Differential Equations (Lund and Bowers), 14
- Quantile Processes
Quantile Processes with Statistical Applications (Csorgo), 18
- Quantitative Analysis
Mathematical Problems in the Biological Sciences (Rubinow), 6
Ordinary Differential Equations in Theory and Practice (Mattheij and Molenaar), 15
Stochastic Processes in the Neurosciences (Tuckwell), 6
- Quantitative Modeling
A Course in Mathematical Biology (de Vries et al.), 6
- Quantum Physics
Techniques of Differential Topology in Relativity (Penrose), 16
- Quantum Scattering Theory
An Introduction to Inverse Scattering and Inverse Spectral Problems (Chadan et al.), 15
- Quasi-Birth-and-Death (QBD) Processes

Book Catalog Subject Index

Introduction to Matrix Analytic Methods in Stochastic Modeling (Latouche and Ramaswami), 16
Quasi-Monte Carlo Methods

Random Number Generation and Quasi-Monte Carlo Methods (Niederreiter), 17

R

Random Number Generation

Random Number Generation and Quasi-Monte Carlo Methods (Niederreiter), 17

Randomness

Applications of Stochastic Programming (Wallace and Ziemba), 15

Rank-Deficient Problems

Rank-Deficient & Discrete Ill-Posed Problems: Numerical Aspects of Linear Inversion (Hansen), 7

Ranking

Multiple Decision Procedures: Theory and Methodology of Selecting and Ranking Populations (Gupta and Panchapakesan), 18

Rates

The Analysis of Means: A Graphical Method for Comparing Means, Rates, and Proportions (Nelson et al.), 18

Real & Complex Analysis

The Boundary Function Method for Singular Perturbation Problems (Vasil'eva et al.), 17

Calculus (Strang), 17

The DFT: An Owner's Manual for the Discrete Fourier Transform (Briggs and Henson), 16

Functions of a Complex Variable: Theory and Technique (Carrier et al.), 16

Introduction to Applied Mathematics (Strang), 17

Linear Ordinary Differential Equations (Coddington and Carlson), 15

Methods for Solving Systems of Nonlinear Equations, Second Edition (Rheinboldt), 16

Numerical Methods for Special Functions (Gil et al.), 4, 16

Orthogonal Polynomials and Special Functions (Askey), 16

Singular Perturbations and Hysteresis (Mortell et al.), 16

The Theory of Best Approximation and Functional Analysis (Singer), 17

Wavelets and Filter Banks (Strang and Nguyen), 17

Real-Time Optimization

Real-Time PDE-Constrained Optimization (Biegler et al.), 14

Reconstruction Algorithms

Mathematical Methods in Image Reconstruction (Natterer and Wübbeling), 12

The Mathematics of Computerized Tomography (Natterer), 12

Recurrent Events Data Analysis

Recurrent Events Data Analysis for Product Repairs, Disease Recurrence, and Other Applications (Nelson), 18

Regularization

Spline Models for Observational Data (Wahba), 19

Relativity

Techniques of Differential Topology in Relativity (Penrose), 16

Reliability

Accuracy and Reliability in Scientific Computing (Einarsson), 7

Engineering Reliability (Barlow), 18

Fast Reliable Algorithms for Matrices with Structure (Kailath and Sayed), 12

Book Catalog Subject Index

- Mathematical Theory of Reliability* (Barlow and Proschan), 18
Statistical Case Studies for Industrial Process Improvement (Czitrom and Spagon), 18
- Renewal Theory
Nonlinear Renewal Theory in Sequential Analysis (Woodroffe), 19
- Repeatability
Design and Analysis of Gauge R&R Studies: Making Decisions with Confidence Intervals in Random and Mixed ANOVA Models (Burdick et al.), 18
- Repere Mobile Theory
The Method of Equivalence and Its Applications (Gardner), 15
- Reports
Control in an Information Rich World: Report of the Panel on Future Directions in Control, Dynamics, and Systems (Murray), 9
- Reproducibility
Design and Analysis of Gauge R&R Studies: Making Decisions with Confidence Intervals in Random and Mixed ANOVA Models (Burdick et al.), 18
- Resampling
The Jackknife, the Bootstrap, and Other Resampling Plans (Efron), 18
Nonparametric Function Estimation, Modeling, and Simulation (Thompson and Tapia), 19
- Reservoir Simulation
Computational Methods for Multiphase Flows in Porous Media (Chen et al.), 7
The Mathematics of Reservoir Simulation (Ewing), 11
Reservoir Simulation: Mathematical Techniques in Oil Recovery (Chen), 3, 17
- Respiratory Systems
Cardiovascular and Respiratory Systems: Modeling, Analysis, and Control (Batzel et al.), 17
- Riccati Equations
An Introduction to Invariant Imbedding (Bellman and Wing), 15
- Rigid Mechanical Systems
Nonholonomic Motion of Rigid Mechanical Systems from a DAE Viewpoint (Rabier and Rheinboldt), 15
- Robust Statistics
Robust Statistical Procedures, Second Edition (Huber), 18
- Rounding Errors
Accuracy and Stability of Numerical Algorithms, Second Edition (Higham), 13
Iterative Methods for Solving Linear Systems (Greenbaum), 13
Numerical Analysis: A Second Course (Ortega), 14
- Russian
Russian-English / English-Russian Dictionary on Probability, Statistics, and Combinatorics (Borovkov), 18

S

- Sample Distribution Function
Distribution Theory for Tests Based on the Sample Distribution Function (Durbin), 18
- Sampling
Basic Concepts of Probability and Statistics, Second Edition (Hodges and Lehmann), 18
Bayesian Statistics, A Review (Lindley), 18
Distribution Theory for Tests Based on the Sample Distribution Function (Durbin), 18
Iterative Methods for Optimization (Kelley), 15

Book Catalog Subject Index

- The Jackknife, the Bootstrap, and Other Resampling Plans* (Efron), 18
- A Primer for Sampling Solids, Liquids and Gases: Based on the Seven Sampling Errors of Pierre Gy* (Smith), 19
- ScaLAPACK software
 - ScaLAPACK Users' Guide* (Blackford et al.), 12
- Scattering
 - An Introduction to Inverse Scattering and Inverse Spectral Problems* (Chadan et al.), 15
 - Notes on Time Decay and Scattering for Some Hyperbolic Problems* (Morawetz), 16
- Schwartz Spaces
 - Foundations of Stochastic Differential Equations in Infinite Dimensional Spaces* (Ito), 16
- Scientific Computing
 - Accuracy and Reliability in Scientific Computing* (Einarsson), 7
 - Computational Frameworks for the Fast Fourier Transform* (Van Loan), 8
 - Computational Science and Engineering* (Strang), 8
 - Methods and Applications of Interval Analysis* (Moore), 7
 - Numerical Methods in Scientific Computing, Volume I* (Dahlquist and Björck), 3, 13
 - The Numerical Solution of Elliptic Equations* (Birkhoff), 13
 - Parallel Processing for Scientific Computing* (Heroux et al.), 7
 - Scientific Computation on Mathematical Problems and Conjectures* (Varga), 14
 - Symbolic Computation Applications to Scientific Computing* (Grossman), 7
- Search Engines
 - Understanding Search Engines: Mathematical Modeling and Text Retrieval, Second Edition* (Berry and Browne), 6
- Semi-group Problems
 - Integer Programming: Facets, Subadditivity, and Duality for Group and Semi-group Problems* (Johnson), 14
- Semiconductors
 - Statistical Case Studies for Industrial Process Improvement* (Czitrom and Spagon), 18
- Sensitivity Equation Methods
 - Design Sensitivity Analysis: Computational Issues of Sensitivity Equation Methods* (Stanley and Stewart), 8
- Sequential Analysis
 - Nonlinear Renewal Theory in Sequential Analysis* (Woodroffe), 19
 - Sequential Analysis and Optimal Design* (Chernoff), 18
- Sequential Nonparametrics
 - Theory and Applications of Sequential Nonparametrics* (Sen), 19
- Set Covering
 - Combinatorial Optimization: Packing and Covering* (Cornuéjols), 9
- Set Packing
 - Combinatorial Optimization: Packing and Covering* (Cornuéjols), 9
- Shape Memory Alloys
 - Smart Material Systems: Model Development* (Smith), 13
- Shape Optimization
 - Introduction to Shape Optimization: Theory, Approximation, and Computation* (Haslinger and Mäkinen), 8
 - Shapes and Geometries: Analysis, Differential Calculus, and Optimization* (Delfour and Zolésio), 8
- Shapes

Book Catalog Subject Index

- Designing Fair Curves and Surfaces: Shape Quality in Geometric Modeling and Computer-Aided Design* (Sapidis), 11
- Shapes and Geometries: Analysis, Differential Calculus, and Optimization* (Delfour and Zolésio), 8
- Shock Waves
- Hyperbolic and Viscous Conservation Laws* (Liu), 11
- Hyperbolic Systems of Conservation Laws and the Mathematical Theory of Shock Waves* (Lax), 11
- SIAM 100-Digit Challenge
- The SIAM 100-Digit Challenge: A Study in High-Accuracy Numerical Computing* (Bornemann et al.), 13
- SIAM Review
- Mathematical Modelling: Classroom Notes in Applied Mathematics* (Klamkin), 17
- Problems in Applied Mathematics: Selections from SIAM Review* (Klamkin), 10
- Signal Analysis
- Wavelets: A Mathematical Tool for Signal Analysis* (Chui), 19
- Signal Processing
- The DFT: An Owner's Manual for the Discrete Fourier Transform* (Briggs and Henson), 16
- Industrial Mathematics: The 1998 CRSC Workshop* (Gremaud et al.), 11
- Principles of Computerized Tomographic Imaging* (Kak and Slaney), 12
- Sinc Methods for Quadrature and Differential Equations* (Lund and Bowers), 14
- Significance
- Applied Adaptive Statistical Methods: Tests of Significance and Confidence Intervals* (O'Gorman), 18
- Simulation & Modeling
- Cardiovascular and Respiratory Systems: Modeling, Analysis, and Control* (Batzel et al.), 17
- Exact and Approximate Modeling of Linear Systems: A Behavioral Approach* (Markovsky et al.), 17
- Gender-Structured Population Modeling: Mathematical Methods, Numerics, and Simulations* (Ianneli et al.), 17
- An Introduction to Modeling and Simulation of Particulate Flows* (Zohdi), 17
- Mathematica Laboratories for Mathematical Statistics: Emphasizing Simulation and Computer Intensive Methods* (Baglivo), 18
- Mathematical Modelling: Classroom Notes in Applied Mathematics* (Klamkin), 17
- Mathematical Models: Mechanical Vibrations, Population Dynamics, and Traffic Flow* (Haberman), 17
- Nonparametric Function Estimation, Modeling, and Simulation* (Thompson and Tapia), 19
- Numerical Computing with Simulink, Volume I: Creating Simulations* (Gran), 4, 17
- Random Number Generation and Quasi-Monte Carlo Methods* (Niederreiter), 17
- Reservoir Simulation: Mathematical Techniques in Oil Recovery* (Chen), 3, 17
- Simulations
- Computational Methods for Multiphase Flows in Porous Media* (Chen et al.), 7
- Facts, Conjectures, and Improvements for Simulated Annealing* (Salamon et al.), 15
- Gender-Structured Population Modeling: Mathematical Methods, Numerics, and Simulations* (Ianneli et al.), 17
- The Mathematics of Reservoir Simulation* (Ewing), 11
- Numerical Computing with Simulink, Volume I: Creating Simulations* (Gran), 4, 17
- Numerical Simulation in Fluid Dynamics: A Practical Introduction* (Griebel et al.), 11
- Reservoir Simulation: Mathematical Techniques in Oil Recovery* (Chen), 3, 17
- Simulating, Analyzing, and Animating Dynamical Systems: A Guide to XPPAUT for Researchers and Students* (Ermentrout), 10
- Simulink software
- Numerical Computing with Simulink, Volume I: Creating Simulations* (Gran), 4, 17

Book Catalog Subject Index

Simultaneous Diophantine Approximation Method

An Algorithmic Theory of Numbers, Graphs and Convexity (Lovász), 9

Sinc Methods

Sinc Methods for Quadrature and Differential Equations (Lund and Bowers), 14

Singular Perturbation Methods

The Boundary Function Method for Singular Perturbation Problems (Vasil'eva et al.), 17

Singular Perturbation Methods in Control: Analysis and Design (Kokotovic et al.), 9

Singular Perturbations and Hysteresis (Mortell et al.), 16

Skorkhod's Representation Theorem

Weak Convergence of Measures Applications in Probability: Applications in Probability (Billingsley), 16

Smart Material Systems

Smart Material Systems: Model Development (Smith), 13

Sobolev Spaces

Variational Analysis in Sobolev and BV Spaces (Attouch et al.), 14

Social Sciences

Approximation of Population Processes (Kurtz), 17

Graph Theory and Its Applications to Problems of Society (Roberts), 10

Mathematical Theories of Populations: Demographics, Genetics and Epidemics (Hoppensteadt), 17

Software

Applied Numerical Linear Algebra (Demmel), 12

ARPACK Users' Guide: Solution of Large-Scale Eigenvalue Problems with Implicitly Restarted Arnoldi Methods (Lehoucq et al.), 7

Discontinuous Galerkin Methods for Solving Elliptic and Parabolic Equations: Theory and Implementation (Rivière), 5, 14

Experimental Design for Formulation (Smith), 19

LAPACK Users' Guide, Third Edition (Anderson et al.), 12

LAPACK95 Users' Guide (Barker et al.), 12

Linear Feedback Control: Analysis and Design with MATLAB (Xue et al.), 5, 9

Linear Programming with MATLAB (Ferris et al.), 4, 14

LINPACK Users' Guide (Dongarra et al.), 12

MATLAB Guide, Second Edition (Higham and Higham), 7

Numerical Computing with MATLAB (Moler), 7

Numerical Computing with Simulink, Volume I: Creating Simulations (Gran), 4, 17

Optimization Software Guide (Moré and Wright), 15

PLTMG: A Software Package for Solving Elliptic Partial Differential Equations: Users' Guide 8.0 (Bank), 15

ScaLAPACK Users' Guide (Blackford et al.), 12

Simulating, Analyzing, and Animating Dynamical Systems: A Guide to XPPAUT for Researchers and Students (Ermentrout), 10

Spectral Methods in MATLAB (Trefethen), 8

The Structural Representation of Proximity Matrices with MATLAB (Hubert et al.), 18

Templates for the Solution of Algebraic Eigenvalue Problems: A Practical Guide (Bai et al.), 12

Solid Mechanics

Augmented Lagrangian and Operator-Splitting Methods in Nonlinear Mechanics (Glowinski and Le Tallec), 17

Boundary Stabilization of Thin Plates (Lagnese), 17

Book Catalog Subject Index

Contact Problems in Elasticity: A Study of Variational Inequalities and Finite Element Methods (Kikuchi and Oden), 17

Mathematical Problems in Linear Viscoelasticity (Fabrizio and Morro), 17

Topics in Finite Elasticity (Gurtin), 17

Variational Methods in Nonlinear Elasticity (Pedregal), 17

Solitons

Solitons and the Inverse Scattering Transform (Ablowitz and Segur), 10

Solitons in Mathematics and Physics (Newell), 11

Sparse Linear Systems

Direct Methods for Sparse Linear Systems (Davis), 7

Iterative Methods for Sparse Linear Systems, Second Edition (Saad), 12

Templates for the Solution of Linear Systems: Building Blocks for Iterative Methods (Barrett et al.), 12

Sparse Problems

Evaluating Derivatives: Principles and Techniques of Algorithmic Differentiation, Second Edition (Griewank and Walther), 19

Special Functions

Numerical Methods for Special Functions (Gil et al.), 4, 16

Orthogonal Polynomials and Special Functions (Askey), 16

Spectra

Deblurring Images: Matrices, Spectra, and Filtering (Hansen et al.), 12

An Introduction to Inverse Scattering and Inverse Spectral Problems (Chadan et al.), 15

Spectral Properties of Banded Toeplitz Matrices (Böttcher and Grudsky), 12

Spectral Methods

Numerical Analysis of Spectral Methods: Theory and Applications (Gottlieb and Orszag), 13

Spectral Methods in MATLAB (Trefethen), 8

Splines

Cardinal Spline Interpolation (Schoenberg), 11

Curve and Surface Design (Hagen), 11

Finite Element Methods with B-Splines (Höllig), 7

Knot Insertion and Deletion Algorithms for B-Spline Curves and Surfaces (Goldman and Lyche), 11

Multivariate Splines (Chui), 18

Spline Models for Observational Data (Wahba), 19

Sports

Anthology of Statistics in Sports (Albert et al.), 17

Stability Analysis

Accuracy and Stability of Numerical Algorithms, Second Edition (Higham), 13

Finite Difference Methods for Ordinary and Partial Differential Equations: Steady-State and Time-Dependent Problems (LeVeque), 13

Finite Difference Schemes and Partial Differential Equations, Second Edition (Strikwerda), 14

Stability and Stabilization of Time-Delay Systems: An Eigenvalue-Based Approach (Michiels and Niculescu), 5, 9

The Stability of Dynamical Systems (LaSalle), 10

Stabilization

Boundary Stabilization of Thin Plates (Lagnese), 17

Mathematical Control Theory of Coupled PDEs (Lasiecka), 9

Nonlinear Output Regulation: Theory and Applications (Huang), 9

Rank-Deficient & Discrete Ill-Posed Problems: Numerical Aspects of Linear Inversion (Hansen), 7

Book Catalog Subject Index

Stability and Stabilization of Time-Delay Systems: An Eigenvalue-Based Approach (Michiels and Niculescu), 5, 9

Strongly Stabilizable Distributed Parameter Systems (Oostveen), 9

Statistical Physics

Contemporary Problems in Statistical Physics (Weiss), 13

Statistics

The Analysis of Means: A Graphical Method for Comparing Means, Rates, and Proportions (Nelson et al.), 18

Anthology of Statistics in Sports (Albert et al.), 17

Applied Adaptive Statistical Methods: Tests of Significance and Confidence Intervals (O'Gorman), 18

Basic Concepts of Probability and Statistics, Second Edition (Hodges and Lehmann), 18

Bayesian Nonparametrics via Neural Networks (Lee), 18

Bayesian Statistics, A Review (Lindley), 18

Credit Scoring and Its Applications (Thomas et al.), 10

Design and Analysis of Gauge R&R Studies: Making Decisions with Confidence Intervals in Random and Mixed ANOVA Models (Burdick et al.), 18

Distribution Theory for Tests Based on the Sample Distribution Function (Durbin), 18

Eliciting and Analyzing Expert Judgment: A Practical Guide (Meyer and Booker), 18

Engineering Reliability (Barlow), 18

Experimental Design for Formulation (Smith), 19

A First Course in Order Statistics (Arnold et al.), 3, 17

The Jackknife, the Bootstrap, and Other Resampling Plans (Efron), 18

Large Deviations and Applications (Varadhan), 19

Mathematica Laboratories for Mathematical Statistics: Emphasizing Simulation and Computer Intensive Methods (Baglivo), 18

Mathematical Theory of Reliability (Barlow and Proschan), 18

Multiple Decision Procedures: Theory and Methodology of Selecting and Ranking Populations (Gupta and Panchapakesan), 18

Multivariate Approximation Theory: Selected Topics (Cheney), 7

Multivariate Splines (Chui), 18

Multivariate Statistical Process Control with Industrial Applications (Mason and Young), 18

Nonlinear Renewal Theory in Sequential Analysis (Woodroffe), 19

Nonparametric Function Estimation, Modeling, and Simulation (Thompson and Tapia), 19

Optimal Design of Experiments (Pukelsheim), 19

Pitman's Measure of Closeness: A Comparison of Statistical Estimators (Keating et al.), 18

A Primer for Sampling Solids, Liquids and Gases: Based on the Seven Sampling Errors of Pierre Gy (Smith), 19

Quantile Processes with Statistical Applications (Csorgo), 18

Recurrent Events Data Analysis for Product Repairs, Disease Recurrence, and Other Applications (Nelson), 18

Robust Statistical Procedures, Second Edition (Huber), 18

Russian-English / English-Russian Dictionary on Probability, Statistics, and Combinatorics (Borovkov), 18

Selecting and Ordering Populations: A New Statistical Methodology (Gibbons et al.), 18

Sequential Analysis and Optimal Design (Chernoff), 18

Some Limit Theorems in Statistics (Bahadur), 18

Spline Models for Observational Data (Wahba), 19

Book Catalog Subject Index

- Statistical Case Studies: A Collaboration Between Academe and Industry (Student Edition)* (Peck and Haugh), 18
- Statistical Case Studies for Industrial Process Improvement* (Czitrom and Spagon), 18
- Statistical Design and Analysis of Experiments* (John), 18
- The Structural Representation of Proximity Matrices with MATLAB* (Hubert et al.), 18
- Theory and Applications of Sequential Nonparametrics* (Sen), 19
- Time Series: Data Analysis and Theory* (Brillinger), 18
- Steady-State Problems
 - Finite Difference Methods for Ordinary and Partial Differential Equations: Steady-State and Time-Dependent Problems* (LeVeque), 13
- Stochastic Differential Equations
 - Foundations of Stochastic Differential Equations in Infinite Dimensional Spaces* (Ito), 16
- Stochastic Modeling
 - Introduction to Matrix Analytic Methods in Stochastic Modeling* (Latouche and Ramaswami), 16
 - Stochastic Modeling in Broadband Communications Systems* (Kaj), 16
- Stochastic Processes
 - Applied Stochastic Processes and Control for Jump-Diffusions: Modeling, Analysis, and Computation* (Hanson), 4, 8
 - Image Processing and Analysis: Variational, PDE, Wavelet, and Stochastic Methods* (Chan and Shen), 11
 - Stochastic Modeling in Broadband Communications Systems* (Kaj), 16
 - Stochastic Processes* (Parzen), 16
 - Stochastic Processes, Estimation, and Control* (Speyer and Chung), 19
 - Stochastic Processes in the Neurosciences* (Tuckwell), 6
- Stochastic Programming
 - Applications of Stochastic Programming* (Wallace and Ziemba), 15
- Story Problems
 - Ants, Bikes, and Clocks: Problem Solving for Undergraduates* (Briggs), 10
- Structured Population Dynamics
 - An Introduction to Structured Population Dynamics* (Cushing), 6
- Subdivision
 - Mathematical Aspects of Geometric Modeling* (Micchelli), 11
- Surface Design
 - Curve and Surface Design* (Hagen), 11
 - Designing Fair Curves and Surfaces: Shape Quality in Geometric Modeling and Computer-Aided Design* (Sapidis), 11
 - Topics in Surface Modeling* (Hagen), 11
- Surface Integrals
 - Introduction to Numerical Continuation Methods* (Allgower and Georg), 13
- Surface Modeling
 - Topics in Surface Modeling* (Hagen), 11
- Surface Transformations
 - Lie-Backlund Transformation in Applications* (Anderson and Ibragimov), 15
- Symbolic Computation
 - Symbolic Computation Applications to Scientific Computing* (Grossman), 7
- Symmetry
 - Branching in the Presence of Symmetry* (Sattinger), 15

Book Catalog Subject Index

- Introduction to Linear Algebra, Third Edition* (Strang), 13
Lanczos Algorithms for Large Symmetric Eigenvalue Computations, Volume I: Theory (Cullum and Willoughby), 12
Lectures on Geometric Methods in Mathematical Physics (Marsden), 13
The Symmetric Eigenvalue Problem (Parlett), 14
- Systems Theory. *see also* Control & Systems Theory
Approximation of Large-Scale Dynamical Systems (Antoulas), 8
Cardiovascular and Respiratory Systems: Modeling, Analysis, and Control (Batzel et al.), 17
Control Perspectives on Numerical Algorithms and Matrix Problems (Bhaya and Kaszkurewicz), 8
- T**
- Talagrand's Theory
Probability Theory and Combinatorial Optimization (Steele), 10
- Terrorism
Bioterrorism: Mathematical Modeling Applications in Homeland Security (Banks and Chavez), 6
- Text Retrieval
Understanding Search Engines: Mathematical Modeling and Text Retrieval, Second Edition (Berry and Browne), 6
- Thin Plates
Boundary Stabilization of Thin Plates (Lagnese), 17
- Time Decay
Notes on Time Decay and Scattering for Some Hyperbolic Problems (Morawetz), 16
- Time-Delay Systems
Stability and Stabilization of Time-Delay Systems: An Eigenvalue-Based Approach (Michiels and Niculescu), 5, 9
- Time-Dependent Problems
Finite Difference Methods for Ordinary and Partial Differential Equations: Steady-State and Time-Dependent Problems (LeVeque), 13
- Time Series
Time Series: Data Analysis and Theory (Brillinger), 18
- Toeplitz Matrices
Spectral Properties of Banded Toeplitz Matrices (Böttcher and Grudsky), 12
- Toeplitz Systems
An Introduction to Iterative Toeplitz Solvers (Chan and Jin), 3, 12
- Topology
Techniques of Differential Topology in Relativity (Penrose), 16
- Total Least Squares Problem
Exact and Approximate Modeling of Linear Systems: A Behavioral Approach (Markovsky et al.), 17
The Total Least Squares Problem: Computational Aspects and Analysis (Van Huffel and Vandewalle), 13
- Traffic Flow
Mathematical Models: Mechanical Vibrations, Population Dynamics, and Traffic Flow (Haberman), 17
The Vehicle Routing Problem (Toth and Vigo), 10
- Transonic Aerodynamics
Transonic Aerodynamics: Problems in Asymptotic Theory (Cook), 10
- Transport Theory
An Introduction to Invariant Imbedding (Bellman and Wing), 15

Book Catalog Subject Index

Transportation

- Graph Theory and Its Applications to Problems of Society* (Roberts), 10
- Mathematical Models: Mechanical Vibrations, Population Dynamics, and Traffic Flow* (Haberman), 17
- The Vehicle Routing Problem* (Toth and Vigo), 10

Trust-Region Methods

- Trust-Region Methods* (Conn et al.), 14

Turbulence

- Wavelets: Tools for Science & Technology* (Jaffard et al.), 19
- Wavelets and Their Applications: Case Studies* (Kobayashi), 19

Two-Point Boundary Value Problems

- Numerical Solution of Two Point Boundary Value Problems* (Keller), 13

Typesetting

- Handbook of Writing for the Mathematical Sciences, Second Edition* (Higham), 10
- Learning LATEX* (Griffiths and Higham), 10

U

Uncertainty

- Applications of Stochastic Programming* (Wallace and Ziemba), 15
- Inverse Problem Theory and Methods for Model Parameter Estimation* (Tarantola), 15

Unconstrained Minimization

- Nonlinear Programming: Sequential Unconstrained Minimization Techniques* (Fiacco and McCormick), 14

Unconstrained Optimization

- Iterative Methods for Optimization* (Kelley), 15
- Numerical Methods for Unconstrained Optimization and Nonlinear Equations* (Dennis, Jr. and Schnabel), 14

Undergraduate Education

- Ants, Bikes, and Clocks: Problem Solving for Undergraduates* (Briggs), 10
- Matrix Analysis and Applied Linear Algebra* (Meyer), 12

University of Wisconsin

- An Uneasy Alliance: The Mathematics Research Center at the University of Wisconsin* (Chandra and Robinson), 11

Users' Guides

- ARPACK Users' Guide: Solution of Large-Scale Eigenvalue Problems with Implicitly Restarted Arnoldi Methods* (Lehoucq et al.), 7
- LAPACK Users' Guide, Third Edition* (Anderson et al.), 12
- LAPACK95 Users' Guide* (Barker et al.), 12
- LINPACK Users' Guide* (Dongarra et al.), 12
- MATLAB Guide, Second Edition* (Higham and Higham), 7
- PLTMG: A Software Package for Solving Elliptic Partial Differential Equations: Users' Guide 8.0* (Bank), 15
- ScaLAPACK Users' Guide* (Blackford et al.), 12

V

Validation

Accuracy and Reliability in Scientific Computing (Einarsson), 7

Variance Component Analysis

Design and Analysis of Gauge R&R Studies: Making Decisions with Confidence Intervals in Random and Mixed ANOVA Models (Burdick et al.), 18

Variational Inequalities

An Introduction to Variational Inequalities and Their Applications (Kinderlehrer and Stampacchia), 16

Variational Methods

Contact Problems in Elasticity: A Study of Variational Inequalities and Finite Element Methods (Kikuchi and Oden), 17

Continuum Modeling in the Physical Sciences (van Groesen and Molenaar), 13

Image Processing and Analysis: Variational, PDE, Wavelet, and Stochastic Methods (Chan and Shen), 11

Mathematical Aspects of Numerical Grid Generation (Castillo), 6

Variational Analysis in Sobolev and BV Spaces (Attouch et al.), 14

Variational Methods for Eigenvalue Approximation (Weinberger), 14

Variational Methods in Nonlinear Elasticity (Pedregal), 17

Variational Problems

Convex Analysis and Variational Problems (Ekeland and Témam), 15

Lagrange Multiplier Approach to Variational Problems and Applications (Ito and Kunisch), 4, 14

Vector Computers

LAPACK Users' Guide, Third Edition (Anderson et al.), 12

Parallel Algorithms for Matrix Computations (Gallivan et al.), 7

Solution of Partial Differential Equations on Vector and Parallel Computers (Ortega and Voigt), 14

Vehicle Routing Problem

The Vehicle Routing Problem (Toth and Vigo), 10

Verification

Accuracy and Reliability in Scientific Computing (Einarsson), 7

Viscoelasticity

Mathematical Analysis of Viscoelastic Flows (Renardy), 11

Mathematical Problems in Linear Viscoelasticity (Fabrizio and Morro), 17

Viscous Conservation Laws

Hyperbolic and Viscous Conservation Laws (Liu), 11

Viscous Flows

Introduction to the Numerical Analysis of Incompressible Viscous Flows (Layton), 19

Optimal Control of Viscous Flow (Sritharan), 11

Vlasov-Poisson/Vlasov-Maxwell Systems

The Cauchy Problem in Kinetic Theory (Glassey), 16

Volterra Equations

Analytical and Numerical Methods for Volterra Equations (Linz), 13

Vortex Methods

Vortex Methods and Vortex Motion (Gustafson and Sethian), 11

Vortex Motion

Vortex Methods and Vortex Motion (Gustafson and Sethian), 11

Book Catalog Subject Index

W

Wave Equation

Notes on Time Decay and Scattering for Some Hyperbolic Problems (Morawetz), 16

Wave Interactions

Hyperbolic and Viscous Conservation Laws (Liu), 11

Mathematics Applied to Continuum Mechanics (Segel with Handelman), 13

Wavelets

Image Processing and Analysis: Variational, PDE, Wavelet, and Stochastic Methods (Chan and Shen),
11

Ten Lectures on Wavelets (Daubechies), 19

Wavelets: A Mathematical Tool for Signal Analysis (Chui), 19

Wavelets: Tools for Science & Technology (Jaffard et al.), 19

Wavelets and Filter Banks (Strang and Nguyen), 17

Wavelets and Their Applications: Case Studies (Kobayashi), 19

Weak Convergence

Weak Convergence of Measures Applications in Probability: Applications in Probability (Billingsley), 16

Well Modeling

Reservoir Simulation: Mathematical Techniques in Oil Recovery (Chen), 3, 17

Wilkinson, James Hardy (Jim)

An Interview with Jim Wilkinson (Nash), 11

Workshop Presentations

Industrial Mathematics: The 1998 CRSC Workshop (Gremaud et al.), 11

Writing

Handbook of Writing for the Mathematical Sciences, Second Edition (Higham), 10

X

X-Ray Tomography

Introduction to the Mathematics of Medical Imaging, Second Edition (Epstein), 3, 12

XPPAUT software

Simulating, Analyzing, and Animating Dynamical Systems: A Guide to XPPAUT for Researchers and Students (Ermentrout), 10