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The Subject Classification Listing used in this document is AMS(MOS) 1980.

- 1546 Cardinal Interpolation and Spline Functions, VIII. The Budan-Fourier Theorem for Splines and Applications, Carl de Boor and I. J. Schoenberg, (July, 1975) 41A15, In "Spline Functions, Karlsruhe 1975", Lecture Notes in Math., 501, Springer Verlag (1976), 1-79.  
AD A017 996
- 1547 Collocation Methods for Singular Boundary Value Problems, Frank R. de Hoog and Richard Weiss, (Aug, 1975) 65L05, 65L10, SIAM J. Numer. Anal. 15 (1978), 198-217.  
AD A017 997
- 1548 Neurodynamics (A Critical Survey), Alwyn C. Scott, (Oct, 1975) 92-02, J. Mathematical Psychology 15 (1977), 1-45.  
AD A017 998
- 1549 A Model of Set Theory with a Universal Set, Emerson Mitchell, (Feb, 1976) 03E35, 03E70.  
AD A023 978
- 1550 Application of the Theory of Slender Curved Rods to the Analysis of Elastic Yarns, N. C. Huang, (July, 1975) 73Cxx, 73Exx, Trans. of the 21st Conf. of Army Mathematicians, May 14-16, 1975, El Paso, Texas, (1976), pp. 217-250.  
AD A016 103
- 1551 The Non-Monotonicity of Solutions in Swirling Flow, J. B. McLeod and S. V. Parter, (Oct, 1975) 34B15, 34E15, 76-XX, Proc. Roy. Soc. Edinburgh Sect. A 76 (1977), 161-182.  
AD A017 963
- 1552 Rational Mixed-Integer Minimization Models, R. R. Meyer and M. V. Thakkar, (Jan, 1976) 90C10. Revised form 'Rational Mixed-Integer and Polyhedral Union Minimization Models', Computer Sciences Technical Report #329, University of Wisconsin-Madison, August 1978; Mathematics of Operations Research 5 (1980), 135-146.  
AD A022 718
- 1553 Regularity and Stability for Convex Multivalued Functions, Stephen M. Robinson, (Jan, 1976) 15A39, 26A51, 47H99, 90C25, 90C30, Mathematics of Operations Research 1 (1976), 130-143.  
AD A022 719
- 1554 Data Models for Secondary Storage Representations, Allen Reiter, (July, 1975) 68H05, Proceedings, VLDB Conference, Sept. 22-24, 1975, (ACM).  
AD A016 347
- 1555 Linear Control Theory and Riccati Equation, L. Tartar, (Feb, 1976) 34G10, 49A27, 49B27.  
AD A023 979
- 1556 Some Local Existence Results on an Integral Equation in a Banach Space, S.-O. Londen, (Oct, 1975) 45D05, 45N05, 45G10, 35L60, 47H05, Published under title 'An Existence Result on a Volterra Equation in a Banach Space', Trans. Amer. Math. Soc. 235 (1978), 285-304.  
AD A020 201
- 1557 A Combinatorial Sum, Richard Askey and Mourad E.-H. Ismail, (July, 1975) 33A30, 05A19.  
AD A017 926
- 1558 On a Volterra Integrodifferential Equation in a Banach Space, S.-O. Londen, (Oct, 1975) 45D05, 45G10, 35L60, 47H05, 45J05.  
AD A017 999



- 1559 Withdrawn.
- 1560 On Reid's Characterization of the Ternary Matroids, Robert E. Bixby, (July, 1975) 05B35.  
AD A016 353
- 1561 Modeling of Multiple Time Series by the Method of Successive Orthogonalization, M. S. Phadke, (Jan, 1976) 62M10.  
AD A022 742
- 1562 The Decay of Genetic Variability in Geographically Structured Populations. II, Thomas Nagylaki, (July, 1975) 92A10, 35K15, 45A05, 60J70, Theoret. Population Biology 10 (1976), 70-82.  
AD A017 924
- 1563 The Landau Problem for Motions in a Ring and in Bounded Continua, I. J. Schoenberg, (Oct, 1975) 26D10, 41A15, Amer. Math. Monthly 84 (1977), 1-12.  
AD A018 000
- 1564 A Computational Study of Active Set Strategies in Nonlinear Programming with Linear Constraints, Melanie L. Lenard, (Nov, 1975) 65K05, 90C25, Math. Programming 16 (1979), 81-97.  
AD A020 202
- 1565 On Viscous Fluid Flow Down an Inclined Plane and the Development of Roll Waves, Alfred Carasso and Mei-Chang Shen, (Oct, 1975) 76-XX, 35R25, 65M30, SIAM J. Appl. Math. 33 (1977), 399-426.  
AD A020 203
- 1566 A Singular Semilinear Equation  $L^1(\mathbb{R})$ , Michael G. Crandall and Lawrence C. Evans, (Sept, 1975) 34B15, Trans. Amer. Math. Soc. 225 (1977), 145-153.  
AD A017 925
- 1567 Withdrawn.
- 1568 Nonlinear Evolution Equations in Banach Spaces, Lawrence C. Evans, (Aug, 1975) 34G10, Israel J. Math. 26 (1977), 1-41.  
AD A018 001
- 1569 A Free Boundary Problem, Lawrence C. Evans, (Aug, 1975) 35R99, Indiana Univ. Math. J. 26 (1977), 915-932.  
AD A017 923
- 1570 The Search for Good Lattice Points in  $N$  Dimensions, G. Kedem, (Oct, 1975) 10K99.  
AD A018 002
- 1571 Variational Methods and Monotonicity, L. Tartar, (Oct, 1975) 46N05, 47H05, 47H15.  
AD A018 003
- 1572 Factorial Expansions for Certain Bessel Functions, J. Barkley Rosser, (Nov, 1975) 33-04, 33A15, 33A40.  
AD A022 716
- 1573 k Simultaneous Measurement Procedures: A Bayesian Approach, Norman Draper and Irwin Guttman, (Aug, 1975) 62F15, 62H99, J. Amer. Statist. Assoc. 71 (1976), 605-607.  
AD A018 004

- 1574 Permutation Problems and Special Functions, Richard Askey and Mourad E.-H. Ismail, (Oct, 1975) 05A05, 05A10, 33A30, 33A65, Canad. J. Math. 28 (1976), 853-874.  
AD A018 005
- 1575 Asymptotic Stability and Energy Decay Rates for Solutions of Hyperbolic Equations with Boundary Damping, John P. Quinn and David L. Russell, (Nov, 1975) 93C20, 93D05, 93D15, 70-XX, 35B40, 35L05, J. Roy. Soc. Edinburgh, Ser. A 77A (1977), 97-127.  
AD A020 205
- 1576 The Application of Linear Multistep Methods to Singular Initial Value Problems, Frank R. de Hoog and Richard Weiss, (Feb, 1976) 65L05, Math. Comp. 31 (1977), 676-690.  
AD A022 743
- 1577 Ladder Sets and Regenerative Phenomena: Further Remarks and Some Applications, N. U. Prabhu, (Dec, 1975) 60J30, 60J55, Sankhya Ser. A 38 (1976), 143-152.  
AD A020 206
- 1578 Derivatives, Differences, Multiple Fourier Kernels, D. B. Liu and L. C. Young, (Jan, 1976) 40D10, 42A05, 46F99, 60H05, Internat. J. Math. 1 (1977).  
AD A022 744
- 1579 Minimum-Weight Design of Vibrating Elastic Structures with Dynamic Deflection Constraint, N. C. Huang, (Oct, 1975) 73Cxx, 73Exx, 49B99, J. Appl. Mech. 43 (1976), 178-180.  
AD A020 211
- 1580 Equations with Order Preserving Properties, L. Tartar, (Feb, 1976) 35B99, 35J20, 34A99.  
AD A024 027
- 1581 N-th Order Ordinary Differential Systems Under Stieltjes Boundary Conditions, Allan M. Krall and Richard C. Brown, (Dec, 1975) 34B10, 47A05, Trans. Amer. Math. Soc. 198 (1974), 73-92.  
AD A022 745
- 1582 On Minimizing the Sum of Squares of  $L^2$  Norms of Differential Operators Under Constraints, Richard C. Brown and Allan M. Krall, (Feb, 1976) 41A15, 34B10, 47A05, Czechoslovak Math. J. 27 (1977), 132-143.  
AD A023 943
- 1583 Bayesian Analysis of Reliability in Multicomponent Stress-Strength Models, Norman R. Draper and Irwin Guttman, (Jan, 1976) 62A15, 62N05, Comm. Statist. A7 (1978), 441-451.  
AD A022 746
- 1584 Nonlinear Partial Differential Equations using Compactness Methods, L. Tartar, (Feb, 1976) 35A15, 35L05, 35Q10.  
AD A028 230
- 1585 Effect of Correlation on the Estimation of a Mean in the Presence of Spurious Observations, Irwin Guttman and G. C. Tiao, (Nov, 1975) 62E25, 62F10, 62M10, Canad. J. Statist. 6 (1978), 229-247.  
AD A020 212
- 1586 The Concept of a Best Approximation as an Optimality Criterion in Statistical Decision Theory, Bernard Harris and Gerhard Helndl, (Dec, 1975) 62C05, 41A65, Optimizing Methods In Statist., J. S. Rustagi, ed., Academic Press, NY (1979).  
AD A020 213

- 1587 An Extension of Carlitz's Bipartition Identity, George E. Andrews, (Sept, 1975) 05A15, 05A17, 05A19, 10A45, Proc. Amer. Math. Soc. 63 (1977), 180-184.  
AD A018 006
- 1588 Cancellation and Rounding Errors, J. Barkley Rosser and J. Michael Yohe, (Apr, 1976) 68-01, 68B05, 68C05.  
AD A028 231
- 1589 Withdrawn.
- 1590 Bifurcation for Lipschitz Operators with an Application to Elasticity, J. B. McLeod and R. E. L. Turner, (Apr, 1976) 47H99, 35J60, 49G05, Arch. Rational Mech. Anal. 63 (1977), 1-45.  
AD A028 280
- 1591 Accelerated Conjugate Direction Methods for Unconstrained Optimization, Melanie L. Lenard, (Mar, 1976) 65K05, 90C25, J. Optimization Theory 25 (1978), 11-31.  
AD A028 281
- 1592 Upper and Lower Bounds for Solutions of Linear Operator Problems with Unilateral Constraints, W. D. Collins, (Jan, 1976) 49A27, Proc. Roy. Soc. Edinburgh Sect. A 76A (1976), 95-105.  
AD A022 747
- 1593 The Over-Estimation of the Range of a Function in Interval Mathematics with Application to the Solution of Linear Systems of Equations, Karl Nickel, (Dec, 1975) 54C20, 26A48, 65F05, Computing (in German) 18 (1977), 15-36.  
AD A020 214
- 1594 The Crocco-Transformation for the Three-Dimensional Prandtl Boundary Layer Equations, Karl Nickel, (Nov, 1975) 35A22, 35K55, Math. Meth. in the Appl. Sci. 1 (1979), 445-452.  
AD A020 215
- 1595 Fuzzy Core and Equilibria of Games Defined in Strategic Form, Jean Pierre Aubin, (Feb, 1976) 90D12.  
AD A024 075
- 1596 Error Bounds and Uniqueness for the Solutions of Nonlinear, Strongly Coupled, Parabolic Systems of Differential Equations, Karl Nickel, (Jan, 1976) 35B45, 35K55, Math. Z. (in German) 152 (1976), 33-45.  
AD A022 748
- 1597 A Bound on the  $L_{\infty}$ -Norm of  $L_2$ -Approximation by Splines in Terms of a Global Mesh Ratio, Carl de Boor, (Dec, 1975) 41A15, Math. Comp. 30 (1976), 765-771.  
AD A022 749
- 1598 On the Stability of Solitary Waves in Shallow Water, James G. Berryman, (Oct, 1975) 35L60, Phys. Fluids 19 (1976), 771-777.  
AD A020 216
- 1599 On Local Linear Functionals which Vanish at all B-Splines but One, Carl de Boor, (Oct, 1975) 41A15, In 'Theory of Approximation with Applications', A. G. Law and B. N. Sahney, eds., Academic Press, NY (1976), 120-145.  
AD A018 007

- 1600 Some Asymptotic Results for Occupancy Problems, Lars Holst, (Apr, 1976) 60F05, Ann. Probability 5 (1977), 1028-1035.  
AD A027 885
- 1601 Withdrawn.
- 1602 Withdrawn.
- 1603 Gaussian Processes on Compact Symmetric Spaces, R. Askey and N. H. Bingham, (Feb, 1976) 33A30, 33A45, 42A82, 60G15, Zeit. Wahr. Th. 37 (1977), 127-143.  
AD A024 076
- 1604 The Hopf Bifurcation Theorem, Michael G. Crandall and Paul H. Rabinowitz, (Apr, 1976) 34C30, 34D05, 34G10, 35R15, 35R20, 47H15, Arch. Rat. Mech. Anal. 67 (1977), 53-72.  
AD A026 221
- 1605 The Statistical Estimation of Entropy in the Non-Parametric Case, Bernard Harris, (Dec, 1975) 62G05, 94A15, Colloquia Mathematica Societatis Janos Bolyai 16.  
AD A020 217
- 1606 Plane Partitions (I): The MacMahon Conjecture, George E. Andrews, (Nov. 1975) 10A45, 05A15, 05A19, 33A30, Proc. Natl. Acad. Sci. 74 (1977), 426-429; 'Studies in Foundations and Combinatorics', G.-C. Rota, ed., Advances in Math. Supplementary Studies, Vol. 1, Academic Press (1978), 131-150.  
AD A020 218
- 1607 Accessible Designs in Solvay Cluster Synthesis, Dale F. Rudd, (Nov, 1975) 05C10, Chem. Engr. Sci. 31 (1976).  
AD A020 219
- 1608 Some Experiments in Directory Organization - A Simulation Study, Allen Reiter, (Dec, 1975) 68H05.  
AD A022 750
- 1609 On Chebyshev and Markov-Type Problems for Polynomials in a Circular Ring, I. J. Schoenberg, (Dec, 1975) 33A65, 42A05, In Proceedings of the August 1976 Conference on Approximation Theory held in Budapest; Colloquia Mathematica Societatis Janos Bolyai 19, Fourier Anal. & Approximation Theory (1976), p. 697.  
AD A022 751
- 1610 A Subgradient Algorithm for Solving K-Convex Inequalities, Stephen M. Robinson, (Jan, 1976), 65K05, 26A51, Published in 'Optimization and Operations Research', W. Dettli and K. Ritter, eds., Springer-Verlag, Berlin (1976), 327-335.  
AD A022 720
- 1611 Statistical inference Concerning Some Compound and Generalized Discrete Distributions, Narayan Rangnath Bhalerao and John Gurland, (Jan, 1976) 62E20, 62F03, 62F10, Published in two parts; Part 1 'A Method of Increasing Power of a Test for the Negative Binomial and Neyman Type A Distribution', J. Amer. Statist. Assoc. 75 (1980), 934-938; Part 2 'A Unified Approach to Estimating Parameters in Some Generalized Poisson Distributions', Commun. Statist.-Theor. Meth. 15 (1986), 1017-1034.  
AD A024 077

- 1612 A Simple Proof of the Hobby-Rice Theorem, Allan Pinkus, (Feb, 1976) 28A25, 41A45, Proc. Amer. Math. Soc. 60 (1976), 82-84.  
AD A024 078
- 1613 Empirical Bayes Estimation of a Distribution (Survival) Function from Right Censored Observations, V. Susarla and J. Van Ryzin, (Feb, 1976) 62C99, 62G05, Ann. Statist. 6 (1978), 740-754.  
AD A024 079
- 1614 Canonical Forms and Spectral Determination for a Class of Hyperbolic Distributed Parameter Control Systems, David L. Russell, (Feb, 1976) 93B10, 93D15, 35L40, J. Math. Anal. Appl. 62 (1978), 186-225.  
AD A024 080
- 1615 Magnetic Flux Propagation on a Josephson Transmission Line, Alwyn C. Scott, Flora Y. F. Chu and Stanley A. Reible, (Feb, 1976) 35L60, J. Appl. Phys. 47 (1976), 3272-3286.  
AD A027 886
- 1616 Plane Partitions (II): The Equivalence of the Bender-Knuth and MacMahon Conjectures, George E. Andrews, (Mar, 1976) 05A15, 05A19, 10A45, Pacific J. Math. 72 (1977), 283-291.  
AD A027 887
- 1617 Linear Programming Algorithms for the Chebyshev Solution to a System of Consistent Linear Equations, Uri Ascher, (Mar, 1976) 65K05, SIAM J. Numer. Anal. 14 (1977), 519-526.  
AD A027 888
- 1618 On the Posterior Distribution of a Dirichlet Process given Randomly Right Censored Observations, J. Blum and V. Susarla, (Mar, 1976) 60K99, 60G35, 62C10, 62G99, Stochastic Processes Appl. 5 (1977), 207-211.  
AD A027 889
- 1619 A Study of Buffer Management Policies for Data Management Systems, Allen Reiter, (Mar, 1976) 68H05.  
AD A027 890
- 1620 Backward Error Analysis for Totally Positive Linear Systems, Carl de Boor and Allan Pinkus, (Apr, 1976) 65F05, 65D05, 41A15, Numer. Math. 27 (1977), 485-490.  
AD A027 892
- 1621 On a Best Estimator for the Class  $M^F$  Using Only Function Values, Charles A. Micchelli and Allan Pinkus, (Apr, 1976) 41A45, 41A46, 41A05, Indiana Univ. Math. J. 26 (1977), 752-759.  
AD A027 893
- 1622 Systems Study of the Petrochemical Industry, Mark A. Stadtherr and Dale F. Rudd, (Apr. 1976) 90C05, Chem. Engr. Sci. 31 (1976).  
AD A027 960
- 1623 A Tree-Structured Model of Programming Language Semantics, Jerry H. Shelton, (Apr. 1976) 68B05.  
AD A027 961

- 1624 Dual Extremum Principles for Dissipative Systems, W. D. Collins, (Apr, 1976) 49G20, Published under title 'Dual Extremum Principles for the Heat Equation', Proc. Roy. Soc. Edinburgh 77A (1977), 273-292.  
AD A027 962
- 1625 SOLVEBLOK: A Package for Solving Almost Block Diagonal Linear Systems, with Applications to Spline Approximation and the Numerical Solution of Ordinary Differential Equations, Carl de Boor and Richard Weiss, (May, 1976) 65F05, 65D15, 65L10, ACM Trans. Math. Software 6 (1980), 80-87.  
AD A027 963
- 1626 Simulating a Virtual Data Machine, Allen Reiter and Barry Finkel, (May, 1979) 68H05.  
AD A027 894
- 1627 Critical Angular Velocity of Rigidly Rotating White Dwarfs, M. J. Miketinac, (May, 1976) 35J60, 65N20, 85A15, Astrophys. and Space Sci. 44 (1976), 235-245.  
AD A027 895
- 1628 A Method for Solving Boundary Value Problems and Shell Theory without Assumptions, Shun Cheng, (May, 1976) 73Lxx, J. Elasticity 7 (1977), 329-335.  
AD A027 896
- 1629 On Multinomial Sums, Lars Holst, (May, 1976) 60F05, 60C05, Ann. Statist. 7 (1979), 551-557.  
AD A027 897
- 1630 Total Positivity and the Exact N-Width of Certain Sets in  $L^2$ , Charles A. Micchelli and Allan Pinkus, (May, 1976) 41A45, 45L05, Pacific J. Math. 71 (1977), 499-515.  
AD A027 898
- 1631 Minimizing the  $L_{\infty}$ -Distortion of Trigonometric Polynomials, Zvi Ziegler, (June, 1976) 42A05, J. Math. Anal. Appl. 61 (1977), 426-431.  
AD A027 891
- 1632 Kolmogorov's Law of the Iterated Logarithm for Banach Space Valued Random Variables, J. Kuelbs, (June, 1976) 60B05, 60F05, 60F15, 60G15, Illinois J. Math. 21 (1977), 784-800.  
AD A029 907
- 1633 Some Minimax Theorems and Applications to Nonlinear Partial Differential Equations, Paul H. Rabinowitz, (June, 1976) 35A15, 35B10, 35D05, 35J60, 35L60, 47H15, 49G99, 58E05, Nonlinear Analysis, Casari, Kannan, and Weinberger, eds., Academic Press (1978), 161-177.  
AD A029 908
- 1634 Properties and Solution Methods for Large Location-Allocation Problems, Robert F. Love and Henrik Juel, (June, 1976) 90B10, J. Operational Res. Soc. 33 (1982).  
AD A029 909
- 1635 Theory of Nonlinear Diffusion of Plasma Across a Magnetic Field. I. Solution of a Class of Quasilinear Parabolic Equations, James G. Berryman, (June, 1976) 35K55, Published under title 'Evolution of a Stable Profile for a Class of Nonlinear Diffusion Equations with Fixed Boundaries', J. Mathematical Phys. 18 (1977), 2108-2115.  
AD A029 910

- 1636 Discovery of Reaction Sequences for Thermochemical Water Splitting, D. May and D. F. Rudd, (June, 1976) 94Cxx, 94C10, 94C15, Proc. Sec. Hydrogen Energy Conf., Miami, 1976. AD A029 959
- 1637 On the Zeros of the Successive Derivatives of Integral Functions II, I. J. Schoenberg, (June, 1976) 41A15, 30D15, Lecture Notes in Mathematics, Complex Analysis - Kentucky 599 (1976), 109-116. AD A027 899
- 1638 Korovkin Shadows and Korovkin Systems in  $C(S)$ -Spaces, D. Amir and Z. Ziegler, (June, 1976) 41A65, J. Math. Anal. Appl. 62 (1978), 640-675. AD A029 960
- 1639 A Bifurcation Theorem for Potential Operators, Paul H. Rabinowitz, (June, 1976) 47H15, 49F99, 58E99, J. Functional Analysis 25 (1977), 412-427. AD A029 943
- 1640 On the Gaussian Network for Cross-Linked Elastomers: Isotropy and Stress-Free Shape Uniqueness Proofs for the Compressible Case, A. S. Lodge, (June, 1976) 82-XX, 73Cxx, 73Exx, Published in Proc. VIIth International Congress on Rheology, Swedish Soc. Rheol., Chalmers Inst. of Technology, (1976), 79. AD A027 948
- 1641 Some Exponential Moments of Sums of Independent Random Variables, J. Kuelbs, (June, 1976) 60B05, 60F05, 60F15, 60G15, Trans. Amer. Math. Soc. 240 (1978), 145-162. AD A027 949
- 1642 Structure of Riccati Equation Solutions in Optimal Boundary Control of Hyperbolic Equations with Quadratic Cost Functionals, Hock Lye Koh, (Apr. 1976) 49A22, 49A27, 49B22, 49B27, 35L60. AD A029 961
- 1643 Fourier Transform Evaluation, J. Barkley Rosser, (Mar, 1976) 42-04, 42A38, 65D30. AD A029 962.
- 1644 Multiple Integrals of Lipschitz Functions in the Calculus of Variations, Frank H. Clarke, (June, 1976) 49B21, 49B22, 35A15, Proc. Amer. Math. Soc. 64 (1977), 260-264. AD A029 963.
- 1645 The Landau Problem for the Differential Operator  $D^2 - \alpha^2$  in a Circular Ring, I. J. Schoenberg, (Apr, 1976) 41A15, 26D10, Coll. Math. Societatis Janos Bolyai 19, Fourier Anal. & Approximation Theory, Budapest (Hungary), (1976), 713. AD A029 964
- 1646 Estimation of the Multi-Dimensional Probability Density Function, J. Kuelbs, (July, 1976) 60F10, 60F15, 60G50, 'Some Exponential Moments with Applications to Density Estimation, the Empirical Distribution Function, and Lacunary Series', Lect. Notes in Math. Proc., Dublin Conf. on Vector Space Measures and Applications, Springer-Verlag, 644 (1977), 255-269. AD A029 965.

- 1647 Theory of Nonlinear Diffusion of Plasma Across a Magnetic Field. II. Application to Diffusion Studies in a Toroidal Multipole, J. R. Drake and James G. Berryman, (July, 1976) 35K55, Published under title 'Theory of Nonlinear Diffusion of Plasma Across the Magnetic Field of a Toroidal Multipole', Phys. Fluids 20 (1977), 851-857.  
AD A029 966
- 1648 On Performance Modelling of Data Base Management Systems - An Inductive Approach, Allen Reiter, (July, 1976) 68H05.  
AD A031 959
- 1649 Magnetic Flux Annihilation in a Large Josephson Junction, Alwyn C. Scott, (July, 1976) 35L05, Proceedings of Como Conference on Nonlinear Stochastic Processes, J. Ford, ed., Como, Italy, June 1977.  
AD A031 942
- 1650 Isoparametric and Subparametric Variational Problems, Stephen D. Fisher, (July, 1976) 49A27, 49B27, 46B10.  
AD A031 962
- 1651 A Survey of M-Matrix Characterizations I: Nonsingular M-Matrices, R. J. Plemmons, (July, 1976) 15-02, 65F10, Linear Algebra and Appl. 18 (1977), 175-188.  
AD A031 963
- 1652 A Survey of Statistical Methods in Systems Reliability using Bernoulli Sampling of Components, Bernard Harris, (July, 1976) 62N05, 'The Theory and Applications of Reliability', Vol. 11, C. P. Tsokos and I. N. Shimi, eds., Academic Press, New York, 1977.  
AD A031 970
- 1653 On the Polyhedrality of the Convex Hull of the Feasible Set of an Integer Program, R. R. Meyer and M. L. Wage, (July, 1976) 90C10, SIAM J. Control Optimization 16 (1978).  
AD A031 964
- 1654 Discrete Least Squares Approximations for Ordinary Differential Equations, Uri Ascher, (July, 1976) 65L10, SIAM J. Numer. Anal. 15 (1978), 478-496.  
AD A031 968
- 1655 Asymptotic Theory for Some Families of Two-Sample Nonparametric Statistics, Lars Holst and J. S. Rao, (July, 1976) 62E20, 62G10, 62G20, 60F05, Sankya Ser. A 42 (1980), 19-52.  
AD A031 960
- 1656 Approximate Complexity and Functional Representation, R. C. Buck, (July, 1976) 41A30, 26B40, J. Math. Anal. Appl. 70 (1979), 280-298.  
AD A031 972
- 1657 A Survey of Steady-State Porous Flow Free Boundary Problems, Colin W. Cryer, (July, 1976) 35-02, 35J25, 35R99, 35N99.  
AD A031 967
- 1658 Pointwise Contraction Criteria for the Existence of Fixed Points, Frank H. Clarke, (July, 1976) 47H10, Canad. Math. Bulletin 21 (1978), 7-11.  
AD A031 969



- 1659 Testing for Equiprobability using a Multinomial or Poisson Sample, Lars Holst, (July, 1976) 62F03, 62E20, Published under title 'Some Asymptotic Results for Incomplete Multinomial or Poisson Samples', Scand. J. Statist. 8 (1981), 243-246.  
AD A031 971
- 1660 Some Limit Theorems for the Indistinguishable Ball Problem with Applications in Nonparametrics, Lars Holst, (Aug, 1976) 60C05, 62G99, Ann. Statist. 7 (1979), 551-557.  
AD A031 957
- 1661 Bifurcation for Odd Potential Operators and an Alternative Topological Index, Edward R. Fadell and Paul H. Rabinowitz, (Aug, 1976) 47H15, 49F99, 55M99, 55Q05, J. Functional Analysis 26 (1977), 48-67.  
AD A031 934
- 1662 Inequality Constraints in the Calculus of Variations, Frank H. Clarke, (Aug. 1976) 49B10, Canad. J. Math. 29 (1977), 528-540.  
AD A031 937
- 1663 Some Matrix Occupancy Problems with Dichotomous Entries, Lars Holst, (Aug, 1976) 60C05, 62G99, Scand. J. Statist. 7 (1980), 139-146.  
AD A031 933
- 1664 Response of Predator-Prey Systems to Nutrient Enrichment and Proportional Harvesting, F. Brauer and A. C. Soudack, (Aug, 1976) 34-04, 34A10, 34C05, 92-04, 92A15, Internat. J. Control 27 (1978), 65-86.  
AD A031 940
- 1665 Singular Semi-Linear Equations in  $L^1(\mathbb{R})$ , Stephen D. Fisher, (Aug, 1976) 34B15, Israel J. Math. 28 (1977), 129-140.  
AD A053 293
- 1666 Odd-Degree Spline Interpolation at a Bifinite Knot Sequence, Carl de Boor, (Aug, 1976) 41A15, In 'Approximation Theory, Bonn 1976', R. Schaback and K. Scherer, eds., Lecture Notes Math. 556, Springer, Heidelberg (1976), 30-53.  
AD A031 958
- 1667 Splines as Linear Combinations of B-Splines. A Survey, Carl de Boor, (Aug, 1976) 41A15, In 'Approximation Theory II', G. G. Lorentz, C. K. Chui and L. L. Schumaker, eds., Academic Press, New York (1976), 1-47.  
AD A031 944
- 1668 Eigenvalue Problem for a Class of Cyclically Maximal Monotone Operators, Philippe Clement, (Aug, 1976) 47H05, 58E15, Nonlin. Anal., Theory Method. Appl. 1 (1977), 93-103.  
AD A031 938
- 1669 A Simple Proof of Ramanujan's Summation of the  $\psi_1$ , George E. Andrews and Richard Askey, (Aug, 1976) 33A25, 33A30, Aequationes Math. 18 (1978), 333-337.  
AD A031 939
- 1670 Resolvent Kernels of Green's Function Kernels and other Finite Rank Modifications of Fredholm and Volterra Kernels, L. B. Rall, (Aug, 1976) 65R20, 45B05, 34B05, J. Optimization Theory Appl. 24 (1978), 59-88.  
AD A031 947

- 1671 Monotone Trajectories of Multivalued Dynamical Systems, Jean-Pierre Aubin, Arrigo Cellina and John Nohel, (Aug, 1976) 34D99, Ann. Mat. Pura Appl. (IV) 115 (1977), 99-117.  
AD A031 949
- 1672 An Implicit-Function Theorem for Generalized Variational Inequalities, Stephen M. Robinson, (Sept, 1976) 47H05, 90A15, 90C30.  
AD A031 952
- 1673 Positive Eigenfunctions for a Class of Second-Order Elliptic Equations with Strong Nonlinearity, Philippe Clement, (Sept, 1976) 35J20, 35D05, 47H15, Comm. Part. Diff. Equa. 2 (1977), 615-625.  
AD A031 956
- 1674 Approximating Lengths, Areas and Volumes by Polygons and Polyhedra, I. J. Schoenberg, (Sept, 1976) 51-01, 51M25, Delta 7 (1977), 32-46.  
AD A034 473
- 1675 Duality in Nonconvex Optimization and Calculus of Variations, Ivar Ekeland, (Sept, 1976) 90C30, 49B10, SIAM J. Optimization Control 15 (1977), 905-934.  
AD A031 953
- 1676 The Limit-Point, Limit-Circle Nature of Rapidly Oscillating Potentials, F. V. Atkinson, M. S. P. Eastham, and J. B. McLeod, (Sept, 1976) 34B20, Proc. Roy. Soc. Edinburgh, Sect. A 76 (1977), 183-196.  
AD A031 961
- 1677 A Product Version of a Variable Metric Method and its Convergence Properties, Klaus Ritter, (Sept, 1976) 90C30, 'Quantitative Wirtschaftsforschung', H. Albach, E. Helmstadter, R. Henn, and J. C. B. Mohr, eds., Tubingen (1977), 551-568.  
AD A031 973
- 1678 Some Extremal Properties of Perfect Splines and the Point-Wise Landau Problem on the Finite Interval, Allan Pinkus, (Sept, 1976) 26D10, J. Approximation Theory 23 (1978), 37-64.  
AD A031 941
- 1679 Interlacing Properties of the Zeros of the Error Function in Best  $L^p$ -Approximation,  $1 < p < \infty$ , Allan Pinkus and Zvi Ziegler, (Sept, 1976) 41A50, J. Approximation Theory 27 (1979), 1-18.  
AD A034 488
- 1680 On a Dirichlet Problem with a Singular Nonlinearity, M. G. Crandall, P. H. Rabinowitz and L. Tartar, (Sept, 1976) 35J65, Comm. Part. Diff. Equa. 2 (1977), 193-222.  
AD A033 439
- 1681 The Existence of a Non-Negative Solution of an Ordinary Differential Equation Arising in Electromagnetic Theory, J. B. McLeod, (Sept, 1976) 34B15, J. Nonlinear Analysis 1 (1977), 679-689.  
AD A034 484
- 1682 On the Range of Accretive Operators, Michael G. Crandall and Amnon Pazy, (Sept, 1976) 47H15, Israel J. Math. 27 (1977), 235-247.  
AD A031 946

- 1683 Spectral Properties and Oscillation Theorems for Mixed Boundary-Value Problems of Sturm-Liouville Type, J. W. Lee and A. Pinkus, (Sept, 1976) 34B25, J. Differential Equations 27 (1978), 190-213.  
AD A031 945
- 1684 An Abstract Nonlinear Volterra Integrodifferential Equation, M. G. Crandall, S.-O. Londen, and J. A. Nohel, (Sept, 1976) 45D05, 45K05, 45N05, 45G10, 45M05, 35B40, 35K55, 35K60, 47G05, 47H05, 47H10, 47H15, J. Math. Anal. Appl. 64 (1978), 701-735.  
AD A034 483
- 1685 A Model for Viscoelastic Fluid Behavior which Allows Non-Affine Deformation, M. W. Johnson, Jr. and D. Segalman, (Sept, 1976) 76-XX, J. Non-Newtonian Fluid Mech. 2 (1977), 255-270.  
AD A034 481
- 1686 Application of Interval Analysis to Error Control, J. M. Yohe, (Sept, 1976) 94-04.  
AD A034 480
- 1687 Generalized Gradients of Lipschitz Functionals, Frank H. Clarke, (Oct, 1976) 46G05, 26A24, 26A27, Advances in Math. 40 (1981), 52-67.  
AD A034 474
- 1688 The Existence of Eigenvalues Embedded in the Continuous Spectrum of Ordinary Differential Operators, M. S. P. Eastham and J. B. McLeod, (Oct, 1976) 34B25, 47E05, Proc. Roy. Soc. Edinburgh Sect. A 79 (1977), 25-34.  
AD A034 478
- 1689 Large Sample Theory for a Bayesian Nonparametric Survival Curve Estimator Based on Censored Samples, V. Susarla and J. Van Ryzin, (Oct, 1976) 62E20, 62G05, Ann. Statist. 6 (1978), 755-768.  
AD A034 477
- 1690 Estimation of a Mixing Distribution Function, J. R. Blum and V. Susarla, (Oct, 1976) 60F05, Ann. Probability 5 (1977), 200-209.  
AD A034 468
- 1691 An Effective Algorithm for Quadratic Minimization Problems, M. J. Best and K. Ritter, (Oct, 1976) 90C20.  
AD A034 469
- 1692 The Hopf-Rinow Theorem in Infinite Dimension, Ivar Ekeland, (Oct, 1976) 58B20, 49A27, 53C20, J. Differential Geometry 13 (1978), 287-301.  
AD A034 482
- 1693 A Survey of Trial Free-Boundary Methods for the Numerical Solution of Free Boundary Problems, Colin W. Cryer, (Nov, 1976) 35J99, 35R99, 65-02, 65N99.  
AD A034 472
- 1694 A Nonlinear Singularly Perturbed Volterra Integrodifferential Equation Occurring in Polymer Rheology, A. S. Lodge, J. B. McLeod and J. A. Nohel, (Nov, 1976) 45J05, 45M05, 45M99, Proc. Roy. Soc. Edinburgh (in revised form) 80A (1978), 99-137.  
AD A034 470

- 1695 On Optimal Chebyshev - Type Quadratures, Walter Gautschi and Giovanni Monegato, (Nov. 1976) 65030, 41A55, Numer. Math. 28 (1977), 59-67.  
AD A034 471
- 1696 Coupled-Oscillator Natural Orbitals, Peter D. Robinson, (Nov, 1976) 33A65, 45C05, J. Chem. Phys. 66 (1977), 3307-3308.  
AD A034 485
- 1697 Automatic Differentiation of Computer Programs, G. Kedem, (Nov, 1976) 68-00, 68C20, ACM Trans. Math. Software 6 (1980), 150-165.  
AD A034 466
- 1698 Self Similar Solution of Plasma Equations, K. E. Lonngren, (Nov, 1976) 35K05, 35K55, 'Recent Advances in Plasma Physics', B. Buti, ed., Proc. Indian Acad. Sci. 86 (1977), 125-139.  
AD A034 467
- 1699 Difference Methods for Stiff Ordinary Differential Equations, Heinz-Otto Kreiss, (Nov, 1976) 65L05, 34E15, SIAM J. Numer. Anal. 15 (1978), 21-58.  
AD A034 465
- 1700 Controllability and Stabilizability Theory for Linear Partial Differential Equations Recent Progress and Open Questions, David L. Russell, (Nov, 1976) 93Bxx, 93Cxx, 93Dxx, SIAM Review 20 (1978), 639-739.  
AD A034 463
- 1701 Permutation Tests for k-Sample Binomial Data, Andrew P. Soms, (Nov, 1976) 62G10, (with Lynn Torbeck) J. Quality Tech. 14 (1982), 220-225; also published under title 'Permutation Tests for k-Sample Binomial Data with Comparisons of Exact and Approximate P-Levels', Commun. Statist.-Theor. Meth. 14 (1985), 217-233.  
AD A038 939
- 1702 A Least-Element Theory of Solving Linear Complementarity Problems as Linear Programs, Richard W. Cottle and Jong-Shi Pang, (Dec, 1976) 06A12, 15A24, 15A45, 90C05, 90C99, Math. Operations Res. 3 (1978), 155-170.  
AD A034 464
- 1703 General Estimates for Linear Functionals in Nonlinear Problems, M. J. Sewell and B. Noble, (Dec, 1976) 35A15, 47H15, 49D45, 49H05, 65N30, Proc. Roy. Soc. London Ser. A 361 (1978), 293-324.  
AD A034 475
- 1704 Simplified Point and Interval Estimation for Removal Trapping, Andrew P. Soms, (Dec, 1976) 62E20, 62F25, 62P10, Biometrics 41 (1985), 663-668.  
AD A034 476
- 1705 Solution of Partial Differential Equations by Means of Finite Elements, J. Barkley Rosser, (Dec, 1976) 35A40, 65N30.  
AD A034 479
- 1706 Computational Aspects of Optimal Recovery, Carl de Boor, (Dec, 1976) 41A15, 41A05, 41A65, 65D05, 65K05, In 'Optimal Estimation in Approximation Theory', C. A. Micchelli and T. J. Rivlin, eds., Plenum Press, New York (1977), 69-91.  
AD A038 940

- 1707 On Legendre Transformations and Elementary Catastrophes, M. J. Sewell, (Dec, 1976) 26B10, 46B10, 49F15, 90C30, Math. Proc. Cambridge Philos. Soc. 82 (1977), 147-163.  
AD A038 941
- 1708 On a Theorem of Volosin Concerning Enumeration of Function Compositions, Bernard Harris, (Dec, 1976) 05A15, Colloquia Mathematica Societatis Janos Bolyai 18 (1976), 553-565.  
AD A038 942
- 1709 Stationary Patterns for Reaction-Diffusion Equations, Paul C. Fife, (Jan, 1977) 35K55, 34C25, 34E15, 35R30, 35B35, 92A15, 92-00, 92A05, 'Nonlinear Diffusion', Proc. of NSF/CBMS Conf., Research Notes In Math. 14 (1977), 81-121, Pitman Publishing, London.  
AD A038 943
- 1710 Regression with Given Marginals, Richard A. Vitale, (Jan, 1977) 62J05, 28D05, 46C10, 60G25, Ann. Statist. 7 (1979), 653-658.  
AD A038 944
- 1711 Anomalous Convergence of a Continued Fraction for Ratios of Kummer Functions, Walter Gautschi, (Jan, 1977) 33A30, 33A40, 40A15, 65D20, Math. Comp. 31 (1977), 994-999.  
AD A038 945
- 1712 On an Extremal Problem, Paul G. Neval, (Jan, 1977) 42C05, Proc. Amer. Math. Soc. 74 (1979), 301-306.  
AD A038 946
- 1713 Positive Diagonal Solutions to the Lyapunov Equations, G. P. Barker, A. Berman and R. J. Plemmons, (Jan, 1977) 15A15, 15A48, 34D25, 65F15, Linear and Multilinear Algebra 5 (1978), 249-256.  
AD A038 947
- 1714 Some Global Equilibrium Surfaces, M. J. Sewell, (Feb, 1977) 58E15, 58F05, 93D05, Internat. J. Mech. Engrg. Educ. 6 (1978), 163-174.  
AD A038 948
- 1715 Outer Solutions for General Linear Turning Point Problems, Wolfgang Wasow, (Feb, 1977) 34E20, Revised form, Lecture Notes presented at the Universite de Strasbourg, Institut de Recherches de Mathematiques Appliquees, Strasbourg, France.  
AD A038 949
- 1716 Abstract Linear and Nonlinear Volterra Equations Preserving Positivity, Ph. Clement and J. A. Nohel, (Feb, 1977) 45D05, 45N05, 45G10, 45M99, 47H05, 47H10, 47H15, SIAM J. Math. Anal. (In revised form) 10 (1979), 365-388.  
AD A038 950
- 1717 An Evaluation Procedure for Incomplete Gamma Functions, Walter Gautschi, (Feb, 1977) 33-04, 33A15, 65D20, Published under title 'A Computational Procedure for Incomplete Gamma Functions', ACM-Trans. Math. Software 5 (1979), 466-481.  
AD A038 951
- 1718 Some Finite Dimensional Integrable Systems and Their Scattering Behavior, Mark Adler, (Feb, 1977) 34C35, Comm. Math. Phys. (In revised form) 55 (1977), 145-230.  
AD A038 952

- 1719 Mathematical Models of Road Travel Distances, Robert F. Love and James G. Morris, (Feb, 1977) 90B99, Management Sci. 25 (1979), 130-139.  
AD A044 716
- 1720 An Efficient Computational Procedure for Solving the Multifacility Rectilinear Facilities Location Problem, Henrik Juul and Robert Love, (Feb, 1977) 90B10, Operational Res. Quart. 27 (1976), 697-703.  
AD A038 953
- 1721 On the Dual of the Linearly Constrained Multi-Facility Location Problem with Arbitrary Norms, Henrik Juul and Robert Love, (Feb, 1977) 90B10, Transportation Sci. 15 (1981), 329-337.  
AD A038 954
- 1722 Maximum Likelihood Estimation of Multivariate Autoregressive-Moving Average Models, M. S. Phadke and G. Kedem, (Feb, 1977) 62M10, Published under title 'Computation of the Exact Likelihood Function of Multivariate Moving Average Models', Biometrika 65 (1978), 511-519.  
AD A038 955
- 1723 Some Problems in the Approximation of Functions of Two Variables, and  $n$ -Widths, Charles A. Micchelli and Allan Pinkus, (Feb, 1977) 41A45, 41A63, 45L05, J. Approximation Theory 24 (1978), 51-77.  
AD A038 956
- 1724 On Modelling Pattern Formation by Activator-Inhibitor Systems, Paul C. Effe, (Feb, 1977) 35K55, 35B35, 92A05, J. Math. Biology 4 (1977), 353-362.  
AD A038 957
- 1725 New Variational Bounds on Generalized Polarizabilities, Peter D. Robinson, (Feb, 1977) 49G20, J. Math. Phys. 19 (1978), 694-699.  
AD A038 958
- 1726 Orthogonal Polynomials, Paul G. Nevai, (Feb, 1977) 42C05, 33A65, 41A05, 41A10, 41A20, 41A25, 41A35, 41A55, 41A60, 42C10, 42C25, 40A25, 26C05, 26C10, 26D05, 26D10, 30C10, 30E15, 30E20, 65D30, 65F15, 65F35, Mem. Amer. Math. Soc. 18 (1979), 1-185.  
AD A038 959
- 1727 The Numerically Stable Reconstruction of a Jacobi Matrix from Spectral Data, C. de Boor and G. H. Golub, (Feb, 1977) 65F15, 65L15, 65D30, 65F25, Linear Algebra and Appl. 21 (1978), 245-260.  
AD A038 960
- 1728 Bernstein's Inequality in  $L^p$  for  $0 < p < 1$ , Paul G. Nevai, (Feb, 1977) 42A05, J. Approximation Theory 27 (1979), 239-243.  
AD A038 961
- 1729 Monotone Invariant Solutions to Differential Inclusions, Frank H. Clarke and J.-P. Aubin, (Mar, 1977) 49E10, 34H05, 34A10, Proc. London Math. Soc. 22 (1977).  
AD A038 962
- 1730 On the Convergence of the Conjugate Gradient Method for Singular Capacitance Matrix Equations, A. S. L. Shieh, (Mar, 1977) 65N20, Published under title 'On the Convergence of the Conjugate Gradient Method for Singular Capacitance Matrix Equations from the Neumann Problem of the Poisson Equation', Numer. Math. 29 (1978), 307-327.  
AD A043 411

- 1731 Software for Interval Arithmetic: A Reasonably Portable Package, J. M. Yohe, (Mar, 1977) 94-04, ACM Trans. Math. Software 5 (1979), 50-63.  
AD A038 963
- 1732 A Fortran-Triplex-Pre-Compiler Based on the Augment Pre-Compiler, K. Bohmer and R. T. Jackson, (Mar, 1977) 68C05.  
AD A038 964
- 1733 Designs in Five and Six Components for Mixtures Models with Inverse Terms, Ralph St. John and Norman R. Draper, (Mar, 1977) 62K05.  
AD A038 965
- 1734 An Empirical Bayes Approach to Outliers, Enrique de Alba and J. Van Ryzin, (Mar, 1977) 62C99, 62F03, J. Statist. Planning Inference 4 (1980), 217-236.  
AD A038 966
- 1735 A Defense of the Karst Algorithm for Finding the Line of Best Fit Under the  $L_1$  Norm, Donald R. Schuette, (Mar, 1977) 90C05.  
AD A042 691
- 1736 The Approach of Solutions of Nonlinear Diffusion Equations to Travelling Front Solutions, Paul C. Fife and J. B. McLeod, (Mar, 1977) 35K55, 35B40, Arch. Rational Mech. Anal. 65 (1977), 335-361.  
AD A042 692
- 1737 Expansion of an Ion Sheath into a Collision-Dominated Plasma, K. E. Lonngren, (Mar, 1977) 78A35, IEEE Trans. Plasma Sci. P5-6 (1978), 29-32.  
AD A038 967
- 1738 Some New and Efficient Algorithms for Portfolio Analysis, Jong-Shi Pang, (Mar, 1977) 65K05, 90B99, 90C50, Published under title 'A New and Efficient Algorithm for a Class of Portfolio Selection Problems', Operations Res. 28 (1980), 754-767.  
AD A043 412
- 1739 Boundary Value Problems for the Fitzhugh-Nagumo Equations, Maria Elena Schonbek, (Mar, 1977) 35K55, J. Differential Equations 30 (1978), 119-147.  
AD A042 693
- 1740 A priori Estimates of Higher Order Derivatives of Solutions to the Fitzhugh-Nagumo Equations, M. E. Schonbek, (Apr, 1977) 35K55, J. Math. Anal. Appl. 82 (1982), 553-565.  
AD A042 694
- 1741 On the Matrix Approach to Fibonacci Numbers and the Fibonacci Pseudoprimes, Jack M. Pollin and I. J. Schoenberg, (Apr, 1977) 10A35, Fibonacci Quart. 18 (1980), 261-268.  
AD A042 703
- 1742 Free Vibrations for a Semilinear Wave Equation, Paul H. Rabinowitz, (Apr, 1977) 35L05, 35L60, 35B10, 49G99, Comm. Pure Appl. Math. 3 (1977).  
AD A042 331
- 1743 Dual Extremum Principles for Non-Negative Unsymmetric Operators, Ismael Herrera and Michael J. Sewell, (May, 1977) 35A15, 35K05, 35L05, 35R20, 47A05, 49B40, J. Inst. Math. Appl. 21 (1978), 95-115.  
AD A042 704

- 1744 Blending Interpolation Schemes on Triangles with Error Bounds, K. Bohmer and Gh. Coman, (Apr, 1977) 41A05, 41A15, 41A63, 65D05, *Mathematica* 18 (1976), 15-27. Also in 'Constructive Theory of Functions of Several Variables', Oberwolfach 1976, W. Schempp and K. Zeller, eds., Springer Lecture Notes 571 (1977), 14-37.  
AD A042 705
- 1745 An Algorithm for the Discrete Fisher's Permutation Test, Andrew P. Soms, (Apr, 1977) 62G10, *J. Amer. Statist. Assoc.* 72 (1977), 662-664.  
AD A042 706
- 1746 Discrete Exponential Abel-Euler Splines, R. N. Mohapatra and A. Sharma, (Apr, 1977) 41A05, 41A15, *J. Indian Math. Soc.* 42 (1978).  
AD A042 707
- 1747 Nonneutral Plasma Expansion, K. E. Lonngren, (May, 1977) 78A35, In Proceedings of Conference of Army Mathematicians (1977), see also *Phys. Letters* 59A (1976), 285-286; *J. Appl. Phys.* 48 (1977), 2630-2631.  
AD A042 708
- 1748 Equivalent Constraints for Discrete Sets, R. R. Meyer, (May, 1977) 90C10, *Discrete Appl. Math.* 1 (1979), 31-50.  
AD A042 725
- 1749 Large Sample Properties of the Bayes' Sequential Procedure for Estimating the Arrival Rate of a Poisson Process with Invariant Loss, C. P. Shapiro and Robert Wardrop, (May, 1977) 62L12, 62C10, Published under title 'Bayesian Sequential Procedure for Estimating the Arrival Rate of a Poisson Process', *J. Amer. Statist. Assoc.* 73 (1978), 597-601.  
AD A042 726
- 1750 Defect Corrections via Neighbouring Problems. I. General Theory, Klaus Bohmer, (May, 1977) 65B99, 65J05, 65L05, 65L10, 65M99, 65R20, *Numer. Math.* (In revised form) 37 (1981), 167-192.  
AD A043 413
- 1751 On a Class of Polynomials Connected with the Korteweg-de Vries Equation, M. Adler and J. Moser, (May, 1977) 34C35, *Comm. Math. Phys.* (In revised form) 61 (1978), 1-30.  
AD A042 727
- 1752 Using the Method of Orthogonal Collocation for Certain Three-Dimensional Problems of Stellar Structure, M. J. Miketinac and S. V. Parter, (June, 1977) 35J60, 65N30, Published under title 'Numerical Computation of Certain Three-Dimensional Stellar Structures using a Semidiscrete Pseudospectral Method', *ZAMP* 32 (1981), 204-228.  
AD A042 728
- 1753 The Continuous Time Bayes' Sequential Procedure for Estimating the Arrival Rate of a Poisson Process and Large Sample Properties, C. P. Shapiro and Robert Wardrop, (June, 1977) 62L12, 62C10, (Combined with #1795), Published under title 'Dynkin's Identity Applied to Bayes Sequential Estimation of a Poisson Process', *Ann. Statist.* (1980).  
AD A042 729
- 1754 Perturbation Methods for the Solution of Linear Problems, L. B. Rail, (June, 1977) 65J05, 65G05, 65F10, 65F15, 65F30, 65K05, *Proc. 1977 Army Num. Anal. and Computers Conf., U.S. Army Research Office, Research Triangle Park, NC (1977)*, 441-474.  
AD A044 829



- 1755 The Interval Arithmetic Package, J. M. Yohe, (June, 1977) 94-04.  
AD A046 372
- 1756 Proof of the Conjectures of Bernstein and Erdos Concerning the Optimal Nodes for Polynomial Interpolation, Carl de Boor and Allan Pinkus, (June, 1977) 41A05, 42A15, J. Approximation Theory 24 (1978), 289-303.  
AD A042 730
- 1757 On Cone Orderings and the Linear Complementarity Problem, Jong-Shi Pang, (June, 1977) 90C99, 06A10, 15A39, 15A48, Linear Algebra and Appl. 22 (1978), 267-281.  
AD A042 731
- 1758 Some Critical Point Theorems and Applications to Semilinear Elliptic Partial Differential Equations, Paul H. Rabinowitz, (June, 1978) 35J60, 58E05, Ann. Scuola Norm. Sup. Pisa Ser. 4, 5 (1978), 215-223.  
AD A042 732
- 1759 On Inverses of Vandermonde and Confluent Vandermonde Matrices III, Walter Gautschi, (June, 1977) 15A12, 65F35, Numer. Math. 29 (1978), 445-450.  
AD A042 733
- 1760 On Orthogonal Polynomials, Paul G. Nevai, (June, 1977) 42C05, J. Approximation Theory 25 (1979), 34-37.  
AD A042 734
- 1761 The Numerical Solution of Axisymmetric Free Boundary Porous Flow Well Problems using Variational Inequalities, Colin W. Cryer and Hans Fetter, (June, 1977) 35-02, 35J25, 35N99, 35R99, In 'Konstruktive Methoden bei nichtlinearen Randwertaufgaben und Schwingungen', J. Albrecht, L. Collatz, and K. Kirchgassner, eds., Basel: Birkhauser (1979).  
AD A046 373
- 1762 Ritz-Galerkin Methods for Singular Boundary Value Problems, Dennis Jespersen, (June, 1977) 65L10, 65N15, 65N30, 41A25, SIAM J. Numer. Anal. 15 (1978), 813-834.  
AD A042 735
- 1763 Withdrawn.
- 1764 A Nonhomogeneous Integrodifferential Equation in Hilbert Space, Ralph W. Carr and Kenneth B. Hannsgen, (July, 1977) 45J05, 45M05, 45M10, 45N05, SIAM J. Math. Anal. 10 (1979), 961-984.  
AD A046 374
- 1765 An Abstract Functional Differential Equation and a Related Nonlinear Volterra Equation, M. G. Crandall and J. A. Nohel, (July, 1977) 34K05, 45N05, 34G10, 47H15, 47H10, 47H05, 47H99, 47G05, Israel J. Math. 29 (1978), 313-328.  
AD A046 492
- 1766 On the Structure of Continua of Positive and Concave Solutions for Twopoint Nonlinear Eigenvalue Problems, Ph. Clement and I. B. Emmerth, (July, 1977) 34B15, 34E15, Published under title 'On Positive Concave Solutions of Two Point Nonlinear Eigenvalue Problems', by Ph. Clement and L. A. Peletier, J. Math. Anal. Appl. 69 (1979), 329-340.  
AD A046 375

- 1767 Pointwise Bivariational Bounds on Solutions of Fredholm Integral Equations, Peter D. Robinson, (July, 1977) 45L05, (coauthored with Michael F. Barnsley), SIAM J. Numer. Anal. 16 (1979), 135-144.  
AD A046 376
- 1768 Projectors on Convex Sets In Reflexive Banach Spaces, Eduardo H. Zarantonello, (July, 1977) 47H99, 51Kxx, Rev. Un. Mat. Argentina 29 (1984), 252-269.  
AD A046 501
- 1769 Generalized Cohomological Index Theories for Lie Group Actions with an Application to Bifurcation Questions for Hamiltonian Systems, Edward R. Fadell and Paul H. Rabinowitz, (July, 1977) 34C15, 34C25, 49A40, 55M99, 57S99, 58F05, Inventiones Math. 45 (1978), 139-174.  
AD A046 493
- 1770 Asymptotic Area and Perimeter of Sums of Random Plane Convex Sets, Richard A. Vitale, (July, 1977) 60D05, 60F05, 60G99, Geometric Probability Math. Modelling 1 (1980), 375-379.  
AD A046 432
- 1771 Galerkin Type Approximations which are Discontinuous in Time for Parabolic Equations in a Variable Domain, Pierre Jamet, (July, 1977) 65N05, SIAM J. Numer. Anal. 15 (1978), 912-928.  
AD A046 433
- 1772 On Some Existence Theorems for Semi-Linear Elliptic Equations, Herbert Amann and Michael G. Crandall, (July, 1977) 35J25, 35J60, Indiana Univ. Math. J. 27 (1978), 779-790.  
AD A046 390
- 1773 An Adaptive Algorithm for Multivariate Approximation giving Optimal Convergence Rates, Carl de Boor and John R. Rice, (July, 1977) 41A63, 41A25, 41A15, 41A40, 41A55, J. Approximation Theory 25 (1979), 337-359.  
AD A046 391
- 1774 Dynamic Stability of One-Dimensional Viscoelastic Bodies, Russell C. Browne, (July, 1977) 35B40, 35K45, Arch. Rational Mech. Anal. 68 (1978), 257-282.  
AD A046 392
- 1775 Asymptotic Distribution of Symmetric Statistics, H. Rubin and R. A. Vitale, (July, 1977) 60F05, 62E20, Ann. Statist. 8 (1980), 165-170.  
AD A049 395
- 1776 Hidden Z-Matrices with Positive Principal Minors, Jong-Shi Pang, (July, 1977) 15-02, 15A24, 15A45, 90C99, Linear Algebra and Appl. 23 (1979), 201-215.  
AD A046 434
- 1777 Periodic and Quasiperiodic Solutions of  $\Delta u + \lambda u + \phi(u) = 0$ , Klaus Kirchgassner and Jurgen Scheurle, (Aug, 1977) 35J60, 76-XX, J. Differential Equations 32 (1979), 30.  
AD A046 435
- 1778 Symmetric Duality for Structured Convex Programs, L. McLinden, (Aug, 1977) 90C25, Trans. Amer. Math. Soc. 245 (1978), 147-181.  
AD A046 436

- 1779 Code Generation for Short/Long Address Machines, Edward L. Robertson, (Aug, 1977) 68C05, Published under title 'Code Generation and Storage Allocation for Machines with Span-Dependent Instructions', ACM Trans. on Programming Languages and Systems 1 (1979), 71-83.  
AD A046 437
- 1780 Solving a System of Linear Inequalities for Generating Test Data, Bo Einarsson, (Aug, 1977) 65K05, J. Computational Appl. Math. 3 (1977).  
AD A046 377
- 1781 Periodic Interpolating Splines and Their Limits, A. S. Cavaretta, Jr. and D. J. Newman, (Aug, 1977) 41A15, 42A15, Indag. Math. (Proc. of the Koninklijke Nederlandse Akademie) 81 (1978), 515-526.  
AD A046 378
- 1782 Bounds for the Set of Solutions of Functional-Differential Equations, Karl L. Nickel, (Aug, 1977) 35K05, Ann. Polon. Math. XLII (1983), 241-257.  
AD A046 379
- 1783 Periodic Solutions of Hamiltonian Systems, Paul H. Rabinowitz, (Aug, 1977) 34C15, 34C25, Comm. Pure Appl. Math. 31 (1978), 157-184.  
AD A046 393
- 1784 An Asymptotic Formula for the Derivatives of Orthogonal Polynomials, Paul G. Nevai, (Aug, 1977) 42C05, SIAM J. Math. Anal. 10 (1979), 472-477.  
AD A046 394
- 1785 On the Solution of Some (Parametric) Linear Complementarity Problems with Applications to Portfolio Analysis, Structural Engineering and Graduation, Jong-Shi Pang, Ikuyo Kaneko and Wayne P. Hallman, (Aug, 1977) 90C20, 90C50, 65K05, Math. Programming 16 (1979), 325-347.  
AD A046 395
- 1786 Moving-Weighted-Average Smoothing Extended to the Extremities of the Data, T. N. E. Greville, (Aug, 1977) 65D10, 65F30, Transactions of the Twenty-Third Conf. of Army Mathematicians, ARO Report 78-1 (February 1978), 541-594.  
AD A046 380
- 1787 Application and Numerical Solution of Abel-Type Integral Equations, R. S. Anderssen, (Sept, 1977) 45E10, 45L10, 60D05, 60J65, 62P99, 65D25, 65D30, 65R20, 86-XX, (with F. R. de Hoog) Presented at the International Symposium on Ill-Posed Problems: Theory and Practice, University of Delaware, Newark, Delaware, October 2-6, 1979. Published as Mathematics Research Report No. 7, Australian National University, 1982, p. 42.  
AD A049 396
- 1788 A Refinement of Kolmogorov's Inequality, A. S. Cavaretta, Jr., (Sept, 1977) 41A15, J. Approximation Theory 27 (1979), 45-60.  
AD A046 381
- 1789 A Variational Inequality Approach to the Bellman-Dirichlet Equation for Two Elliptic Operators, H. Brezis and L. C. Evans, (Sept, 1977) 35J25, 35J60, 47H05, 49A22, Arch. Rational Mech. Anal. 71 (1979), 1-13.  
AD A046 382

- 1790 On a Measure of Lack of Fit in Time Series Models, G. M. Ljung and G. E. P. Box, (Sept, 1977) 62M10, 62E15, 62E25, Biometrika 65 (1978), 297-303.  
AD A049 397
- 1791 Symmetrized Separable Convex Programming, L. McLinden, (Sept, 1977) 90C25, Trans. Amer. Math. Soc. 247 (1979), 1-44.  
AD A049 398
- 1792 Nonlinear Sturm-Liouville Problems with no Secondary Bifurcation, J. B. McLeod and C. A. Stuart, (Sept, 1977) 34B15, 47H15, Proc. Roy. Soc. Edinburgh Sect. A 80A (1978), 347-356.  
AD A049 399
- 1793 Bibliography of Free Boundary Problems, Colin W. Cryer, (Sept, 1977) 31-02, 35J99, 35R99, 45-02, 49-02, 65-02, 65P05, 65R20, 73Cxx,, 73Exx, 76-XX, 78-XX, 80-XX, 85-XX, 86-XX.  
AD A049 420
- 1794 Best Mean Approximation by Splines Satisfying Generalized Convexity Constraints, Dennis D. Pence, (Oct, 1977) 41A15, 41A50, J. Approximation Theory 28 (1980), 333-348.  
AD A049 421
- 1795 Dynkin's Identity Applied to Bayes' Sequential Estimation of a Poisson Process, C. P. Shapiro and Robert L. Wardrop, (Oct, 1977) 62L12, 62F15, 62L15, (Combined with #1753), Published under title 'Dynkin's Identity Applied to Bayes Sequential Estimation of a Poisson Process', Ann. Statist. (1980).  
AD A049 422
- 1796 Harmonic Functions on Regions with Reentrant Corners. Part 1, J. Barkley Rosser, (Oct, 1977) 65N99.  
AD A049 423
- 1797 Robustness and Efficiency Problems of Some Randomization Procedures in Experimental Designs, Chien-Fu Wu, (Oct, 1977) 62K99, Ann. Statist. 9 (1981), 1168-1177.  
AD A049 424
- 1798 A Variable Metric Method for Linearly Constrained Minimization Problems, Klaus Ritter, (Oct, 1977) 90C30, 'Nonlinear Programming', O. L. Mangasarian, R. R. Meyer and S. M. Robinson, eds., Academic Press, New York (1978), 225-243.  
AD A049 425
- 1799 A Forced Quasilinear Wave Equation with Dissipation, J. A. Nohel, (Oct, 1977) 35L60, 35L05, 35A05, Proc. Equadiff4 International Conference, Springer-Verlag Lecture Notes (March 1979).  
AD A049 426
- 1800 The Lemma of Max Muller-Nagumo-Westphal for Strongly Coupled Systems of Parabolic Functional-Differential Equations, Karl L. Nickel, (Oct, 1977) 35K55, Math. Z. 161 (1978), 221-234 (published in German).  
AD A049 427
- 1801 Some Algebraic Relations Common to a Set of Integrable Partial and Ordinary Differential Equations, Mark Adler, (Oct, 1977) 34C35.  
AD A049 428

- 1802 Even Data Bases that Lie can be Compromised, Richard A. DeMillo, David Dobkin, and Richard J. Lipton, (Oct, 1977) 68C25, 68H05, IEEE Trans. on Software Engrg. SE-4 (1978), 71-74.  
AD A049 429
- 1803 Mathematical Theory of Laminar Combustion. I. Governing Equations, J. D. Buckmaster and G. S. S. Ludford, (Nov, 1977) 80A25, J. Mecanique 16 (1977), 531-551.  
AD A049 382
- 1804 A Dynamic Solution Concept for Abstract Games, Prakash P. Shenoy, (Nov, 1977) 90D12, J. Optimization Theory Appl. 32 (1980), 151-169.  
AD A049 383
- 1805 On Coalition Formation: A Game-Theoretical Approach, Prakash P. Shenoy, (Nov, 1977) 90D12, 90D45, Internat. J. Game Theory 8 (1979), 133-164.  
AD A049 384
- 1806 Bounds for the t-Tail Area, Andrew P. Soms, (Nov, 1977) 60E05, Commun. Statist.-Simula. Computa 12 (1983), 559-568.  
AD A049 385
- 1807 Rational Bounds for the t-Tail Area with an Application to Bonferroni t-Percentiles, Andrew P. Soms, (Nov, 1977) 60E05, J. Amer. Statist. Assoc. 75 (1980), 438-440.  
AD A049 386
- 1808 On Coalition Formation in Simple Games: A Mathematical Analysis of Caplow's and Gamson's Theories, Prakash P. Shenoy, (Nov, 1977) 90D12, 90D45, J. Mathematical Psychology 18 (1978), 177-194.  
AD A049 491
- 1809 The Landau Problem for Motions on Curves, I. J. Schoenberg, (Nov, 1977) 26D10, 49A10, Published in three parts. Published under titles 'The Landau Problem I. The Case of Motions on Sets', Proc. Amsterdam Acad. Series A 81 (1978), 276-286; 'The Landau Problem II. The Case of Motions on Curves', Proc. Amsterdam Acad. Series A 84 (1981), 325-335; 'The Landau Problem III. Motions on Special Curves and Time-Optimal Control Problems', Proc. Amsterdam Acad. Series A 84 (1981), 337-351.  
AD A049 492
- 1810 Efficient Computer Manipulation of Tensor Products, Carl de Boor, (Nov, 1977) 65D15, 41A63, ACM Trans. Math. Software 5 (1979), 173-182; Corrigenda, 525.  
AD A049 493
- 1811 On Committee Decision Making: A Game-Theoretical Approach, Prakash P. Shenoy, (Nov, 1977) 90D12, 90D40, 90D45, Management Science 26 (1980), 387-400.  
AD A049 494
- 1812 Generalized Equations and Their Solutions. Part I: Basic Theory, Stephen M. Robinson, (Nov, 1977) 47H05, 90A15, 90C30, Math. Programming Studies 10 (1979), 128-141.  
AD A049 495
- 1813 Operator-Valued Chandrasekhar H-Functions, C. T. Kelley, (Dec, 1977) 45E10, 45G10, 47G05, J. Math. Anal. Appl. 70 (1979), 579-588.  
AD A049 496

- 1814 The Quenching of Two-Dimensional Premixed Flames, J. Buckmaster, (Dec, 1977) 80A25, Acta Astronautica 6 (1979), 741-769; Proc. of the Seventeenth Symposium (International) on Combustion (1979), pp. 835-842.  
AD A049 497
- 1815 Solution of H-Equations by Iteration, C. T. Kelley, (Jan, 1978) 45G10, 45L05, SIAM J. Math. Anal. 10 (1979).  
AD A054 534
- 1816 Some Problems Related to the Bellman-Dirichlet Equation for Two Elliptic Operators, P. L. Lions, (Jan, 1978) 35J25, 35J60, 35K20, 35K60, 49A22, Comm. P.D.E. 5 (1980), 753-771.  
AD A054 535
- 1817 Bifurcation of Periodic Solutions for a Semilinear Wave Equation, Hansjorg Kleihofer, (Jan, 1978) 35L05, 35L60, 35B10, 47H15, J. Math. Anal. Appl. 68 (1979), 408-420.  
AD A054 536
- 1818 Mathematical Theory of Laminar Combustion. II. The Premixed Plane Flame, J. D. Buckmaster and G. S. S. Ludford, (Jan, 1978) 80A25, J. Mecanique 16 (1977), 553-573.  
AD A054 537
- 1819 Mathematical Theory of Laminar Combustion. III. Perturbations, J. D. Buckmaster and G. S. S. Ludford, (Jan, 1978) 80A25, Acta Astronautica 3 (1976), 593-614.  
AD A054 538
- 1820 Fast Poisson Solvers on General Regions for the Dirichlet Problem, A. S. L. Shieh, (Jan, 1978) 65N20, Numer. Math. 31 (1979), 409-433.  
AD A054 539
- 1821 Adaptive Minimum Mean Square Error Forecast of Missile Trajectory using Stochastic Difference Equation Models, G. E. P. Box and Lars Pallesen, (Jan, 1978) 60G25, 62M10, 62M20, Published under title 'Application of Time Series Models', Proc. of the 23rd Conference on the Design of Experiments in Army Research Development and Testing, ARD Report 78-2.  
AD A054 540
- 1822 Approximation of Convex Set-Valued Functions, Richard A. Vitale, (Jan, 1978) 41A65, 47D20, 54C60, J. Approximation Theory 26 (1979), 301-316.  
AD A054 541
- 1823 Relations Among Generalized Korteweg-deVries Systems, W. Symes, (Jan, 1978) 35A25, J. Math. Phys. 20 (1979), 721-725.  
AD A054 542
- 1824 An Integral Representation for Eigenfunctions of Linear Ordinary Differential Operators, W. Symes, (Jan, 1978) 34B25, J. Math. Anal. Appl. 70 (1979), 101-110.  
AD A054 543
- 1825 A Posteriori Error Bounds for Two-Point Boundary Value Problems, Gershon Kedem, (Jan, 1978) 65L10, SIAM J. Numer. Anal. 18 (1981), 431-448.  
AD A054 544

- 1826 A Fubini Theorem for Iterated Stochastic Integrals, Marc A. Berger, (Feb, 1978) 60H20, 45D05, Published under title 'Theorems of Fubini Type for Iterated Stochastic Integrals', Trans. Amer. Math. Soc. 252 (1979), 249-274.  
AD A054 545
- 1827 Uniqueness of Solutions to  $-\Delta u - qu = 0$ , Robert Jensen, (Feb, 1978) 35A05, 35J10, Comm. Partial Differential Equa. 3 (1978), 1053-1076.  
AD A054 546
- 1828 Strong Convergence of Semigroups of Nonlinear Contractions In Hilbert Space, A. Pazy, (Feb, 1978) 47H15, 35B40, J. Analyse Math. 34 (1978), 1-35.  
AD A054 547
- 1829 A Variational Equivalent to Diagonal Scaling, Marc A. Berger and C. T. Kelley, (Feb, 1978) 15A21, 26B05, J. Math. Anal. Appl. 72 (1979), 291-304.  
AD A054 548
- 1830 Completely Integrable Systems and Symplectic Actions, M. Adler, (Feb, 1978) 34C35, J. Mathematical Phys. (in revised form) 20 (1979), 60-67.  
AD A054 549
- 1831 Positive Kernels and Stochastic Integrals, Marc A. Berger, (Feb, 1978) 60H20, 45D05, SIAM J. Applied Math. 37 (1979).  
AD A054 550
- 1832 Analysis of Evolutionary Error in Finite Element and Other Methods, M. J. P. Cullen and K. W. Morton, (Feb, 1978) 35A40, 41A15, 65M05, 65M10, 65M15, 65N30, University of Reading Numerical Analysis Report 6/77, J. Computational Phys. 34 (1980), 245-267.  
AD A054 551
- 1833 A Set of Orthogonal Polynomials that Generalize the Racah Coefficients or  $6 - j$  Symbols, Richard Askey and James Wilson, (Mar, 1978) 33A65, SIAM J. Math. Anal. 10 (1979), 1008-1016.  
AD A054 552
- 1834 The Use of Stochastic Programming for the Solution of Some Problems in Statistics and Probability, Andras Prekopa, (Mar, 1978) 90C15, 90C25, 62D05, 62H15, 60A99, Published under title 'The Use of Stochastic Programming for the Solution of Some Problems in Statistics and Probability, Extremal Methods and Systems Analysis', Lecture Notes in Economics & Mathematical Systems, Springer Verlag, 174 (1980), 522-536.  
AD A054 553
- 1835 Planning in Interconnected Power Systems: An Example of Two-Stage Programming Under Uncertainty, Andras Prekopa, (Mar, 1978) 90C15, 90C25, 62C99, Published under title 'Network Planning using Two-Stage Programming Under Uncertainty', In Recent Results in Stochastic Programming, A. Prekopa and P. Kall, eds., Springer Verlag (1980), 215-237.  
AD A054 554
- 1836 Some Optimal Properties and Interpretations of Principal Components, Raul Hudlet and Richard A. Johnson, (Mar, 1978) 62H25, Ann. Inst. Statist. Math. 34 (1982), 105-110.  
AD A054 555
- 1837 Studies in the Analysis of Serially Dependent Data, Lars Chr. Pallesen, (Mar, 1978) Primary 62F15, 62M10; Secondary 62P20, 62N99, 62J05.  
AD A054 556

- 1838 Uniqueness of Solutions to Hyperbolic Conservation Laws, Ronald J. DiPerna, (Mar, 1978) 35L60, 35L65, Indiana Univ. Math. J. (1979).  
AD A054 557
- 1839 Quadratic Interpolation is Risky, Stephen M. Robinson, (Mar, 1978) 65K05, 90C30, SIAM J. Numer. Anal. 16 (1979), 377-379.  
AD A054 558
- 1840 Bayesian Inference on Parameters Associated with Families Closed Under Reciprocity, Norman R. Draper and Irwin Guttman, (Mar, 1978) 62F15, Sankhya Ser. B. 41 (1979), 77-90.  
AD A060 655
- 1841 On the Relationship of Some Results of Gelfand-Dikii and P. Moerbeke, and a Natural Trace Functional for Formal Asymptotic Pseudo-Differential Operators, M. Adler, (Apr, 1978) 34C35, Inventiones (in revised form) (1979).  
AD A060 656
- 1842 On the Development of Optimization Theory, Andras Prekopa, (Apr, 1978) 15-03, 15A39, 90-03, 90C30, Amer. Math. Monthly 87 (1980), 527-542.  
AD A060 618
- 1843 Testing for Periodicity in a Time Series, Andrew F. Siegel, (Apr, 1978) 62M15, 62E15, 62E25, 62F03, 62P99, 62Q05, J. Amer. Statist. Assoc. 75 (1980), 345-348.  
AD A060 657
- 1844 A Theory for Imperfect Bifurcation via Singularity Theory, M. Golubitsky and D. Schaeffer, (Apr, 1978) 58F99, 35B30, Comm. Pure. Appl. Math. 32 (1979), 21-98.  
AD A060 619
- 1845 Monotonicity is Necessary and Sufficient for Compensated Compactness, Robert Jensen, (Apr, 1978) 47H05.  
AD A060 658
- 1846 Inverse Boundary Value Problems and a Theorem of Gelfand and Levitan, W. Symes, (Apr, 1978) 35R30, J. Math. Anal. Appl. 71 (1979), 379-402.  
AD A060 659
- 1847 A Poisson Structure on Spaces of Symbols, W. Symes, (Apr, 1978) 35A25.  
AD A060 660
- 1848 Solving Differential Equations on a Hand Held Programmable Calculator, J. Barkley Rosser, (Apr, 1978) 34-02, 34A50, 65L05, Studies in Numerical Mathematics, Gene H. Golub, ed., Vol. 24, 199-242.  
AD A060 661
- 1849 On Solutions of Non-Cooperative Games: An Axiomatic Approach, Prakash P. Shenoy, (May, 1978) 90D10, Transactions of the Twenty-Fourth Conference of Army Mathematicians, U. S. ARO Report 79-1, (1979), pp. 53-66.  
AD A060 662
- 1850 A Combinatorial Problem Arising in the Study of Reaction-Diffusion Equations, J. Greenberg, C. Greene and S. Hastings, (May, 1978) 05B99, SIAM J. Algebra Discrete Methods 1 (1979), 34-42.  
AD A060 663



- 1851 A Generalization of Ultraspherical Polynomials, Richard Askey and Mourad E.-H. Ismail, (May, 1978) 10A45, 33A30, 33A45, 33A65, Studies in Pure Mathematics, Memorial Vol. for Paul Turan, Birkhauser, Basel (1983), 55-78.  
AD A060 664
- 1852 Stability of Interpolating Elastica, Michael Golomb, (May, 1978) 41A15, 73C99, Transactions of the Twenty-Fourth Conf. of Army Mathematicians, ARO Report 79-1 (1978), 301-350.  
AD A060 716
- 1853 A Recursive Approach to Parameter Estimation in Regression and Time Series Models, Johannes Ledolter, (May, 1978) 62M10, 62J05, Comm. Statist. A8 (1979), 1227-1245.  
AD A060 717
- 1854 A Variational Method for Finding Periodic Solutions of Differential Equations, Paul H. Rabinowitz, (May, 1978) 34C15, 34C25, Nonlinear Evolution Equations, M. G. Crandall, ed., Academic Press, New York (1978), pp. 225-251.  
AD A056 718
- 1855 A Drazin Inverse for Rectangular Matrices, R. E. Cline and T. N. E. Greville, (June, 1978) 15A09, Linear Algebra and Appl. 29 (1980), 53-62.  
AD A060 620
- 1856 Strong Convergence of Contraction Semigroups and of Iterative Methods for Accretive Operators in Banach Spaces, Olavi Nevanlinna and Simeon Reich, (June, 1978) 47H05, 47H15, 65J05, 35B40, Israel J. Math. 32 (1979), 44-58.  
AD A060 718
- 1857 Language Requirements and Designs to Aid Data Analysis and Statistical Computing, G. N. Wilkinson, (June, 1978) 62-02, 68-00, 68B05, 68F05, Proceedings of the 41st Session of the I.S.I. 1977, Bull. Internat. Statist. Inst., 47, pp. 299-311.  
AD A060 719
- 1858 Computable Error Bounds for the Nystrom Method, J. W. Hilgers and L. B. Rail, (June, 1978) 65R20, Proc. of the 1978 Army Numerical Analysis and Computers Conf., U. S. Army Research Office, Research Triangle Park, NC (1978), pp. 117-142.  
AD A060 720
- 1859 Bifurcation Analysis Near a Double Eigenvalue of a Model Chemical Reaction, David G. Schaeffer and Martin A. Golubitsky, (June, 1978) 35K55, 35B30, 80A99, Arch. Rational Mech. Anal. 75 (1981), 315-347.  
AD A060 721
- 1860 On Block Relaxation Techniques, D. Boley, B. L. Buzbee and S. V. Parter, (June, 1978) 65F10, Proc. of the 1978 Army Numerical Analysis and Computer Conf., U. S. Army Research Office, Research Triangle Park, NC (1978).  
AD A056 749
- 1861 A Boundary Value Problem Associated with the Second Painleve Transcendent and the Korteweg-deVries Equation, S. P. Hastings and J. B. McLeod, (July, 1978) 34B15, Arch. Rational Mech. Anal. 73 (1980), 31-51.  
AD A060 723

- 1862 Global Iteration Schemes for Monotone Operators, Olavi Nevanlinna, (July, 1978) 47H05, 47H15, 65J05, 90C25, Nonlinear Anal. 3 (1979), 505-514.  
AD A060 724
- 1863 Mixed Boundary Value Problems for the Elastic Strip: The Eigenfunction Expansion, D. A. Spence, (July, 1978) 45A05.  
AD A060 621
- 1864 The Dynamics of Pension Funding: Contribution Theory, James C. Hickman, C. J. Nesbitt, and N. L. Bowers, (July, 1978) 62P05, Trans., Soc. of Actuaries 31 (1979).  
AD A060 622
- 1865 The Asymptotic Distribution of the Order of Elements in Alternating Semigroups and in Partial Transformation Semigroups, Bernard Harris, (July, 1978) 20M20, 60C05, 60F05, Studies in Pure Math. (To the Memory of Paul Turan) (1982), 285-290.  
AD A060 725
- 1866 Remarks on Nonlinear Ergodic Theory in Hilbert Space, A. Pazy, (July, 1978) 47H99, Nonlinear Anal., Theory Methods & Applications 3 (1979), 863-871.  
AD A060 623
- 1867 Exploiting Structure in Fixed-Point Computation, Michael J. Todd, (Aug, 1978) 90C99, Published under title 'Exploiting Structure in Piecewise-Linear Homotopy Algorithms for Solving Equations', Math. Programming 18 (1980), 233-247.  
AD A063 965
- 1868 An Augment Interface for Brent's Multiple Precision Arithmetic Package, Richard P. Brent, Judith A. Hooper, and J. M. Yohe, (Aug, 1978) 94-04, ACM Trans. Math. Software 6 (1980), 146-149.  
AD A063 966
- 1869 Global Solutions of Semilinear Evolution Equations Satisfying an Energy Inequality, Hansjorg Kleihofer, (Aug, 1978) 34G10, 35K45, 35K50, 35K55, 47F05, 47H15, J. Differential Equations 36 (1980), 188-222.  
AD A063 967
- 1870 An Efficient Weak Line Search with Guaranteed Termination, M. R. Osborne, (Aug, 1978) 65D05, 65H10, 65K05.  
AD A063 969
- 1871 Optimal Sequential and Non-Sequential Procedures for Evaluating a Functional, Shmuel Gal and Charles A. Micchelli, (Aug, 1978) 65D99, 65J05, Applicable Anal. 10 (1980), 105-120.  
AD A063 968
- 1872 Uniqueness of Solutions of the Initial-Value Problem for  $u_t - \Delta_p(u) = 0$ , Halm Brezis and Michael G. Crandall, (Aug, 1978) 35K55, J. Math. Pures Appl. 58 (1979), 153-163.  
AD A063 976
- 1873 A Note on the Approximation of Functions of Several Variables by Sums of Functions of One Variable, C. T. Kelley, (Aug, 1978) 41A30, 47H10, J. Approximation Theory 33 (1981), 179-189.  
AD A063 970

- 1874 Majorization Formulas for a Biharmonic Function of Two Variables, J. Barkley Rosser, (Aug, 1978) 31A30, 35B30, SIAM J. Numer. Anal. 17 (1980), 207-220.  
AD A063 977
- 1875 Remarks on the Schrodinger Operator with Singular Complex Potentials, Haim Brezis and Tosio Kato, (Aug, 1978) 35J10, 47B44, J. Math. Pures Appl. (1979).  
AD A063 978
- 1876 Energy Methods for Nonlinear Hyperbolic Volterra Integrodifferential Equations, C. M. Dafermos and J. A. Nohel, (Sept, 1978) 45K05, 47H15, 47H10, 45M99, 35L60, Comm. Part. Diff. Eqns. 4 (1979), 219-278.  
AD A063 979
- 1877 Strongly Regular Generalized Equations, Stephen M. Robinson, (Sept, 1978) 49A50, 90C30, Math. Operations Res. 5 (1980), 43-62.  
AD A064 030
- 1878 Periodic Solutions of a Hamiltonian System on a Prescribed Energy Surface, Paul H. Rabinowitz, (Sept, 1978) 35C15, 34C25, J. Differential Equations 33 (1979), 336-352.  
AD A061 726
- 1879 Band Matrices with Toeplitz Inverses, T. N. E. Greville and W. F. Trench, (Sept, 1978) 15A09, 15A57, Linear Algebra and Appl. 27 (1979), 199-209.  
AD A064 031
- 1880 Extremum Problems for the Motions of a Billiard Ball. III. The Multi-Dimensional Case of Konig and Szucs, I. J. Schoenberg, (Sept, 1978) 10K15, 51M05, Studia Sci. Math. Hungar. 13 (1978), 53-78. An extended abstract was published under the title 'Extremum Problems for the Multi-Dimensional Case of Konig and Szucs of Billiard Ball Motions', Math. Rep. Acad. Sci., Royal Soc. of Canada 1 (1979), 37-40.  
AD A064 032
- 1881 Numerical Solution of a Singularly Perturbed Nonlinear Volterra Equation, Olavi Nevanlinna, (Sept, 1978) 65R20, 34E15, 45D05.  
AD A064 033
- 1882 A Lower Bound for the Permanent of a Doubly Stochastic Matrix, Shmuel Friedland, (Sept, 1978) 15A15, 15A45, 05B20, Ann. Math. 110 (1979), 167-176.  
AD A063 980
- 1883 Free Boundary Problems and Variational Inequalities, C. Baiocchi, (Sept, 1978) 35J20, 35J25, 76S05.  
AD A063 981
- 1884 Complementary Energy and Catastrophes, M. J. Sewell, (Oct, 1978) 49-00, 49C99, 'Variational Methods in the Mechanics of Solids', S. Nemat-Nasser, ed., Pergamon Press, Oxford (August 1979).  
AD A064 034
- 1885 Finite Elements and Variational Inequalities, R. Glowinski, (Oct, 1978) 35J20, 35J25. A variant of this report will appear in the Proc. of MAFELAP 1978 Conf. on the Math. of Finite Elements & Applications, Brunel Univ., 18-21 April 1978, J. R. Whiteman, ed., Academic Press, New York (1979).  
AD A064 035

- 1886 Globally Univalent  $C^1$ -Maps with Separability, Masakazu Kojima and Michael J. Todd, (Oct, 1978) 57R35, 57R50, 65H10.  
AD A064 036
- 1887 The Influence of the Lewis Number on the Dynamics of Chemically Reacting Systems, W. Harmon Ray and Stuart P. Hastings, (Oct, 1978) 34-XX, 80-XX, Chem. Engineering Sci. 35 (1980), 58.  
AD A064 037
- 1888 Mathematical Theory of Laminar Combustion. IV. Steady Burning of a Linear Condensate, J. D. Buckmaster and G. S. S. Ludford, (Oct, 1978) 80A25, Chapter In 'Theory of Laminar Flames', by J. D. Buckmaster and G. S. S. Ludford (1982), Cambridge Press: New York. Library of Congress Cat. Cont. Nos. ISBN 0 521 23929X.  
AD A064 038
- 1889 Equivalence of Linear Complementarity Problems and Linear Programs in Vector Lattice Hilbert Spaces, C. W. Cryer and M. A. H. Dempster, (Oct, 1978) 49C99, 90C05, 90C20, SIAM J. Control 18 (1980), 76-90.  
AD A063 982
- 1890 The Relation Between Statistical Decision Theory and Approximation Theory, Bernard Harris and Gerhard Helndl, (Oct, 1978) 62C05, 'Optimizing Methods In Statistics', J. S. Rustagi, ed., Academic Press, NY (1979), 263-272.  
AD A063 983
- 1891 On the Validity of a Nonlinear Programming Method for Solving Minimax Problems, Shih-Ping Han, (Oct, 1978) 65K05, 90C30.  
AD A063 984
- 1892 The Augment Precompiler as a Tool for the Development of Special Purpose Arithmetic Packages, F. D. Crary and J. M. Yohe, (Nov, 1978) 68C05.  
AD A063 985
- 1893 A Unified Parametric Quadratic Programming Solution to Some Stochastic Linear Programming Models, Masakazu Kojima and Ikuyo Kaneko, (Nov, 1978) 90C15, 90C20, 90C50.  
AD A064 039
- 1894 On a Problem Concerning Band Matrices with Toeplitz Inverses, T. N. E. Greville, (Nov, 1978) 15A09, 15A57, Proc. of the Eighth Manitoba Conf. on Numerical Mathematics and Computing, Sept. 29-Oct. 1, 1978, Univ. of Manitoba (1978), 275-283.  
AD A064 040
- 1895 A Constructive Approach to Kergin Interpolation in  $R^k$ , Charles A. Micchelli, (Nov, 1978) 41A05, 41A63, Rocky Mountain J. Math. 10 (1980), 485-497.  
AD A063 996
- 1896 Asymptotic Behavior of Semilinear Reaction-Diffusion Systems with Dirichlet Boundary Conditions, Robert A. Gardner, (Nov, 1978) 35B30, 35B40, 35K50, 35K55, Indiana Univ. Math. J. 29 (1980), 161-190.  
AD A063 997
- 1897 Exact Penalty Functions in Nonlinear Programming, S.-P. Han and O. L. Mangasarian, (Nov, 1978) 90C30, Math. Programming 17 (1979), 251-269.  
AD A063 998

- 1898 Numerical Approximation of a Cauchy Problem for a Parabolic Partial Differential Equation, Richard E. Ewing and Richard S. Falk, (Nov, 1978) 65M30, 65N30, Math. Comp. 33 (1979), 1125-1144.  
AD A064 041
- 1899 Testing Hypotheses for Effects on Survival by the Analysis of a Matched Retrospective Design, Bernard Harris and Anastasios A. Tsiatis, (Nov, 1978) 62F03, 62P10.  
AD A063 999
- 1900 Shadow Prices, Duality and Green's Formula for a Class of Optimal Control Problems, J. P. Aubin and F. H. Clarke, (Nov, 1978) 49B27, Published under title 'Shadow Prices and Duality for a Class of Optimal Control Problems', SICOPT 17 (1979), 567-587.  
AD A064 001
- 1901 Triplex Arithmetic for Fortran, Klaus Boehmer and J. M. Yohe, (Dec, 1978) 68C05.  
AD A068 847
- 1902 Error Estimates for the Approximation of an Unknown Constant Coefficient In a Partial Differential Equation, Richard S. Falk, (Dec, 1978) 65M30.  
AD A068 848
- 1903 The Noncentral Chi-Squared Distribution with Zero Degrees of Freedom and Testing for Uniformity, Andrew F. Siegel, (Dec, 1978) 60E05, 62E10, 62E20, 62F03, 62M15, 62Q05, Biometrika 66 (1979), 381-386.  
AD A068 849
- 1904 Error Analysis of a Linear Spline Method for Solving an Abel Integral Equation, Hing-Sum Hung, (Dec, 1978) 45E10, 45L10, 65R20.  
AD A068 896
- 1905 The Relationship Between Ljusternik-Schnirelman Category and the Concept of Genus, Edward Fadell, (Jan, 1979) 55M30, 58E05, Pacific J. Math. 89 (1980), 33-42.  
AD A068 897
- 1906 A Nonlinear Hyperbolic Volterra Equation Arising In Heat Flow, John A. Nohel, (Jan, 1979) 35L60, 45K05, 45M99, 47H10, 47H15, Recent Advances in Differential Equations, Academic Press, NY (1981), 317-336.  
AD A068 898
- 1907 Nonstandard Arithmetic Packages for Fortran, J. M. Yohe, (Jan, 1979) 68C05.  
AD A068 929
- 1908 The Interval Arithmetic Package - Multiple Precision Version, J. M. Yohe, (Jan, 1979) 68C05.  
AD A068 930
- 1909 Invariant Sets for Nonlinear Elliptic and Parabolic Systems, Hendrik J. Kulper, (Jan, 1979) 35J55, 35J60, 35K55, 35K60, SIAM J. Math. Anal. 11 (1980), 1075-1103.  
AD A068 931
- 1910 Ljusternik-Schnirelman Theory on General Level Sets, Eberhard Zeidler, (Jan, 1979) 47H15.  
AD A068 932

- 1911 An Approximation of Integrable Functions by Step Functions with an Application, M. G. Crandall and A. Pazy, (Jan, 1979) 41A30, Proc. Amer. Math. Soc. 76 (1979), 74-80.  
AD A068 933
- 1912 Remarks on Generators of Analytic Semigroups, M. G. Crandall, A. Pazy, and L. Tartar, (Jan, 1979) 34G10, 35K15, 47D05, Israel J. Math. 32 (1979), 363-374.  
AD A068 934
- 1913 Stability Regions in Predator-Prey Systems with Constant-Rate Prey Harvesting, F. Brauer and A. C. Soudack, (Jan, 1979) 34C05, 34D05, 92A15, J. Math. Biology 8 (1979), 55-71.  
AD A068 935
- 1914 On Cardinal Spline Smoothing, I. J. Schoenberg, (Jan, 1979) 41A15, IAC, Serie III - N 121 (1977), 3-23, and Approximation Theory and Functional Analysis, Proc. of the Campinas (Brazil) Symposium, Aug. 1-5, 1977, North-Holland Pub. Co., Amsterdam (1979), 383-407.  
AD A068 936
- 1915 Ranges of Prior Measures, Lorraine DeRobertis and J. A. Hartigan, (Jan, 1979) Primary 62A15; Secondary 60F15.  
AD A068 937
- 1916 A Straightforward Generalization of Diliberto and Straus' Algorithm does not Work, Nira Richter-Dyn, (Jan, 1979) 41A50, 41A63, J. Approximation Theory 30 (1981), 247-250.  
AD A068 899
- 1917 Self-Focussed and Self-Trapped Beams in Nonlinear Optics, Mohamed N. Y. Anwan and Robert D. Small, (Jan, 1979) 78-XX, J. Opt. Soc. Amer. 71 (1981), 124.  
AD A068 938
- 1918 Spline Functions on the Circle: Cardinal L-Splines Revisited, Charles A. Micchelli and A. Sharma, (Feb, 1979) 41A05, 41A15, Canad. J. Math. 32 (1980), 1459-1473.  
AD A068 901
- 1919 Analysis of Finite Element Methods for Second Order Boundary Value Problems Using Mesh Dependent Norms, I. Babuska and J. Osborn, (Feb, 1979) 65L10, 65N30, 65N15, Numer. Math. 34 (1980), 41-62.  
AD A068 902
- 1920 Strongly Stable Stationary Solutions in Nonlinear Programs, Masakazu Kojima, (Feb, 1979) 49B50, 90C30, Analysis & Computation of Fixed Points, S. M. Robinson, ed., (1980), 93-138.  
AD A068 903
- 1921 A Higher Order Global Approximation Method for Solving an Abel Integral Equation by Quadratic Splines, Hing-Sum Hung, (Feb, 1979) 45E10, 45L10, 65R20.  
AD A068 904
- 1922 Monotone Difference Approximations for Scalar Conservation Laws, Michael G. Crandall and Andrew Majda, (Feb, 1979) 65M05, 65M10, Math. Comp. 34 (1980), 1-21.  
AD A068 905
- 1923 Power Series Methods. I. Ordinary Differential Equations, Robert D. Small, (Feb, 1979) 34A50, 65L99.  
AD A068 939

- 1924 Power Series Methods. II. The Heat Equation, Robert D. Small, (Feb, 1979) 35A40, 65M05, 65M10.  
AD A068 940
- 1925 Power Series Methods. III. The Wave Equation, Robert D. Small, (Feb, 1979) 35A40, 65M05, 65M10.  
AD A068 941
- 1926 A Note on Enumerating Binary Trees, Marvin Solomon and Raphael A. Finkel, (Feb, 1979) 05A10, 05C30, 68C05, 68C25, J. Assoc. Comput. Mach. 27 (1980), 3-5.  
AD A068 900
- 1927 Critical Point Theorems for Indefinite Functionals, Vieri Benci and Paul H. Rabinowitz, (Feb, 1979) 34C15, 34C25, 35L60, 47H15, 58E05, 58F05, Invent. Math. 52 (1979), 241-273.  
AD A068 867
- 1928 On Pointwise and Analytic Similarity of Matrices, Shmuel Friedland, (Feb, 1979) 15A21, 15A54, 34A25, 34E99, Israel J. Math. 35 (1980), 89-108.  
AD A068 866
- 1929 A Computer Model of Hole-Pressure Measurement in Poiseuille Flow of Visco-Elastic Liquids, P. Townsend, (Feb, 1979) 65Nxx, Rheol. Acta 19 (1980), 1-11.  
AD A068 865
- 1930 Rosco User Guide, Raphael Finkel, Marvin Solomon, and Ron Tischler, (Mar, 1979) 68-00, 68G05, 68G10, 68Jxx.  
AD A068 864
- 1931 Convex Spectral Functions, Shmuel Friedland, (Mar, 1979) 15A42, Linear and Multilinear Algebra 9 (1981), 299-316.  
AD A068 942
- 1932 Galerkin Methods for Miscible Displacement Problems in Porous Media, Richard E. Ewing and Mary Fanett Wheeler, (Mar, 1979) 65M15, 65N15, 65N30, SIAM J. Numer. Anal. 17 (1980), 351-365.  
AD A068 943
- 1933 Spline Approximation to the Solution of a Class of Abel Integral Equations, Hing-Sum Hung, (Mar, 1979) 45E10, 65R20.  
AD A068 944
- 1934 Efficient Time-Stepping Procedures for Miscible Displacement Problems in Porous Media, Richard E. Ewing, (Mar, 1979) 65M15, 65N15, 65N30, (Combined with #1952, coauthored with T. F. Russell), SIAM J. Numer. Anal. 19 (1982), 1-66.  
AD A070 194
- 1935 Query Execution in Direct, David J. DeWitt, (Mar, 1979) 68H05.  
AD A070 195
- 1936 Error Estimates for Mixed Methods, R. S. Falk and J. E. Osborn, (Mar, 1979) 65N15, 65N30, R.A.I.R.O. Analyse Numerique/Numer. Anal. 14 (1980), 249-277.  
AD A070 196

- 1937 Collocation Approximation to Eigenvalues of an Ordinary Differential Equation: The Principle of the Thing, Carl de Boor and Blair Swartz, (Mar, 1979) 65L15, 65J05, Math. Comp. 35 (1980), 679-694.  
AD A070 197
- 1938 Theory of Connectivity: A Unified Approach to Boundary Methods, Ismael Herrera, (Mar, 1979) 35Jxx, Proc. of the IUTAM Symp. on Variational Methods In the Mechanics of Solids, S. Nemat-Nasser, ed., Pergamon Press (1980), 77-82.  
AD A070 198
- 1939 Variational Principles for Problems with Linear Constraints. Prescribed Jumps and Continuation Type Restrictions, Ismael Herrera, (Mar, 1979) 35Jxx, J. Inst. Math. Appl. 25 (1980), 67-96.  
AD A070 199
- 1940 Apex Singularities for Corner Cracks Under Opening, Sliding, and Tearing Modes, B. Noble, M. A. Hussain and S. L. Pu, (Mar, 1979) 73M05, 65P05.  
AD A070 200
- 1941 On the Swirling Flow Between Rotating Coaxial Disks, Asymptotic Behavior I., Heinz Otto Kreiss and Seymour V. Parter, (Mar, 1979) 34B15, 35E15, 35Q10, Proc. Royal Soc. Edinburgh 90A (1981), 293-316.  
AD A069 285
- 1942 The Continuous Dependence on  $\varphi$  of Solutions of  $u_{\pm} - \Delta\varphi(u) = 0$ , Philippe Benilan and Michael G. Crandall, (Mar, 1979) 35K15, 35K55, 47H15, Indiana Univ. Math. J. 30 (1981), 162-177.  
AD A070 179
- 1943 Some Relations Between Nonexpansive and Order Preserving Mappings, Michael G. Crandall and Luc Tartar, (Mar, 1979) 35F25, 47H99, 65M10, Proc. Amer. Math. Soc. 78 (1980), 385-390.  
AD A070 202
- 1944 A Comparison of the Existence Theorems of Kantorovich and Moore, L. B. Rall, (Mar, 1979) 65H10, 65G99, 68C25, SIAM J. Numer. Anal. 17 (1980), 148-161.  
AD A070 203
- 1945 Global and Superlinear Convergence of a Class of Variable Metric Methods, Klaus Ritter, (Apr, 1979) 90C30, Math. Programming Study 14 (1981), 178-205.  
AD A070 204
- 1946 Asymptotic Distributions of Slope of Greatest Convex Minorant Estimators, Sue Leurgans, (Apr, 1979) 60F05, 62E20, 62G05, 62G20, Ann. Statist. 10 (1982), 287-296.  
AD A070 205
- 1947 The Solutions of a Model Nonlinear Singular Perturbation Problem having a Continuous Locus of Singular Points, Gershon Kedem, Seymour V. Parter and Michael Steuerwalt, (Apr, 1979) 34B15, 34E15, Studies Appl. Math. 63 (1980), 119-146.  
AD A069 530
- 1948 The Solution of the Axisymmetric Elastic-Plastic Torsion of a Shaft Using Variational Inequalities, C. W. Cryer, (Apr, 1979) 35J20, 35J65, 35J70, 35R99, 49H05, 73E99, J. Math. Anal. Appl. 76 (1980), 535-570.  
AD A070 207



- 1949 Local and Superlinear Convergence of a Class of Variable Metric Methods, Klaus Ritter, (Apr, 1979) 90C30, Computing 23 (1979), 287-297.  
AD A070 208
- 1950 On the Rate of Superlinear Convergence of a Class of Variable Metric Methods, Klaus Ritter, (Apr, 1979) 90C30, Numer. Math. 35 (1980), 293-313.  
AD A070 209
- 1951 On the Number of Solutions to Polynomial Systems of Equations, C. B. Garcia and T. Y. Li, (Apr, 1979) 65H10, SIAM J. Numer. Anal. 17 (1980), 540-546.  
AD A070 210
- 1952 Efficient Time-Stepping Methods for Miscible Displacement Problems with Nonlinear Boundary Conditions, Richard E. Ewing, (Apr, 1979) 65M15, 65N15, 65N30, (Combined with #1934, coauthored with T. F. Russell), SIAM J. Numer. Anal. 19 (1982), 1-66.  
AD A070 211
- 1953 A Proof of the Convexity of the Free Boundary for Porous Flow Through a Rectangular Dam Using the Maximum Principle, C. W. Cryer, (Apr, 1979) 35J65, 76S05, J. Inst. Math. Appl. 25 (1980), 111-120.  
AD A070 212
- 1954 Robustness In the Strategy of Scientific Model Building, G. E. P. Box, (May, 1979) 62-02, 62A15, 62F10, 62F15, 62F35, In 'Robustness In Statistics', R. L. Launer and G. N. Wilkinson, eds., Academic Press (1979).  
AD A070 213
- 1955 The Construction of Jacobi and Periodic Jacobi Matrices with Prescribed Spectra, Warren E. Ferguson, Jr., (May, 1979) 15A18, 65F15, 65F30, 65L15, Math. Comp. 35 (1980), 1203-1220.  
AD A070 214
- 1956 A Comparison of Sampling Plans for Bayesian Estimation of a Poisson Process Rate, Robert L. Wardrop, (May, 1979) 62L12, 62F15, 62L15, 62N05, J. Math. Anal. Appl. 70 (1979), 280-298.  
AD A070 215
- 1957 On Systems of Toda Type, W. Symes, (May, 1979) 35A25, Published under title 'Systems of Toda Type, Inverse Spectral Problem, and Representation Theory', Invent. Math. 59 (1980), 13-51.  
AD A070 216
- 1958 Efficient Higher Order Single Step Methods for Parabolic Problems, Part I, James H. Bramble and Peter H. Sammon, (May, 1979) 65M15, 65N30, Math. Comp. 35 (1980), 655-677.  
AD A070 217
- 1959 CHEOPS: A Project for Evaluating ANSI/SPARC Architecture, A. Klug, (May, 1979) 68-02.  
AD A070 218
- 1960 The Finite Fourier Series. II. The Harmonic Analysis of Skew Polyons as a Source of Outdoor Sculptures, I. J. Schoenberg, (May, 1979) 42A15, Published under title 'The Geometric Vein', The Coxeter Festschrift, Ch. Davis, B. Grunbaum, and F. A. Sherk, eds., Springer-Verlag (1981), 165-176.  
AD A070 219

- 1961 Calculating Constraints on Relational Expressions, A. Klug, (May, 1979) 68-02, ACM Trans. on Database Systems 5 (1980), 260-290.  
AD A077 092
- 1962 Constant-Rate Stocking of Predator-Prey Systems, F. Brauer and A. C. Soudack, (June, 1979) 34C05, 34D30, 92-00, J. Math. Biology 11 (1981), 1-14.  
AD A077 093
- 1963 The Growth of Powers of a Non-Negative Matrix; Shmuel Friedland and Hans Schneider, (June, 1979) 15A18, 15A48, 65F10, SIAM J. Alg. Disc. Meth. 1 (1980), 185-200.  
AD A077 094
- 1964 On the Number of Solutions to a Class of Complementarity Problems, M. Kojima and R. Saigal, (June, 1979) 90C99, Math. Programming 21 (1981), 190-203.  
AD A077 095
- 1965 Newton's Method for Generalized Equations, Norman H. Josephy, (June, 1979) 49D99, 90A15, 90C99.  
AD A077 096
- 1966 Quasi-Newton Methods for Generalized Equations, Norman H. Josephy, (June, 1979) 49D99, 90A15, 90C99.  
AD A077 097
- 1967 Global and Superlinear Convergence of a Class of Scaled Variable Metric Methods, Klaus Ritter, (June 1979) 90C30, Ottimizzazione Non Lineare e Applicazioni, S. Incerti and G. Treccani, eds. (1980), 125-159.  
AD A077 098
- 1968 FFT as Nested Multiplication, with a Twist, Carl de Boor, (June, 1979) 65T05, SIAM J. Sci. Statist. Computing 1 (1980), 173-178.  
AD A077 099
- 1969 Sampling and Bayes' Inference in the Advancement of Learning, George E. P. Box, (June, 1979) 62-02, 62A15, 62F03, 62F10, J. Roy. Statist. Soc. Ser. A 143 (1980), 383-430; Proc. of Valencia (Spain) Conf. on Bayesian Inference.  
AD A077 100
- 1970 The Design and Implementation of a Database Management System Using Abstract Data Types, A. James Baroody, Jr. and David J. DeWitt, (June, 1979) 68H05, TODS 6 (1981).  
AD A077 101
- 1971 A Newton Method for the PIES Energy Model, Norman H. Josephy, (June, 1979) 49D99, 90A15, 90C99.  
AD A077 102
- 1972 Hogan's PIES Example and Lemke's Algorithm, Norman H. Josephy, (June, 1979) 49D99, 90A15, 90C99.  
AD A077 103
- 1973 A Globally and Quadratically Convergent Algorithm for General Nonlinear Programming Problems, Michael J. Best, Jurgen Brauninger, Klaus Ritter, and Stephen M. Robinson, (July, 1979) 65K05, 90C30, Computing 26 (1981), 141-153.  
AD A077 104

- 1974 On the Estimation of Functions of Several Variables from Aggregated Data, Nira Dyn and Grace Wahba, (July, 1979) 41A63, 41A15, SIAM J. Math. Anal. 13 (1982), 134-152.  
AD A077 105
- 1975 A Priori Estimates and Existence Results for Some Semilinear Elliptic Problems, P. L. Lions, (July, 1979) 35B45, 35B99, J. Math. Pures Appl. 61 (1982), 41-63.  
AD A077 106
- 1976 Applications of Software for Automatic Differentiation in Numerical Computation, L. B. Rail, (July, 1979) 65D30, 65G05, 65G10, 65H10, 65K10, 65L05, 65V05, 68-04, 68C05, 68C20, Computing, Suppl. 2 (1980), 141-156.  
AD A077 121
- 1977 Bounds for Eigenvalues of Hermitian Trench Matrices, T. N. E. Greville, (July, 1979) 15A09, 15A57, In Proc. Ninth Manitoba Conf. on Numerical Math. and Computing (1979), pp. 241-256.  
AD A077 122
- 1978 On the Existence of Hermite-Birkhoff Quadrature Formulas of Gaussian Type, Nira Dyn, (July, 1979) 41A05, 41A55, J. Approximation Theory 31 (1981), 22-32.  
AD A077 123
- 1979 On Abstract Volterra Equations with Kernels having a Positive Resolvent, Ph. Clement, (July, 1979) 45D05, 45K05, 45M05, 45N05, Israel J. Math. 36 (1980), 193-200.  
AD A077 124
- 1980 A Numerical Simulation of Newtonian and Visco-Elastic Flow Past Stationary and Rotating Cylinders, Peter Townsend, (July, 1979) 65Nxx, J. Non-Newtonian Fluid Mech. 6 (1980), 219-243.  
AD A077 125
- 1981 On the Swirling Flow Between Rotating Coaxial Disks, Asymptotic Behavior, II, Heinz Otto Kreiss and Seymour V. Parter, (July, 1979) 34B15, 34E15, 35Q10, Proc. Royal Soc. Edinburgh 90A (1981), 317-346.  
AD A077 126
- 1982 Efficient Multistep Procedures for Nonlinear Parabolic Problems with Nonlinear Neumann Boundary Conditions, Richard E. Ewing, (July, 1979) 65M15, 65N15, 65N30, Trans. of 25th Conf. of Army Math., ARO Report 80-1 (1980), 427-446; Calcolo XIX, fasc. III (Luglio-Settembre) (1982), 231-252.  
AD A077 127
- 1983 On a Path Following Method for Systems of Equations, C. B. Garcia and T. Y. Li, (July, 1979) 65H10, 90C99, Bull. Inst. Math. Acad. Sinica 9 (1981), 249-259.  
AD A077 128
- 1984 A Simple Reliable Numerical Algorithm for Following Homotopy Paths, Tien-Yien Li and James A. Yorke, (July, 1979) 65H10, 90C99, Analysis and Computation of Fixed Points, Academic Press (1980), 73-91.  
AD A077 129
- 1985 Stability and Convergence of a Generalized Crank-Nicolson Scheme on a Variable Mesh for the Heat Equation, Pierre Jamet, (Aug, 1979) 65M05, 65M10, 65M15, SIAM J. Numer. Anal. 17 (1980), 530-539.  
AD A077 130

- 1986 A Phase Plane Discussion of Convergence to Travelling Fronts for Nonlinear Diffusion, J. B. McLeod and Paul C. Fife, (Aug, 1979) 35B40, 35K55, Arch. Rational Mech. Anal. 75 (1981), 281-314.  
AD A077 131
- 1987 Boundary Regularity for Some Nonlinear Elliptic Degenerate Equations, Haim Brezis and Pierre-Louis Lions, (Aug, 1979) 35J60, 35J70, Comm. Math. Phys. 70 (1979), 181-185.  
AD A077 132
- 1988 Local Fixed Point Index Theory for Non-Simply Connected Manifolds, Edward Fadell and Suflan Hussein, (Aug, 1979) 54H25, 55M20, 55S30, Illinois J. Math. 25 (1981), 673-699.  
AD A077 133
- 1989 An Energetic Approach to Homogenization Problems with Rapidly Oscillating Potentials, Hedy Attouch, (Aug, 1979) 35-XX, 35A15, 35J65, - To Appear - Ricerche di Matematica.  
AD A077 134
- 1990 Numerical Stability in an Inverse Scattering Problem, W. Symes, (Aug, 1979) 35R30, SIAM J. Numer. Anal. 17 (1980), 707-732.  
AD A077 135
- 1991 The Initial Value Problem for the Equations of Motion of Compressible Viscous and Heat-Conductive Fluids, Akitaka Matsumura and Takaaki Nishida, (Sept, 1979) 35B40, 35K55, 35M05, Proc. Japan Acad. 55 (1979), 337-342.  
AD A077 136
- 1992 Nonlinear Schrodinger Evolution Equations, H. Brezis and T. Gallouet, (Sept, 1979) 35K55, 35L60, 46E35, 47H15, J. Nonlinear Anal. 4 (1980), 677-681.  
AD A077 137
- 1993 Global Stability of Stationary Solutions of Reaction-Diffusion Systems, Robert A. Gardner, (Sept, 1979) 35B30, 35B40, 35K50, 35K55, J. Differential Equations 37 (1980), 60-69.  
AD A077 138
- 1994 Dispersion Mapping Theorems, R. Creighton Buck, (Sept, 1979) 05C15, 26A16, 26B40, 41A30, 41A65, 54C05, J. Approximation Theory 30 (1980), 251-262.  
AD A079 704
- 1995 An Estimate Related to the Strong Maximum Principle, Haim Brezis and Pierre-Louis Lions, (Sept, 1979) 35J25, 35R05, Boll. Un. Mat. Ital. 17 (1980), 503-508.  
AD A079 705
- 1996 On Efficient Time-Stepping Methods for Nonlinear Second Order Hyperbolic Partial Differential Equations, Richard E. Ewing, (Sept, 1979) 65M15, 65N15, 65N30, Computers and Math. Appl. 6 (1980), 1-13.  
AD A079 731
- 1997 Implied Assumptions for Some Proposed Robust Estimators, Gina Chen and George E. P. Box, (Sept, 1979) 62Gxx, Published under title 'Sampling and Bayes' Inference in Scientific Modeling and Robustness', J. Roy. Statist. Soc. 143 (1980), 383-430.  
AD A079 732

- 1998 Further Study of Robustification via a Bayesian Approach, Gina Chen and George E. P. Box, (Sept, 1979) 62Gxx, Published under title 'Sampling and Bayes' Inference in Scientific Modeling and Robustness', J. Roy. Statist. Soc. 143 (1980), 383-430.  
AD A079 733
- 1999 Convergence of Abstract Splines, Carl de Boor, (Nov, 1979) 41A15, J. Approximation Theory 31 (1981), 80-89.  
AD A079 734
- 2000 On Solving Robust and Generalized Linear Regression Problems, David M. Gay, (Sept, 1979) 15-04, 15A09, 65F05, 65F25, 65M05, 90C30, In 'Ottimizzazione Non Lineare e Applicazioni', S. Incerti and G. Treccani, eds., Pitagora Editrice, Quaderni dell'Unione Matematica Italiana, Bologna, Italy (1980), 55-83.  
AD A079 735
- 2001 Nonlinear Oscillations and Boundary-Value Problems for Hamiltonian Systems, Frank H. Clarke and I. Ekeland, (Sept, 1979) 34C15, 34C25, Arch. Rational Mech. Anal. 78 (1982), 315-333.  
AD A079 736
- 2002 A Study of Real Data, George E. P. Box and Gina Chen, (Oct, 1979) 62Gxx, Published under title 'Sampling and Bayes' Inference in Scientific Modeling and Robustness', J. Roy. Statist. Soc. 143 (1980), 383-430.  
AD A079 737
- 2003 Analysis of Mixed Methods Using Mesh Dependent Norms, I. Babuska, J. Osborn, and J. Pitkaranta, (Sept, 1979) 65N15, 65N30, Math. Comp. 35 (1980), 1039-1062.  
AD A079 738
- 2004 Why do we Need Significance Levels?, Tom Leonard, (Oct, 1979) Primary 62G10; Secondary 62A15.  
AD A079 739
- 2005 The Boltzmann Equation with a Soft Potential, Part I: Linear, Spatially-Homogeneous, Russel Caflisch, (Oct, 1979) 82A15, Comm. Math. Phys. 74 (1980), 71-95.  
AD A079 706
- 2006 Abstract Optimality Theory, Szymon Dolecki, (Oct, 1979) 49B27.  
AD A079 707
- 2007 The Inverse Reflection Problem for a Smoothly Stratified Elastic Medium, W. Symes, (Oct, 1979) 35R30, SIAM J. Math. Anal. 12 (1981).  
AD A079 708
- 2008 \*MOD - A Language for Distributed Programming, Robert P. Cook, (Oct, 1979) 68B05, 68C05, 68Jxx.  
AD A079 709
- 2009 Arithmetic of Complex Sets, Karl Nickel, (Oct, 1979) 04A05, 30A10, Computing 24 (1980), 97-105.  
AD A079 710
- 2010 An Adaptive Nonlinear Least-Squares Algorithm, J. E. Dennis, D. M. Gay, and R. E. Welsch, (Oct, 1979) 62-04, 65K05, 90C30, ACM Trans. Math. Software 7 (1981), 348-368.  
AD A079 716

- 2011 Derivatives and Codifferentials of Maps with Closed Convex Graphs and Convex Operators, Jean-Pierre Aubin, (Oct, 1979) 47H10, 47H15, 47H99, 49B27, 49B99, In 'Applied Nonlinear Analysis', J.-P. Aubin and I. Ekeland, Wiley Interscience (1984), Chapter 4, Section 2.  
AD A079 717
- 2012 Finite-Amplitude Solitary Water Waves, C. J. Amick and J. F. Toland, (Oct, 1979) 45C05, 45G05, 47H15, Arch. Rational Mech. Anal. 76 (1981), 9-95.  
AD A079 718
- 2013 Computing Optimal Locally Constrained Steps, David M. Gay, (Oct, 1979) 65K05, 90C30, SIAM J. Sci. Statist. Computing 2 (1981), 186-197.  
AD A079 719
- 2014 Some Continuity Properties of Polyhedral Multifunctions, Stephen M. Robinson, (Oct, 1979) 90C30, Math. Programming Studies 14 (1981), 206-214.  
AD A079 720
- 2015 The Use of the Tetrachoric Series for Evaluating Multivariate Normal Probabilities, Bernard Harris and Andrew P. Soms, (Oct, 1979) 62H05, J. Multivariate Anal. 10 (1980), 232-262.  
AD A079 721
- 2016 One-Sided Continuous Dependence of Maximal Solutions, Eric Schechter, (Nov, 1979) 34A10, J. Differential Equations (in revised form) 39 (1981), 413-425.  
AD A079 722
- 2017 Energy Release Rate Calculations for Interface Edge Cracks Based on a Conservation Integral, A. Nachman and J. R. Walton, (Nov, 1979) 73M05, 73K20, Internat. J. Solids and Structures 16 (1980), 695-699.  
AD A079 723
- 2018 On the Maximality of the Sum of Two Maximal Monotone Operators, Hedy Attouch, (Nov, 1979) 47H05, 49A40, Nonlinear Anal. Theory, Methods & Appl. 5 (1981), 143-147.  
AD A079 724
- 2019 Bifurcations of a Model Diffusion-Reaction System, R. Aris, (Nov, 1979) 35K55, 58F14, 58F22, In 'New Approaches to Nonlinear Problems in Dynamics', P. J. Holmes, ed., SIAM Publications, Philadelphia (1980), 211-233.  
AD A079 725
- 2020 Nearly Balanced Incomplete Block Designs, Ching-Shui Cheng and Chien-Fu Wu, (Nov, 1979) 05B05, 62K10, Biometrika 68 (1981), 493-500.  
AD A079 726
- 2021 Closed-Loop Eigenvalue Specification for Infinite Dimensional Systems: Augmented and Deficient Hyperbolic Cases, David L. Russell, (Nov, 1979) 42A10, 42A65, 93B10.  
AD A079 727
- 2022 A Globally Convergent Ball Newton Method, Karl L. Nickel, (Nov, 1979) 30C15, 65H10, SIAM J. Numer. Anal. 18 (1981), 988-1003.  
AD A079 728
- 2023 On Subharmonic Solutions of Hamiltonian Systems, Paul H. Rabinowitz, (Nov, 1979) 34C15, 34C25, 58E05, 58F05, Comm. Pure Appl. Math. 33 (1980), 609-633.  
AD A079 729

- 2024 Equilibria of the Curvature Functional and Manifolds of Nonlinear Interpolating Spline Curves, Michael Golomb and Joseph Jerome, (Nov, 1979) 41A05, 49B36, 49B50, 49F22, 65D10, SIAM J. Math. Anal. 13 (1982), 421-458.  
AD A083 807
- 2025 Moving-Weighted-Average Smoothing Extended to the Extremities of the Data, T. N. E. Greville, (Nov, 1979) 62M10, 62P05, 65D10, 65F30, Published in three parts, I. Theory, Scand. Actuarial J. (1981), 39-55; II. Methods, Scand. Actuarial J. (1981), 65-81; III. Stability and Optimal Properties, J. Approximation Theory 33 (1981), 43-58.  
AD A083 808
- 2026 Computer Calculation of Mechanisms Involving Intermittent Motions, B. Noble and H. S. Hung, (Dec, 1979) 65L05.  
AD A083 809
- 2027 Coincident Bifurcation of Equilibrium and Periodic Solutions of Evolution Equations, Michael Shearer, (Dec, 1979) 34C20, 34C25, 34G20, 47H17, J. Math. Anal. Appl. 84 (1981), 113-132.  
AD A083 810
- 2028 A Nonlinear Volterra Equation in Variable Domain, Hedy Attouch and Alain Damlamian, (Dec, 1979) 35K05, 35K60, 35Kxx, 45D05, 45K05.  
AD A083 829
- 2029 A Simple Derivation of Glassman's General N Fast Fourier Transform, Warren E. Ferguson, Jr., (Dec, 1979) 65T05, Computers & Math. Appl. 8 (1982), 401-412.  
AD A083 811
- 2030 Forced Oscillations of Nonlinear Hamiltonian Systems, II, Ivar Ekeland, (Dec, 1979) 34C15, 34C25, 49A10, 70H30, 70K99, Advances in Mathematics, Volume in honor of Laurent Schwartz, Nachbin, ed., Academic Press, NY (1981).  
AD A083 812
- 2031 The Boltzmann Equation with a Soft Potential. Part II: Nonlinear, Spatially-Periodic, Russel Caflisch, (Jan, 1980) 82A15, Comm. Math. Phys. 74 (1980), 97-109.  
AD A083 813
- 2032 Convergent Approximations in Parabolic Variational Inequalities. I: One-Phase Stefan Problems, Joseph W. Jerome, (Jan, 1980) 65M20, 65N30, 76V05.  
AD A083 814
- 2033 Programming Language Facilities for Numerical Computation, John R. Rice, (Jan, 1980) 65-02, 00A25, 68B05.  
AD A083 815
- 2034 Optimal Simplex Tableau Characterization of Unique and Bounded Solutions of Linear Programs, O. L. Mangasarian, (Jan, 1980) 90C05, J. Optimization Theory Appl. 35 (1981), 123-128.  
AD A083 816
- 2035 Metrically Upper Semicontinuous Multifunctions and Their Intersections, Szymon Dolecki, (Jan, 1980) 90C30, 52A99, 54C60.  
AD A083 817

- 2036 The Solutions to a Smooth PDE can be Dense in  $C^{1,1}$ , R. C. Buck, (Feb, 1980) 41A30, 35F20, 26B40, J. Differential Equations 41 (1981), 239-244.  
AD A083 818
- 2037 New Algorithms for Nonlinear Least Squares and Bayesian Parameter Estimation, Warren E. Stewart and Jan P. Sørensen, (Feb, 1980) 62F15, 62F25, 62F10, Published under title 'Bayesian Estimation of Common Parameters from Multiresponse Data with Missing Observations', Technometrics 23 (1981), 131-141.  
AD A083 819
- 2038 Bifurcation Phenomena In Stirred Tanks and Catalytic Reactors, W. H. Ray and K. F. Jensen, (Feb, 1980) 80A30, Chapter In 'New Approaches to Dynamics of Nonlinear Systems', P. Holmes, ed., SIAM Publ. (1980).  
AD A083 820
- 2039 Singularly Perturbed Equations in the Critical Case, A. B. Vasil'eva and V. F. Butuzov, (Feb, 1980) 34A34, 34B15, 45J05, Originally published by Moscow State Univ. (1978). (Russian Translation by F. A. Howes with the editorial assistance of R. E. O'Malley, Jr.)  
AD A083 821
- 2040 Evolution of Deflagration in a Cold Combustible Subjected to a Uniform Energy Flux, A. K. Kapila, (Feb, 1980) 35K22, 80A25, Int. J. Engng. Sci. 19 (1981), 495-509.  
AD A083 822
- 2041 The Stokes and Krasovskii Conjectures for the Wave of Greatest Height, J. B. McLeod, (Feb, 1980) 45G05, 45G10, 76B15, 76B25, - To Appear - Proc. Camb. Phil. Soc.  
AD A083 823
- 2042 High Order Difference Methods for Quasilinear Elliptic Boundary Value Problems on General Regions, Klaus Boehmer, (Feb, 1980) 65N05, 65N10, 65N20, 65B05, Math. Z. (in revised form) 177 (1981), 235-255.  
AD A083 824
- 2043 The Peano Curve of Schoenberg is Nowhere Differentiable, James Alsina, (Feb, 1980) 26A24, 54C05, J. Approximation Theory 33 (1981), 28-42.  
AD A083 825
- 2044 Contingent Derivatives of Set-Valued Maps and Existence of Solutions to Nonlinear Inclusions, Jean-Pierre Aubin, (Feb, 1980) 47H10, 47H15, 47H99, 49B27, 49B99, In 'Mathematical Analysis and Applications', L. Nachbin, ed., Academic Press, Advances In Math. 7A (1981), 160-232.  
AD A083 826
- 2045 On Homogeneity and On-Line=Off-Line Behavior In M/G/1 Queueing Systems, Raymond M. Bryant, (Feb, 1980) 68C15, IEEE Trans. Software Engr. SE-7 (1981), 291-299.  
AD A083 827
- 2046 Spherically Symmetric Waves of a Reaction-Diffusion Equation, Christopher K. R. T. Jones, (Feb, 1980) 34B25, 34C35, 35B40, 35K55.  
AD A083 828
- 2047 Convergent Approximations in Parabolic Variational Inequalities. II. Hamilton-Jacobi Inequalities, Joseph W. Jerome, (Mar, 1980) 65N30, 90D05, Appl. Math. Optimization 8 (1982), 265-274.  
AD A086 364



- 2048 Generalized Equations and Their Solutions. Part II: Applications to Nonlinear Programming, Stephen M. Robinson, (Mar, 1980) 90C30, Math. Programming Studies 19 (1982), 200-221.  
AD A086 365
- 2049 What is the Main Diagonal of a BInfinite Band Matrix?, Carl de Boor, (Mar, 1980) Primary 47B37, 41A15, 47B39; Secondary 15A09, 39A12, 39A70, In 'Quantitative Approximation', R. DeVore and K. Scherer, eds., Academic Press, NY (1980), 11-23.  
AD A086 366
- 2050 On the Number of Periodic Trajectories for a Hamiltonian Flow on a Convex Energy Surface, Ivar Ekeland and Jean-Michel Lasry, (Mar, 1980) 34C25, 49A10, 58F05, 70H05, 70H25, 70K99, Ann. Math. 112 (1980), 283-319.  
AD A086 367
- 2051 Theoretical and Practical Aspects of Singularity and Eigenmode Expansion Methods, A. G. Ramm, (Mar, 1980) 47A40, 35P25, 35P05, 35P10, 30E25, 78A45, 81F20, 81F99, IEEE Trans. A-P 28 (1980), 897-901.  
AD A089 588
- 2052 Dynamics of the Continuously Stirred Tank Reactor Having Consecutive Reactions  $A \rightarrow B \rightarrow C$ , D. C. Halbe and A. B. Poore, (Mar, 1980) 34C15, Chem. Engineering J. 21 (1981), 241-253.  
AD A086 368
- 2053 Convergence Estimates for Semidiscrete Parabolic Equation Approximations, Peter H. Sammon, (Mar, 1980) Primary 65M15; Secondary 65N30, SIAM J. Numer. Anal. 19 (1982), 68-92.  
AD A086 369
- 2054 The Convergence of Periodic Waves to Solitary Waves in the Long Wave Limit, J. F. Toland, (Mar, 1980) 45G05, 45C05, 47H15.  
AD A086 370
- 2055 Notes on Generalized Boundary Value Problems in Banach Spaces, I. Adjoint and Extension Theory, R. C. Brown, (Mar, 1980) 47A05, 34B10, Pacific J. Math. 85 (1979), 295-322.  
AD A086 371
- 2056 Cumulative Processes: Linear Combinations of Order Statistics and Percentiles, Sue Leurgans, (Mar, 1980) Primary 60F05, 60G99; Secondary 62E20, 62E30, Z. Wahrscheinlichkeitstheorie und Verw. Gebiete 63 (1983), 529-549.  
AD A086 372
- 2057 Dichotomies for Band Matrices, Carl de Boor, (Mar, 1980) Primary 47B37, 47B39; Secondary 15A09, 39A12, 39A70, SIAM J. Numer. Anal. 17 (1980), 894-907.  
AD A086 373
- 2058 Design Considerations for Data-Flow Database Machines, Haran Boral and David J. DeWitt, (Mar, 1980) 68H05, Computer 15 (1982).  
AD A086 374
- 2059 Arrhenius Systems: Dynamics of Jump Due to Slow Passage Through Criticality, A. K. Kapila, (Mar, 1980) 35K22, 80A25, SIAM J. Appl. Math. 41 (1981), 29-42.  
AD A086 376

- 2060 An Integral Bound on the Strain Energy for the Traction Problem in Non-Linear Elasticity with Small Strains, Joseph J. Roseman, (Apr, 1980) 73C50, 73G05, Internat. J. Non-Linear Mech. 16 (1981), 317-325.  
AD A086 377
- 2061 How to Homogenize a Nonlinear Diffusion Equation (e.g. Stefan's Problem), Alain Dambrin, (Apr, 1980) 35K55, 65P05, SIAM J. Math. Anal. 12 (1981), 306-313.  
AD A086 379
- 2062 On the Maximum Principle for Pseudoparabolic Equations, Emmanuele DiBenedetto and Michel Pierre, (Apr, 1980) 35K55, 35K70, Indiana Univ. Math. J. 30 (1981), 821-854.  
AD A086 380
- 2063 Stationary Points and Finite Difference Schemes for Differential Inclusions, Jean-Pierre Aubin, (Apr, 1980) 47H10, 49B27, In 'Differential Inclusions', J.-P. Aubin and A. Cellina, Springer-Verlag (1984), Chapter 5.  
AD A086 381
- 2064 Viable and Monotone Trajectories of Differential Inclusions, Jean-Pierre Aubin, (Apr, 1980) 47H10, 49B27, In 'Differential Inclusions', J.-P. Aubin and A. Cellina, Springer-Verlag (1984), Chapter 4.  
AD A086 382
- 2065 Fully Nonlinear Second Order Elliptic Equations with Large Zeroth Order Coefficient, Lawrence C. Evans and Pierre-Louis Lions, (Apr, 1980) 35J15, 35J60, Ann. Inst. Fourier 31 (1981), 175-191.  
AD A086 383
- 2066 Arachne User Guide, Version 1.2, Raphael Finkel, Marvin Solomon, and Ron Tischler, (Apr, 1980) 68-00, 68G05, 68G10, 68Jxx.  
AD A089 609
- 2067 New Applications of Generalized Curves, Particularly in Physics, L. C. Young, (May, 1980) 81G99, Proceedings of the Joffe Conf. held at Imperial College in February 1980, Springer, Berlin, Pitmans Research Notes in Mathematics Series.  
AD A089 610
- 2068 Connection at Close Quarters to Generalized Turning Points, J. F. Painter and R. E. Meyer, (May, 1980) 34E20, 41A60, 30E15, Published under title 'Turning-Point Connection at Close Quarters', SIAM J. Math. Anal. 13 (1982), 541-554.  
AD A086 384
- 2069 Asymptotic Behaviour of Positive Solutions of Nonlinear Volterra Equations for Heat Flow, Ph. Clement and J. A. Nohel, (May, 1980) 45D05, 45J05, 45M05, 45M10, 47H15, 47F05, SIAM J. Math. Anal. 12 (1981), 514-535.  
AD A086 385
- 2070 Asymptotic Properties of Solutions of Nonlinear Abstract Volterra Equations, Ph. Clement, R. C. MacCamy, and J. A. Nohel, (May, 1980) 45D05, 45K05, 45G10, 45M05, 45M10, 47H05, 47H15, J. Integral Equations 3 (1981), 185-216.  
AD A086 387

- 2071 Extremum Problems for the Motions of a Billiard Ball. IV. A Higher-Dimensional Analogue of Kepler's Stella Octangula, I. J. Schoenberg, (May, 1980) 51M20, 52A40, Studia Sci. Math. Hungar. 14 (1979), 273-292.  
AD A086 550
- 2072 Local Piecewise Polynomial Projection Methods for an ODE Which Give High-Order Convergence at Knots, Carl de Boor and Blair Swartz, (May, 1980) 65L15, 65J05, Math. Comp. 36 (1981), 21-33.  
AD A089 589
- 2073 New Results on the Vibrating String with a Continuous Obstacle, M. Schatzman and A. Bamberger, (May, 1980) 35L15, 35L20, 35L67, 35L70, 65M05, 65M15, 65M25, 73D35, SIAM J. Math. Anal. 14 (1983), 560-595.  
AD A086 724
- 2074 Propagating Waves and Target Patterns in Chemical Systems, Paul C. Fife and John Tyson, (May, 1980) 35K55, 80A20, 35B25.  
AD A089 590
- 2075 A Decomposition Procedure for Large Scale Optimal Plastic Design Problems, Ikuyo Kaneko and Cu Duong Ha, (May, 1980) 90C25, 90C50, 73E20, 73K25, Internat. J. Numer. Methods Engrg. 19 (1983), 873-889.  
AD A086 560
- 2076 Regularizing Effects of Homogeneous Evolution Equations, Michael G. Crandall and Philippe Benilan, (May, 1980) 34G20, 35D10, 47H07, 47H20, in Contributions to Analysis and Geometry, D. N. Clark, C. Pucci, and R. Sacksteder, eds., Johns Hopkins University Press, Baltimore (supplement to Amer. J. Math.) (1981), 23-39.  
AD A086 561
- 2077 Measures of Lack of Fit, and Transformation of Predictors, in Composite Designs, G. E. P. Box and N. R. Draper, (May, 1980) 62K99.  
AD A086 562
- 2078 A Population of Linear, Second Order, Elliptic Partial Differential Equations on Rectangular Domains - Part 1, John R. Rice, Elias N. Houstis, and Wayne Dyksen, (May, 1980) 65N99, Math. Comp. 36 (1981), 475-484.  
AD A092 248
- 2079 A Population of Linear, Second Order, Elliptic Partial Differential Equations on Rectangular Domains - Part 2, John R. Rice, Elias N. Houstis, and Wayne R. Dyksen, (May, 1980) 65N99, Microfiche Supplement of Part 1, Math. Comp. 36 (1981).  
AD A090 825
- 2080 Collocation Approximation to Eigenvalues of an Ordinary Differential Equation: Numerical Illustrations, Carl de Boor and Blair Swartz, (May, 1980) 65L15, 65J05, Math. Comp. 36 (1981), 1-19.  
AD A089 633
- 2081 Nonlinear Volterra Equations for Heat Flow in Materials with Memory, John A. Nohel, (May, 1980) 45D05, 45J05, 45K05, 45G10, 45M05, 45M10, 47F05, 47H05, 47H15, Proceedings of West Virginia Conferents, 'Integral and Functional Differential Equations', Terry L. Herdman, Harlan W. Stech, and Samuel M. Rankin, III, eds., Marcel Dekker, Inc., New York (1981), 3-82.  
AD A084 634

- 2082 Spectral Theory of Matrices. I. General Matrices, Shmuel Friedland, (May, 1980) 15A21, 15A54, 34A25, 34E99.  
AD A084 635
- 2083 Convergence of Nonlinear Elliptic Operators and Application to a Quasi Variational Inequality, Maria Giovanna Garroni and Jean-Pierre Gossez, (May, 1980) 35J25, 35J40, 47H05, 47H17, J. Math. Anal. Appl. 92 (1983), 252-273.  
AD A089 640
- 2084 Some Aspects of Model Estimation and Model Criticism, Steven P. Bailey and George E. P. Box, (May, 1980) 62G99, Published under title 'Sampling and Bayes' Inference in Scientific Modeling and Robustness', J. Roy. Statist. Soc. 143 (1980), 383-430.  
AD A089 641
- 2085 Modeling the Nature and Frequency of Outliers, Steven P. Bailey and George E. P. Box, (May, 1980) 62G99, Published under title 'Sampling and Bayes' Inference in Scientific Modeling and Robustness', J. Roy. Statist. Soc. 143 (1980), 383-430.  
AD A089 642
- 2086 The Duality of Diagnostic Checking and Robustification in Model Building: Some Considerations and Examples, Steven P. Bailey and George E. P. Box, (June, 1980) 62G99, Published under title 'Sampling and Bayes' Inference in Scientific Modeling and Robustness', J. Roy. Statist. Soc. 143 (1980), 383-430.  
AD A089 643
- 2087 Integration of Interval Functions, Ole Caprani, Kaj Madsen, and L. B. Rall, (June, 1980) 65R20, 65G10, 65D30, 45L10, 45L05, 45G10, 28B20, 26A42, SIAM J. Math. Anal. 12 (1981), 321-341.  
AD A089 644
- 2088 On the Generalized Euler-Frobenius Polynomial, Y. Y. Feng and J. Kozak, (June, 1980) 41A15, J. Approximation Theory 32 (1981), 327-338.  
AD A089 661
- 2089 A Mathematical Model for Linear Elastic Systems with Structural Damping, G. Chen and D. L. Russell, (June, 1980) 35K40, 35L40, 47B44, 47D05, Quart. Appl. Math. (1982), 433-454.  
AD A089 662
- 2090 Large Amplitude Patterns for Two Competing Species, Robert A. Gardner, (June, 1980) 35B40, 35K55.  
AD A089 663
- 2091 A Counterexample for the Trotter Product Formula, Thomas G. Kurtz and Michel Pierre, (June, 1980) Primary 47H15; Secondary 34Gxx, 35K55, J. Differential Equations 52 (1984), 407-414.  
AD A089 664
- 2092 On A Semi-Coercive Quasi Variational Inequality, Maria Giovanna Garroni and Jean-Pierre Gossez, (June, 1980) 35J25, 47H17, 49A29, Proc. Int. Conf. on Nonlinear Phenomena in Mathematics, Lakshmikantham, ed., Academic Press, NY (1982), 419-424.  
AD A089 665
- 2093 Bounds for Optimal Confidence Limits for Series Systems, Bernard Harris and Andrew P. Soms, (June, 1980) 62N05, 90B25.  
AD A089 666

- 2094 On Local Linear Functionals for L-Splines, Rong-Qing Jia, (June, 1980) 41A15, J. Approximation Theory 33 (1981), 96-110.  
AD A089 667
- 2095 A Nonlinear Hyperbolic Volterra Equation in Viscoelasticity, C. M. Dafermos and J. A. Nohel, (June, 1980) 73F15, 73F99, 73H10, 45G10, 45K05, 45D05, 45M10, 45M99, 35L55, 35L67, 47H10, 47H15, Amer. J. Math., Supplement (1981), 84-116.  
AD A089 668
- 2096 On the Question of the Existence and Nature of Homogeneous-Center Target Patterns in the Belousov-Zhabotinskii Reagent, Paul C. Fife, (July, 1980) 80A30, 35K55, 34E99, 92A40, In 'Analytical and Numerical Approaches to Asymptotic Problems in Analysis', O. Axelsson, L. S. Frank, and A. Vander Sluis, eds., Mathematics Studies 47, North-Holland, Amsterdam, 45-46.  
AD A089 669
- 2097 Energy Criteria for Finite Hyperelasticity, Reza Malek-Madani, (July, 1980) 73C50, 35L65, 35L67, Arch. Rational Mech. Anal. 77 (1981), 177-188.  
AD A089 670
- 2098 Representations of Intervals and Optimal Error Bounds, L. B. Rall, (July, 1980) 65G10, 41A50, Math. Comp. 41 (1983), 219-227.  
AD A089 636
- 2099 Implicit Degenerate Evolution Equations and Applications, Emmanuele DiBenedetto and R. E. Showalter, (July, 1980) Primary 34G20, 35A05, 35D05; Secondary 35K65, 35K70, 35R35, 47F05, SIAM J. Math. Anal. 12 (1981), 731-751.  
AD A089 637
- 2100 A Pseudo-Parabolic Variational Inequality and Stefan Problem, E. DiBenedetto and R. E. Showalter, (Aug, 1980) 35A15, 35K22, 35K55, 35K70, 35R35, Nonlinear Analysis 6 (1982), 279-291.  
AD A089 638
- 2101 Coexistence Properties of Some Predator-Prey Systems Under Constant Rate Harvesting and Stocking, F. Brauer and A. C. Soudack, (Aug, 1980) 34A34, 34D30, 58F21, 92A15, 92A17, J. Math. Biology 12 (1981), 101-114.  
AD A089 639
- 2102 The Ubiquitous Role of  $|f|/f$  in Efficiency Robust Estimation of Location, Brian L. Joiner and David L. Hall, (Aug, 1980) 62F35, 62F12, 62F10, The American Statistician 37 (1983), 128ff.  
AD A093 563
- 2103 A Theorem Concerning Uniform Simplification at a Transition Point and the Problem of Resonance, Yasutaka Sibuya, (Aug, 1980) 30B40, 30E15, 33A40, 34E20, SIAM J. Math. Anal. 12 (1981), 653-668.  
AD A093 564
- 2104 Evaluation of Complex Logarithms and Related Functions, George J. Miel, (Aug, 1980) 65D20, 30-04, 65B05, SIAM J. Numer. Anal. 18 (1981), 744-750.  
AD A093 565

- 2105 Bounds for the t-Tail Area for Arbitrary Degrees of Freedom, Andrew P. Soms, (Aug, 1980) 60E05, Comm. Statist. Simulation Computation 12 (1983), 559-568.  
AD A093 566
- 2106 A Note on an Extension of Rational Bounds for the t-Tail Area to Arbitrary Degrees of Freedom, Andrew P. Soms, (Aug, 1980) 60E05, Comm. Statist., Theory and Methods 13 (1984), 887-891.  
AD A093 567
- 2107 Extremal Polynomials with Application to Richardson Iteration for Indefinite Linear Systems, Carl de Boor and John R. Rice, (Aug, 1980) 65F10, 65D15, 41A10, SIAM J. Sci. Statist. Computing 3 (1982), 47-57.  
AD A093 568
- 2108 A Generalization of the Kreiss Matrix Theorem, Shmuel Friedland, (Aug, 1980) 15A60, 39A11, SIAM J. Math. Anal. 12 (1981), 826-832.  
AD A093 569
- 2109 Parabolic Capacity and Sobolev Spaces, Michel Pierre, (Aug, 1980) Primary 31C15, 35K22; Secondary 31C25, 35K05, 46E39, SIAM J. Math. Anal. 14 (1983), 522-533.  
AD A093 570
- 2110 On Yakhno's Model for a Leading Center, Paul C. Fife, (Aug, 1980) 92A09, 35K55, 35B25.  
AD A093 571
- 2111 Sharp Existence Results for a Class of Semilinear Elliptic Problems, H. Berestycki and P. L. Lions, (Aug, 1980) 35J60, 35P30, Bol. Soc. Brasil. Mat. 12 (1981), 9-20.  
AD A093 572
- 2112 Two-Level Designs for Detecting the Presence of Interactions, Max D. Morris and Toby J. Mitchell, (Aug, 1980) 62K05, 62K15, Technometrics 25 (1983), 345-355.  
AD A093 573
- 2113 Elementary Proofs of an Inequality for Symmetric Functions for  $n < 5$ , Roland Zielke, (Aug, 1980) 26D05.  
AD A093 574
- 2114 On Limits of Multivariate B-Splines, Wolfgang Dahmen and Charles A. Micchelli, (Sept, 1980) 41A15, 41A63, 44A10, J. Analyse Math. 39 (1981), 256-278.  
AD A093 628
- 2115 Clines Induced by Variable Selection and Migration, P. C. Fife and L. A. Peletier, (Sept, 1980) 92A15, 92A10, 34B15, 35K55, Proc. Roy. Soc. London B214 (1981), 99-123.  
AD A093 629
- 2116 Solution of Packed-Bed Heat-Exchanger Models by Orthogonal Collocation Using Piecewise Cubic Hermite Functions, Anthony G. Dixon, (Sept, 1980) 65N35, 80A20, Amer. Chem. Soc. Symposium Series No. 168, H. Scott Fogler, ed. (1981), 287-304.  
AD A093 630
- 2117 The Behavior of Spherically Symmetric Equilibria Near Infinity, C. Conley, (Sept, 1980) 34D05, 35J60.  
AD A093 631

- 2118 The Convergence of an Instrumental-Variable Like Recursion, V. Solo, (Sept, 1980) 62M10, 93B30, Automatica 17 (1981), 545-547.  
AD A093 632
- 2119 Smoothing Estimation of Stochastic Processes. Part I: Change of Initial Condition Formulae, V. Solo, (Sept, 1980) 93E10, 60G35, IEEE Trans. Automatic Control AC-29 (1984), 71-73.  
AD A093 633
- 2120 Smoothing Estimation of Stochastic Processes. Part II: Two Filter Formulae, V. Solo, (Sept, 1980) 93E10, 60G35, IEEE Trans. Automatic Control AC-27 (1982), 473-476.  
AD A093 634
- 2121 Solutions of Asymptotically Linear Operator Equations via Morse Theory, Kung-Ching Chang, (Sept, 1980) Primary 47H15, 35A15; Secondary 35J65, Comm. Pure Appl. Math. XXXIV (1981), 693-712.  
AD A093 635
- 2122 Optimal Upper Confidence Limits for Products of Poisson Parameters with Applications to the Interval Estimation of the Failure Probability of Parallel Systems, Bernard Harris and Andrew P. Soms, (Sept, 1980) 62N05, 90B25.  
AD A093 636
- 2123 A Note on a Difficulty Inherent in Estimating Reliability from Stress-Strength Relationships, Bernard Harris and Andrew P. Soms, (Oct, 1980) 62N05, 62F35, Naval Res. Logist. Quart. 30 (1983), 659-663.  
AD A093 637
- 2124 Continuity of Weak Solutions to Certain Singular Parabolic Equations, Emmanuele DiBenedetto, (Oct, 1980) 35K10, 35K15, 35K20, 35K65, Ann. Mat. Pure Appl. (IV) CXXX (1982), 131-177.  
AD A093 607
- 2125 An Updated Version of the Kantorovich Theorem for Newton's Method, George Miel, (Oct, 1980) 65H10, 65J15, 47H17, Computing 27 (1981), 237-244.  
AD A093 608
- 2126 Some Approximation Properties in Orlicz-Sobolev Spaces, Jean-Pierre Gossez, (Oct, 1980) 46E35, 46E30, Studia Math. LXXIV (1982), 17-24.  
AD A093 609
- 2127 On Periodic Water-Waves and Their Convergence to Solitary Waves in the Long-Wave Limit, C. J. Amick and J. F. Toland, (Oct, 1980) 45G05, 45C05, 47H15, Philos. Trans. Roy. Soc. London Ser. A A303 (1981), 633-669.  
AD A093 610
- 2128 Application of Interval Integration to the Solution of Integral Equations, L. B. Rail, (Oct, 1980) 65R20, 65G10, 45L10, 45L05, 45G10, J. Integral Equations 6 (1984), 127-141.  
AD A093 611
- 2129 Numerical Construction of Smooth Surfaces from Aggregated Data, Nira Dyn and Warren Ferguson, (Oct, 1980) 41A63, 41A15, 65D10, 65N30, 65K10.  
AD A093 575

- 2130 Hausdorff's Moment Problem and Expansions In Legendre Polynomials, R. Askey, I. J. Schoenberg and A. Sharma, (Oct, 1980) 42A70, 33A65, J. Math. Anal. Appl. 86 (1982), 237-245.  
AD A093 612
- 2131 Multigrid Algorithms for the Solution of Linear Complementarity Problems Arising from Free Boundary Problems, Achl Brandt and Collin W. Cryer, (Oct, 1980) 35J65, 35R35, 65N99, 90C33, SIAM J. Sci. Stat. Comput. 4 (1983), 655-684.  
AD A096 652
- 2132 A Characterization of Normal Operators, Shmuel Friedland and Luc C. Tartar, (Oct, 1980) 47B15, Israel J. Math. 42 (1982), 235-240.  
AD A093 613
- 2133 On the Initial Value Problem for a Nonlinear Schrodinger Equation, Guang-Chang Dong and Shujie Li, (Oct, 1980) 35G25, J. Differential Equations 42 (1981), 353-365.  
AD A093 614
- 2134 Asymptotic Behavior of Some Nonlinear Heat Equations, P. L. Lions, (Nov, 1980) 35K55, 35P30, Nonlinear Phenomena Physica 50 (1982), 293-306.  
AD A093 615
- 2135 The Connection Between Partial Differential Equations Soluble by Inverse Scattering and Ordinary Differential Equations of Painleve Type, J. B. McLeod and P. J. Olver, (Nov, 1980) 34A20, 35Q20, 35R30, 47H17, 57S20, 76B15, 76B25, SIAM J. Math. Anal. 14 (1983), 488-506.  
AD A093 616
- 2136 Numerical Hopf Bifurcation Techniques and the Dynamics of the Tubular Reactor Model, Robert F. Helmennann and Aubrey B. Poore, (Nov, 1980) 80A20, 35B10, 35B32, Published under title 'Multiplicity, Stability, and Oscillatory Dynamics of the Tubular Reactor', Chem. Engineering Sci. 36 (1981), 1411-1419.  
AD A096 653
- 2137 An Inhomogeneous Quasilinear Hyperbolic System, Ching-hua Wang, (Nov, 1980) 35L60, 35L67, 35B40, Acta Math. Scientia 1 (1981), 403-421.  
AD A096 654
- 2138 Analysis of Boundary Value Problems on Infinite Intervals, Peter A. Markowich, (Nov, 1980) 34B15, 34C05, 34C11, 34D05, 34E05, SIAM J. Math. Anal. 14 (1983), 11-37.  
AD A096 655
- 2139 Finite Difference Schemes for Conservation Laws, Ronald J. DiPerna, (Nov, 1980) 35L65, Comm. Pure Appl. Math. XXV (1982), 379-450.  
AD A096 656
- 2140 The Singularly Perturbed Turning Point Problem: A Spectral Approach, Pieter de Groen, (Nov, 1980) 34B05, 65L10, Proc. of Advanced Seminar on Singular Perturbations and Asymptotics, Richard E. Meyer and Seymour Y. Parter, eds., Academic Press, New York (1980), 149-172.  
AD A096 657
- 2141 Least-Squares Solution of Linear Inequalities, S.-P. Han, (Nov, 1980) 65F10, 65F20.  
AD A096 658



- 2142 Critical Manifolds, Travelling Waves and an Example from Population Genetics, C. Conley and P. Fife, (Nov, 1980) 34C05, 35B99, 92A17, J. Math. Biology 14 (1982), 159-176.  
AD A096 659
- 2143 Relative Chebyshev Centers In Normed Linear Spaces, Part II, Dan Amir and Zvi Ziegler, (Nov, 1980) 41A50, J. Approximation Theory 38 (1983), 293-311.  
AD A096 660
- 2144 An Application of the Generalized Morse Index to Travelling Wave Solutions of a Competitive Reaction-Diffusion Model, C. Conley and R. Gardner, (Nov, 1980) 34C05, 35B99, 92A17, Indiana Univ. Math. J. 33 (1984), 319-343.  
AD A096 661
- 2145 Two Applications of Approximate Differentiation Formulae: An Extremum Problem for Multiply Monotone Functions and the Differentiation of Asymptotic Expansions, I. J. Schoenberg, (Dec, 1980) 41A17, 65D25, J. Math. Anal. Appl. 89 (1982), 251-261.  
AD A096 662
- 2146 A Theory for the Approximation of Solutions of Boundary Value Problems on Infinite Intervals, Peter A. Markowich, (Dec, 1980) 34B15, 34C05, 34E05, 41A60, SIAM J. Math. Anal. 13 (1982), 484-513.  
AD A096 663
- 2147 Least Norm Linear Programming Solution as an Unconstrained Minimization Problem, O. L. Mangasarian, (Dec, 1980) 90C05, 90C20, 90C25, J. Math. Anal. Appl. 91 (1983), 240-251.  
AD A096 664
- 2148 On the Choice of the Exterior Knots In the B-Spline Basis for a Spline Space, J. Kozak, (Dec, 1980) 65D10, 41A15.  
AD A096 665
- 2149 Uniform Bases of Exponentials, Neutral Groups, and a Transform Theory for  $H^m[a,b]$ , David L. Russell, (Dec, 1980) 20M20, 44A10, 42C15, 42A85, 42C30, J. Math. Anal. Appl. 82 (1982), 528-550.  
AD A096 666
- 2150 Evolution of the Shape of a Polymer Subjected to a Force, M. Renardy, (Dec, 1980) 34A15, 34D05, 34D20, 34D40, 45J05, 76A10.  
AD A096 667
- 2151 Data Smoothing, Guang-Chang Dong, (Dec, 1980) 65D10, 65D07.  
AD A096 639
- 2152 Asymptotic Properties of Volterra Equations with Nonintegrable Kernels, Stig-Olof Londen, (Dec, 1980) 45D05, 45M05, 45G10.  
AD A096 640
- 2153 A Sequential k-Group Random Allocation Method with Applications to Simulation, Andrew P. Soms, (Dec, 1980) 62L99, 65C05.  
AD A096 641
- 2154 Periodic Solutions of Hamiltonian Systems: A Survey, Paul H. Rabinowitz, (Dec, 1980) 34C15, 34C25, 58F05, SIAM J. Math. Anal. 13 (1982), 343-352.  
AD A096 642

- 2155 The Inverse of a Totally Positive Bilinear Band Matrix, Carl de Boor, (Dec, 1980) Primary 47B37; Secondary 15A09, 15A48, Trans. Amer. Math. Soc. 274 (1982), 45-58. AD A096 668
- 2156 Asymptotic Analysis of von Karman Flows, Peter A. Markowich, (Dec, 1980) 26D05, 34C05, 34D05, 41A60, SIAM J. Appl. Math. 42 (1982), 549-557. AD A096 643
- 2157 Eigenvalue Problems on Infinite Intervals, Peter A. Markowich, (Dec, 1980) 34B05, 34B25, 34C11, 34E05, 34A45, Math. Comp. 39 (1982), 421-441. AD A096 669
- 2158 A New Proof and an Extension of a Theorem of P. Rabinowitz Concerning Nonlinear Wave Equations, K. C. Chang, Shujie Li, and G. C. Dong, (Dec, 1980) 35L05, 35L60, 35B10, 49G99, Nonlinear Anal. 6 (1982), 139-149. AD A096 670
- 2159 Inverses of Infinite Sign Regular Matrices, C. de Boor, S. Friedland, and A. Pinkus, (Dec, 1980) Primary 47B37; Secondary 15A09, 15A48, Trans. Amer. Math. Soc. 274 (1982), 59-68. AD A096 644
- 2160 Sampling and Bayes' Inference in Scientific Modeling and Robustness, George E. P. Box, (Dec, 1980) 62A15, 62A20, J. Roy. Statist. Soc. Ser. A 143 (1980), 383-430. AD A096 645
- 2161 On the Existence of Infinitely Many Solutions of the Dirichlet Problem for Some Nonlinear Elliptic Equations, Guang-Chang Dong and Shujie Li, (Dec, 1980) 35A15, 35D05, 35J25, 35J60, 58E05, Sci. Sinica 25 (1982), 468-475. AD A096 671
- 2162 Behaviour at Time  $t = 0$  of the Solutions of Semi-Linear Evolution Equations, R. Temam, (Dec, 1980) 35K55, 35K45, J. Differential Equations 43 (1982), 73-92. AD A096 646
- 2163 A Factorization of Totally Positive Band Matrices, Carl de Boor and Allan Pinkus, (Dec, 1980) 15A23, 15A48, Linear Algebra and Appl. 42 (1982), 81-98. AD A096 647
- 2164 Some Existence Theorems for Semilinear Hyperbolic Systems in One Space Variable, Luc C. Tartar, (Jan, 1981) 35L99. AD A096 648
- 2165 A Complete Analysis of a Model Nonlinear Singular Perturbation Problem having a Continuous Locus of Singular Points, Nancy Kopell and Seymour V. Parter, (Jan, 1981) 34B15, 34E15, Advances In Appl. Math. 2 (1981), 212-238. AD A096 672
- 2166 Regularizing Effects for  $u_t = \Delta \phi(u)$ , Michael G. Crandall and Michel Pierre, (Jan, 1981) 35K15, 35K55, Trans. Amer. Math. Soc. 274 (1982), 159-168. AD A096 673
- 2167 Resolvent Formulas for a Volterra Equation in Hilbert Space, Ralph W. Carr and Kenneth B. Hannsgen, (Jan, 1981) 45J05, 45M05, 45M10, 45N05, SIAM J. Math. Anal. 13 (1982), 459-483. AD A099 355

- 2168 Extensions of Results of Pardoux on Stochastic Partial Differential Equations of Filtering, Daniel Ocone, (Jan, 1981) 60H15, 62M05, 35R60, 93E10.  
AD A099 356
- 2169 Morse Programs: A topological Approach to Smooth Constrained Optimization, Okitsugu Fujiwara, (Jan, 1981) 58A05, 90C30, Math. Operations Research 7 (1982), 602-616.  
AD A099 357
- 2170 The Solution of Linear Complementarity Problems on an Array Processor, C. W. Cryer, P. M. Flanders, D. J. Hunt, S. F. Reddaway, and J. Stansbury, (Jan, 1981) 35J25, 35J65, 65K05, 65M99, 68C05, J. Computational Phys. 47 (1982), 258-280.  
AD A099 358
- 2171 Uniqueness of the Solutions of  $u_t - \Delta \phi(u) = 0$  with Initial Datum a Measure, Michel Pierre, (Jan, 1981), 35K45, 35K55, 35Q20, Nonlinear Anal., Theory, Methods & Appl. 6 (1982), 175-187.  
AD A099 359
- 2172 The Bifurcation Behavior of Tubular Reactors, Klavs F. Jensen and W. Harmon Ray, (Jan, 1981) 35B32, 35K60, 65N30, 65N35, 80A30, Chem. Engr. Sci. 37 (1982), 199-222.  
AD A099 360
- 2173 On Polynomial Interpolation in the Points of a Geometric Progression, Stirling, Schellbach, Runge and Romberg, I. J. Schoenberg, (Jan, 1981) 65B05, 65D05, Proc. Roy. Soc. Edinburgh 90A (1981), 195-207.  
AD A099 361
- 2174 A Decomposition Method and Its Application to Block Angular Linear Programs, Cu Duong Ha, (Jan, 1981) 90C06, 90C25.  
AD A099 362
- 2175 A Generalization of the Leray-Schauder Index Formula, J. Sylvester, (Jan, 1981) 47H15, 53A55, J. Functional Analysis 45 (1982), 213-225.  
AD A099 363
- 2176 Morse Programs: A Topological Approach to Smooth Constrained Optimization II, Okitsugu Fujiwara, (Feb, 1981) 58A05, 90C30, Published under title 'On the Differentiability of Optimal Values for Bounded Nonlinear Programs with Equality Constraints', Operations Res. Letters 3 (1984), 219-224.  
AD A099 364
- 2177 Inverse Sums of Monotone Operators, Stephen M. Robinson, (Feb, 1981) 47H05, 90C33, In 'Game Theory and Mathematical Economics', O. Moeschlin and D. Pallaschke, eds., North Holland (1981), 449-457.  
AD A099 365
- 2178  $L_\infty$ -Lower Bound of  $L_2$ -Projections onto Splines on a Geometric Mesh, Y. Y. Feng and J. Kozak, (Feb, 1981) 41A15, J. Approximation Theory 35 (1982), 64-76.  
AD A099 366
- 2179 Multiple Periodic Solutions for an Asymptotically Linear Wave Equation, K. C. Chang, S. P. Wu, and Shujie Li, (Feb, 1981) 47H15, 35A15, 35J65, Indiana Math. J. 31 (1982), 721-731.  
AD A099 367

- 2180 Solving Quadratic Programs by an Exact Penalty Function, Shih-Ping Han, (Feb, 1981) 90C20, 90C25.  
AD A099 368
- 2181 On a Test for Multimodality Based on Kernel Density Estimates, J. W. Silverman, (Feb, 1981) 60F99, 62G10, 41A25, Published under title 'Some Properties of a Test for Multimodality Based on Kernel Density Estimates', In Probability, Statistics and Analysis, J. F. C. Kingman and G. E. H. Reuter, eds., Cambridge University Press, Cambridge, England, London Mathematical Society Lecture Note Series 79 (1983), 248-259.  
AD A099 369
- 2182 Steady Flows Drawn from a Stably Stratified Reservoir, T. Brooke Benjamin, (Mar, 1981), 76V05, J. Fluid Mech. 106 (1981), 245-260.  
AD A099 370
- 2183 A Quasilinear Parabolic Equation Describing the Elongation of Thin Filaments of Polymeric Liquids, M. Renardy, (Feb, 1981) 34G20, 35K55, 35Q20, 45K05, 47H20, 76A10, SIAM J. Math. Anal. 13 (1982), 226-238.  
AD A099 345
- 2184 On a Hyperbolic System of Conservation Laws which is not Strictly Hyperbolic, Tai-Ping Liu and Ching-Hua Wang, (Mar, 1981) 35L65, 35B40, 35L67, - To Appear - J. Differential Equations.  
AD A099 346
- 2185 A Stable Theorem of the Alternative: An Extension of the Gordan Theorem, O. L. Mangasarian, (Mar, 1981) 90C05, Linear Algebra and Appl. 41 (1981), 209-223.  
AD A099 347
- 2186 Upwind Difference Schemes for Systems of Conservation Laws - Potential Flow Equations, Bjorn Engquist and Stanley Osher, (Mar, 1981) 65M05.  
AD A099 348
- 2187 Regularizing Effects for  $u_t + A_p(u) = 0$  in  $L^1$ , Michael G. Crandall and Michel Pierre, (Mar, 1981) 35K15, 35K55, J. Functional Analysis 45 (1982), 194-212.  
AD A099 349
- 2188 Multivariate Splines, Klaus Hollig, (Mar, 1981) 41A15, 41A63, SIAM J. Numer. Anal. 19 (1982), 1013-1031.  
AD A099 350
- 2189 Continuity of Weak Solutions to a General Porous Media Equation, Emmanuele DiBenedetto, (Mar, 1981) 35K10, 35K15, 35K20, 35K65, Indiana Univ. Math. J. 32 (1983), 83-118.  
AD A099 351
- 2190 Integration of Interval Functions II. The Finite Case, L. B. Rail, (Mar, 1981) 26A42, 28B20, 65D30, 65G10, SIAM J. Math. Anal. 13 (1982), 690-697.  
AD A099 352
- 2191 Some Optimal Error Estimates for Piecewise Linear Finite Element Approximations, Rolf Rannacher and Ridgway Scott, (Mar, 1981) 65N30, Math. Comp. 38 (1982), 437-445.  
AD A099 353

- 2192 Minimization Problems in  $L^1(\mathbb{R}^3)$ , P. L. Lions, (Mar, 1981) 35J60, 49H05, 76C99, J. Functional Analysis 41 (1981), 236-275.  
AD A099 354
- 2193 Three-Dimensional Subsonic Flows and Their Boundary Value Problems Extended to Higher Dimensions, Guang-Chang Dong, (Mar, 1981) 35B25.  
AD A100 597
- 2194 An Energy Method for the Equations of Motion of Compressible Viscous and Heat-Conductive Fluids, Akitaka Matsumura, (Mar, 1981) 35B40, 35K55, 35M05, 35-XX.  
AD A100 598
- 2195 Trapping of Water Waves Above a Round Sill, Yuriko Yamemuro, (Mar, 1981) 76B15, J. Fluid Mech. 132 (1983), 105-118.  
AD A100 599
- 2196 A Theory of Interval Iteration, L. B. Rall, (Mar, 1981) 65J10, 65J15, 65G10, Proc. Amer. Math. Soc. 86 (1982), 625-631.  
AD A100 601
- 2197 On Parametric Linear and Quadratic Programming Problems, Klaus Ritter, (Mar, 1981) 90C31, In 'Mathematical Programming', R. W. Cottle, M. L. Kelmanson and B. Korte, eds., Elsevier Science Publishers, North-Holland (1984), 307-335.  
AD A100 602
- 2198 A Note on the Asymptotic Behavior of Nonlinear Semigroups and the Range of Accretive Operators, Simeon Reich, (Apr, 1981) 47H06, 47H09, 47H20, J. Math. Anal. Appl. 87 (1982), 134-146.  
AD A100 625
- 2199 Nonlinear Eigenvalue Problems on Infinite Intervals, Peter A. Markowich and Richard Weiss, (Apr, 1981) 34B25, 34D05, 34E05, SIAM J. Math. Anal. 14 (1983), 431-449.  
AD A100 624
- 2200 On Optimal Harvesting with an Application to Age-Structured Populations, Morton E. Gurtin and Lea F. Murphy, (Apr, 1981) 92A15.  
AD A100 603
- 2201 The Effect of Activation Energy on Tubular Reactor Multiplicity, Robert F. Heinemann and Aubrey B. Poore, (Apr, 1981) 80A20, 35B32, Chem. Engr. Sci. 37 (1982), 128-131.  
AD A100 604
- 2202 Resonance Through a Strictly Singular Perturbation, Ketill Ingolfsson, (Apr, 1981) 81C05, 47A10, 47A55, 47D05.  
AD A100 605
- 2203 Andrews' Plots and Their Applications, Agnes M. Herzberg, (Apr, 1981) 62H30, 62M10, Published under title 'A Brief Survey of Several Graphical Techniques: Another Use of Andrews' Plots', Proc. of Statist. Canada Conf., April 29-May 1, 1981, in 'Topics in Applied Statistics', Y. P. Chanbey and T. D. Dvivedi, eds., Montreal: Concordia University (1984), 493-499.  
AD A100 606

- 2204 An Extension to Rational Functions of a Theorem of J. L. Walsh on Differences of Interpolating Polynomials, E. B. Saff, A. Sharma, and R. S. Varga, (Apr, 1981) 41A05, 30E10, 30B30, R.A.I.R.O. Analyse Numerique 15 (1981), 371-390.  
AD A100 607
- 2205 The Numerical Solution of Boundary Value Problems on 'Long' Intervals, Peter A. Markowich and Christian A. Ringhofer, (Apr, 1981) 34B15, 34C05, 34D05, 34A10, Published under title 'Collocation Methods for Boundary Value Problems on 'Long' Intervals', Math. Comp. 40 (1983), 123-150.  
AD A100 608
- 2206 Convergence of Periodic Wavetrains in the Limit of Large Wavelength, Jerry L. Bona, (Apr, 1981) 35B10, 35B30, 35B45, 35Q20, 76B15, 76B25, Appl. Sci. Res. 37 (1981), 21-30.  
AD A100 609
- 2207 Completeness of Derivatives of Squared Schrodinger Eigenfunctions and Explicit Solutions of the Linearized KdV Equation, Robert L. Sachs, (Apr, 1981) 35C15, 35Q20, 34B25, SIAM J. Math. Anal. 14 (1983), 674-683.  
AD A100 610
- 2208 A Justification of the KdV Approximation to First Order in the Case of N-Soliton Water Waves in a Canal, Robert L. Sachs, (Apr, 1981) 76B15, 35Q20, 35C05, 35G30, SIAM J. Math. Anal. 15 (1984), 468-489.  
AD A100 611
- 2209 On the Existence of Positive Solutions in Semilinear Elliptic Equations, P. L. Lions, (Apr, 1981) 35J65, 35P30, SIAM Rev. 24 (1982), 441-467.  
AD A100 612
- 2210 Estimating Current Trend and Growth Rates in Seasonal Time Series, George E. P. Box and David A. Pierce, (May, 1981) 62M10.  
AD A100 613
- 2211 Measures of Lack of Fit for Response Surface Designs and Predictor Variable Transformations, G. E. P. Box and N. R. Draper, (Apr, 1981) 62K99, 62J05, 62J02, Technometrics 24 (1982), 1-8.  
AD A100 614
- 2212 Reply to Shafer: Lindley's Paradox, D. V. Lindley, (May, 1981) 62F03, 62P99, J. Amer. Statist. Assoc. 77 (1982), 334-336.  
AD A100 615
- 2213 A Nonlinear Volterra Integrodifferential Equation Describing the Stretching of Polymeric Liquids, P. Markowich and M. Renardy, (May, 1981) 34D05, 34D15, 45J05, 45L10, 65R20, 76A10, SIAM J. Math. Anal. 14 (1983), 66-97.  
AD A100 616
- 2214 Existence and Regularity of Solutions of Inhomogeneous Porous Medium Type Equations, Paul Sacks, (May, 1981) 35K10, 35K15, 35K20, 35K55, 35K60, 35K65, Published under title 'Continuity of Solutions of a Singular Parabolic Equation', Nonlinear Analysis, Theory, Methods & Applications 7 (1983), 387-409.  
AD A100 617

- 2215 Recurrence Relations for Multivariate B-Splines, Carl de Boor and Klaus Hollig, (May 1981) 41A15, 41A63, Proc. Amer. Math. Soc. 85 (1982), 397-400.  
AD A100 558
- 2216 Numerical Solution of a Gasification Problem, Joel C. W. Rogers, (May, 1981) 35K50, 35K65, 65C20, 65N05, In 'Numerical Treatment of Free Boundary Problems', J. Albrecht, L. Collatz, and K.-H. Hoffman, eds., Birkhauser Verlag (1982), 301-334.  
AD A100 559
- 2217 A Sequence of Piecewise Linear Orthogonal Functions (I) (Linear Case), Yuyu Feng and Dong-Xu Qi, (May, 1981) 41A15, (combined with #2229) SIAM J. Math. Anal. 15 (1984), 834-844.  
AD A100 560
- 2218 The Robust Design of Experiments: A Review, Agnes M. Herzberg, (May, 1981) 62K05, 62K99, SERDICA 8 (1982), 223-228.  
AD A100 561
- 2219 Representations of the Space of Distributions in Robust Estimation of Location, David L. Hall and Brian L. Joiner, (May, 1981) 62F35, 62F12, 62F10, 62G05, Biometrika 69 (1982), 55-59.  
AD A100 562
- 2220 Stabilization of Solutions of a Degenerate Nonlinear Diffusion Problem, Donald Aronson, Michael G. Crandall, and L. A. Peletier, (May, 1981) 35K55, 35K65, Nonlinear Analysis, Theory, Methods & Applications 6 (1982), 1001-1022.  
AD A100 563
- 2221 Local Existence for the Cauchy Problem of a Reaction-Diffusion System with Discontinuous Nonlinearity, David Terman, (May, 1981) 35K65.  
AD A100 564
- 2222 On the Buckling of Linear Viscoelastic Rods, Morton E. Gurtin, Victor J. Mizel, and David W. Reynolds, (May, 1981) 73H05, Published under title 'On Nontrivial Solutions for a Compressed Linear Viscoelastic Rod', J. Appl. Mech. 49 (1982), 245-246.  
AD A100 565
- 2223 A Free Boundary Problem Arising from a Bistable Reaction-Diffusion Equation, David Terman, (May, 1981) 35K55, SIAM J. Math. Anal. 14 (1983), 1107-1129.  
AD A100 566
- 2224 On Some Integral Equations with Locally Finite Measures and  $L^\infty$ -Perturbations, Stig-Olof Londen, (May, 1981) 45D05, 45M05, 45G10, SIAM J. Math. Anal. 14 (1983), 1187-1203.  
AD A100 567
- 2225 Propagation Phenomena in a Bistable Reaction Diffusion System, John Rinzel and David Terman, (May, 1981) 35K65, SIAM J. Appl. Math. 42 (1982), 1111-1137.  
AD A100 568
- 2226 Multiple Integral Expansions for Nonlinear Filtering, Daniel Ocone, (June, 1981) 93E10, 93E11, 60H05, Stochastics 10 (1983), 1-30.  
AD A103 873

- 2227 On the Solution of a Constrained Minimization Problem in  $H^1(\Omega)$  Related to Density Estimation, Nira Dyn and Wing Hung Wong, (June, 1981) 41A63, 65D10, 35J25, 35J30, Published under title 'On the Characterization of Non-Negative Volume-Matching Surface Splines', - To Appear - J. Approximation Theory.  
AD A103 874
- 2228 On the Estimation of a Probability Density Function by the Maximum Penalized Likelihood Method, B. W. Silverman, (June, 1981) 62G05, 62E20, 46E35, 65D10, 65K10, 62-07, Ann. Statist. 10 (1982), 795-810.  
AD A103 875
- 2229 A Sequence of Piecewise Orthogonal Polynomials (II), Y. Y. Feng and D. X. Qi, (June, 1981) 41A15, (combined with #2217) SIAM J. Math. Anal. 15 (1984), 834-844.  
AD A103 876
- 2230 Stability of Transonic Flows Along a Nozzle, Tai-Ping Liu, (June, 1981) 76H05, 76E30, 35L65, 35L67, Published under title 'Nonlinear Stability and Instability of Transonic Flows Through a Nozzle', Comm. Math. Phys. 83 (1982), 243-260.  
AD A103 847
- 2231 A Condition Number for Linear Inequalities and Linear Programs, O. L. Mangasarian, (June, 1981) 15A39, 90C05, 65F35, In 'Methods of Operations Research 43', G. Bamberg and O. Opitz, eds., Oelgeschlager, Gunn and Hain Publishers, Cambridge, Mass. (1981), 3-15.  
AD A103 848
- 2232 Optimal Orbital Regulation in Dynamical Systems Subject to Hopf Bifurcation, David L. Russell, (June, 1981) 93C15, 49A10, 49B10, 34C25, J. Differential Equations 44 (1982), 188-223.  
AD A103 849
- 2233 Multiple Critical Points of Perturbed Symmetric Functionals, Paul Rabinowitz, (July, 1981) 35J20, 35J60, 34C25, 47H15, Trans. Amer. Math. Soc. 272 (1982), 753-769.  
AD A103 850
- 2234 Interpolating Splines as Limits of Polynomials, I. J. Schoenberg, (July, 1981) 65D05, 41A15, Linear Algebra Appl. 52/53 (1983), 617-628.  
AD A103 871
- 2235 On the Haar and Walsh Systems on a Triangle, Y. Y. Feng and D. X. Qi, (July, 1981) 41A15, J. Computational Math. 1 (1983), 223-232.  
AD A103 870
- 2236 Molecular Transport Effects in Turbulent Diffusion Flames at Moderate Reynolds Number, R. W. Bilger, (July, 1981) 80A25, 76R99, 35K20, 35B20, AIAA81-0104R 20 (1982), 962-970.  
AD A103 869
- 2237 The Initial Boundary Value Problem for the Equations of Motion of Compressible Viscous and Heat-Conductive Fluid, Akitaka Matsumura and Takaaki Nishida, (July, 1981) 35B40, 35K60, 35M05, 76N10, In 'Computing Methods in Applied Sciences and Engineering V', R. Glowinski and J. L. Lions, eds., North-Holland Publishing Co. (1982), 389-406.  
AD A103 866
- 2238 A Class of Local Explicit Many-Knot Spline Interpolation Schemes, D. X. Qi, (July, 1981) 41A15.  
AD A103 851



- 2239 An Example of the Use of Andrews' Plots to Detect Time Variations in Model Parameters and Outlying Observations, Agnes M. Herzberg, (July, 1981) 62H30, 62M10, BIAS 9 (1982), 146-154.  
AD A103 852
- 2240 Some Remarks on the Numerical Solution of Tricomi-Type Equations, C. K. Chu, L. W. Xiang, and Z. K. Yao, (July, 1981) 35M05, 65P05, 65N05, 65N10, 76H05, In 'Transonic, Shock, and Multidimensional Flows', Richard E. Meyer, ed., Academic Press, NY (1982), 147-159.  
AD A103 853
- 2241 Duality in Nonconcave Programs Using Transformations, Okitsugu Fujiwara, (July, 1981) 90C30.  
AD A103 854
- 2242 A New Way for Constructing Higher Order Accuracy Spline Smoothing Formulas, Dong-Xu Qi, (July, 1981) 41A15.  
AD A103 855
- 2243 Weakly Nonlinear Interactions and Wave-Trapping, Yuriko Renardy, (July, 1981) 76B15, J. Fluid Mech. 130 (1983), 27-39.  
AD A103 856
- 2244 On Boundary Layer Problems in the Theory of Ordinary Differential Equations, Wolfgang R. Wasow, (July, 1981) 34E15.  
AD A103 857
- 2245 The Solution of the Free Boundary Problem for an Axisymmetric Partially Penetrating Well, S. Z. Zhou and C. W. Cryer, (July, 1981) 35J20, 35J65, 35J70, 35R05, 35R35, 76S05, Annali Matematica CXXXV (1983), 219-236.  
AD A103 858
- 2246 The Relationship Between the Number of Factors and Size of an Experiment, D. V. Lindley, (July, 1981) 62K99, 62G99, 94B99, - To Appear - In "Bayesian Inference and Decision Techniques with Applications: Essays in honor of Bruno de Finetti", Prem K. Goel, ed., North-Holland, Amsterdam.  
AD A103 877
- 2247 Acceleration Wave Propagation in Hyperelastic Rods of Variable Cross-Section, A. Jeffrey, (July, 1981) 73D15, 34C11, Wave Motion 4 (1982), 173-180.  
AD A103 878
- 2248 The Subjectivist View of Decision-Making, Dennis V. Lindley, (July, 1981) 90D35, 62C05, 90A10, 60A05, European J. Operational Res. 9 (1982), 213-222.  
AD A103 879
- 2249 An Algorithm for the One-Phase Stefan Problem, E. DiBenedetto and R. Spigler, (July, 1981) 35R35, 35K05, Rend Sem. Mat. Univ. Padova 69 (1983), 109-134.  
AD A103 880
- 2250 An Integral of Products of Legendre Functions and a Clebsch-Gordan Sum, Richard Askey, (July, 1981) 33A45, 33A70, Letters Math. Phys. 6 (1982), 299-302.  
AD A103 881

- 2251 A Nonlinear Conservation Law with Memory, J. A. Nohel, (Aug, 1981) 35L65, 35L67, 45G10, 45K05, 45D05, 45M10, 45M99, 47H10, 47H15, 47H17, 73F15, 73H10, 76N15, In 'Volterra and Functional Differential Equations', Kenneth B. Hannsgen, Terry L. Herdman, Harlan W. Stech, and Robert L. Wheeler, eds., Marcel Dekker, New York (1982), 91-123.  
AD A103 882
- 2252 Threshold Phenomena for a Reaction Diffusion System, David Terman, (Aug, 1981) 35K65, J. Differential Equations 47 (1983), 406-443.  
AD A103 883
- 2253 The Asymptotic Distribution of the Product Estimator, Chien-Fu Wu and Der-Shin Chang, (Aug, 1981) 62D05, 62F12.  
AD A103 884
- 2254 Explicit Filters for Diffusions with Certain Nonlinear Drifts, D. L. Ocone, J. S. Baras, and S. I. Marcus, (Aug, 1981) 60G35, 62M20, 93E11, Stochastics 8 (1982), 1-16.  
AD A103 867
- 2255 The Numerical Solution of a Quasilinear Parabolic Equation Arising in Polymer Rheology, P. Markowich and M. Renardy, (Aug, 1981) 35K55, 35Q20, 45K05, 65M10, 76A10, SIAM J. Numer. Anal. 20 (1983), 890-908.  
AD A103 863
- 2256 Cosine Families and Damped Second Order Differential Equations, James H. Lightbourne, III and Samuel M. Rankin, III, (Aug, 1981) 34G20, 35L15.  
AD A103 868
- 2257 A Dual Differentiable Exact Penalty Function, S.-P. Han and O. L. Mangasarian, (Aug, 1981) 90C30, 90C20, Math. Programming 25 (1983), 293-306.  
AD A103 859
- 2258 The Korteweg-de Vries Equation, Posed in a Quarter Plane, Jerry Bona and Ragnar Winther, (Aug, 1981) 35B45, 35B65, 35C15, 35Q20, 45G10, 76B15, SIAM J. Math. Anal. 14 (1983), 1056-1106.  
AD A103 861
- 2259 Viscosity Solutions of Hamilton-Jacobi Equations, Michael G. Crandall and Pierre-Louis Lions, (Aug, 1981) 35F20, 35F25, 35L60, Trans. Amer. Math. Soc. 277 (1983), 1-42.  
AD A103 862
- 2260 Sparsity-Preserving SOR Algorithms for Separable Quadratic and Linear Programming, O. L. Mangasarian, (Aug, 1981) 90C05, 90C20, 65F10, Comput. & Ops. Res. 11 (1984), 105-112.  
AD A103 865
- 2261 Bifurcation of Singular Solutions in Reversible Systems and Applications to Reaction-Diffusion Equations, M. Renardy, (Aug, 1981) 34C35, 35B32, 35K55, 47H15, 80A30, Advances in Appl. Math. 3 (1982), 384-406.  
AD A103 864
- 2262 Smoothest Local Interpolation Formulas for Equally Spaced Data, T. N. E. Greville and Hubert Vaughan, (Aug, 1981) 65D05, 65D07, Trans. 27th Conf. Army Mathematicians, Army Res. Office, Research Triangle Park, NC, ARO Report 82-1 (1982), 265-282; Utilitas Math. 22 (1982), 293-314.  
AD A103 860

- 2263 On the Schroedinger Connection, R. E. Meyer and J. F. Painter, (Aug, 1981) 34E20, 41A60, 30E15, Bull. Amer. Math. Soc. 8 (1983), 73-76.  
AD A110 472
- 2264 Irregular Points of Modulation, R. E. Meyer and J. F. Painter, (Aug, 1981) 34E20, 41A60, 30E15, Advances In Appl. Math. 4 (1983), 145-174.  
AD A110 473
- 2265 Connection for Wave Modulation, R. E. Meyer and J. F. Painter, (Aug, 1981) 34E20, 41A60, 30E15, SIAM J. Math. Anal. 14 (1983), 450-462.  
AD A110 474
- 2266 Hamiltonian Structure, Symmetries and Conservation Laws for Water Waves, T. Brooke Benjamin and P. J. Olver, (Nov, 1981) 76B15, 58F05, 58G35, 35R35, 58D30, J. Fluid Mech. 125 (1982), 137-185.  
AD A110 475
- 2267 Estimation of Variance of the Ratio Estimator, Chien-Fu Wu, (Aug, 1981) 62D05, Biometrika 69 (1982), 183-189.  
AD A110 476
- 2268 Interval Analysis: A New Tool for Applied Mathematics, L. B. Rall, (Aug, 1981) 28B20, 45L10, 65G10, 65K10, 65R20, 65V05, Trans. 27th Conf. of Army Mathematicians, Army Res. Office, Research Triangle Park, NC (1982), 283-301.  
AD A110 477
- 2269 Error Estimates for Gaussian Quadrature and Weighted- $L^1$  Polynomial Approximation, Ronald A. DeVore and L. Ridgway Scott, (Aug, 1981) 65D30, 41A55, 41A10, SIAM J. Numer. Anal. 21 (1984), 400-412.  
AD A110 478
- 2270 On an Axisymmetric Free Boundary Problem, Shu-Zi Zhou, (Aug, 1981) 35J20, 35J65, 35R35, 73C05, 73E99, - To Appear - J. Math. Anal. Appl.  
AD A110 911
- 2271 Solution of Finite Systems of Equations by Interval Iteration, L. B. Rall, (Aug, 1981) 65G10, 65H05, 65H10, 65H15, 65F10, 65F15, BIT 22 (1982), 233-251.  
AD A110 910
- 2272 Unconditional Instability of Inflow-Dependent Boundary Conditions in Difference Approximations to Hyperbolic Systems, Eitan Tadmor, (Aug, 1981) 65M10, 65N10, In 'Numerical Boundary Condition Procedures', Proc. of a Symposium held at Ames Res. Center, CA, Oct. 1981, pp. 323-332.  
AD A110 481
- 2273 Boundary Value Problems and Free Boundary Problems for Quasilinear Hyperbolic-Parabolic Coupled Systems, Ta-tsien Li, Wen-tzu Yu, and We-shi Shen, (Sept, 1981) 35A05, 35M05, 35L60, 35K60, - To Appear - Proc. of the 3rd Symposium on Partial Differential Equations and Differential Geometry, Science Press, China.  
AD A110 482
- 2274 Numerical Solution of Degenerate Variational Inequality Arising in the Fluid Flow Through Porous Media, C. W. Cryer and S. Z. Zhou, (Sept, 1981) 35J70, 35R35, 65N30, 76S05.  
AD A110 483

- 2275 On a Neutral Functional Differential Equation In a Fading Memory Space, Olof Staffans, (Sept, 1981) 34K20, 45F05, 45M10, J. Differential Equations 50 (1983), 183-217.  
AD A110 912
- 2276 An Algorithm for Structured, Large-Scale Quadratic Programming Problems, Cu Duong Ha, (Sept, 1981) 90C20.  
AD A110 463
- 2277 Nonlinear Parabolic Equations Involving Measures as Initial Conditions, Haim Brezis and Avner Friedman, (Sept, 1981) 35K15, 35K55, J. Math. Pures Appl. 62 (1983), 73-97.  
AD A110 464
- 2278 Periodic Solutions of Large Norm of Hamiltonian Systems, Paul H. Rabinowitz, (Sept, 1981) 34C15, 34C25, In 'Ergodic Theory and Dynamical Systems II', Proc. Sp. Yr. Maryland 1979-1980, A. Katok, ed., Birkhauser (1982), 193-210; J. Differential Equations 50 (1983), 33-48.  
AD A110 465
- 2279 Nomographic Functions are Nowhere Dense, R. Creighton Buck, (Sept, 1981) 41A30, Proc. Amer. Math. Soc. 85 (1982), 195-199.  
AD A110 466
- 2280 Admissibility Criteria for Propagating Phase Boundaries in a van der Waals Fluid, M. Slemrod, (Sept, 1981) 35M05, 35L67, 76T05, 80A10, Arch. Rational Mech. Anal. 81 (1983), 301-315.  
AD A110 467
- 2281 The Riemann Problem for the System  $u_x + \sigma = 0$  and  $(\sigma - f(u))_x + (\sigma - \mu f(u)) = 0$ , J. M. Greenberg and Ling Hsiao, (Sept, 1981) 35B40, 35B45, 35L65, 35L67, 73F99, Arch. Rational Mech. Anal. 82 (1983), 87-108.  
AD A110 468
- 2282 A Free-Boundary Problem for a Degenerate Parabolic System, Emmanuele DiBenedetto and R. E. Showalter, (Sept, 1981) 35D05, 35K65, 35R35, 34G20, 35D10, J. Differential Equations 50 (1983), 1-19.  
AD A110 469
- 2283 The Asymptotic Behavior of a Free Boundary Arising from a Bistable Reaction-Diffusion Equation, David Terman, (Sept, 1981) 35K55.  
AD A110 470
- 2284 Some Philosophies of Inference and Modelling, Tom Leonard, (Oct, 1981) 62-06, 62A15, In 'Scientific Inference, Data Analysis, and Robustness', G. E. P. Box, Tom Leonard, and Chien-Fu Wu, eds., Academic Press, NY (1983), 9-23.  
AD A110 471
- 2285 Singular Perturbation Problems with a Singularity of the Second Kind, Peter A. Markowich and Ch. A. Ringhofer, (Oct, 1981) 34B15, 34C05, 34C11, 34D15, 34E05, 34A45, SIAM J. Math. Anal. 14 (1983), 897-914.  
AD A110 489
- 2286 Mean Value and Taylor Forms in Interval Analysis, L. B. Rall, (Oct, 1981) 65J05, 65G10, 47A60, 26B12, 26E15, 26E20, 26E25, SIAM J. Math. Anal. 14 (1983), 223-238.  
AD A110 490

- 2287 A Semigroup Approach to Equations with Infinite Delay and Application to a Problem in Viscoelasticity, M. Renardy, (Oct, 1981) 34K05, 35K55, 45K05, 47D05, 76A10, J. Differential Equations 48 (1983), 280-292.  
AD A110 491
- 2288 An Analysis of Transformations Revisited, Rebutted, G. E. P. Box and D. R. Cox, (Oct, 1981) 62-07, J. Amer. Statist. Assoc. 77 (1982), 209-210.  
AD A110 447
- 2289 On Shape Normalization for Non-Uniformly Active Catalyst Pellets-III, M. Morbidelli and A. Varma, (Oct, 1981) 34B05, 34E05, 80A30.  
AD A110 448
- 2290 A Generalized Conjugate Gradient Method for Non-Symmetric Systems of Linear Equations, John C. Strikwerda, (Oct, 1981) 65F10.  
AD A110 311
- 2291 On a Fully Nonlinear Parabolic Equation and the Asymptotic Behaviour of its Solutions, J. Ildefonso Diaz, (Oct, 1981) 35K55, 49A29, 47H06, J. Math. Anal. Appl. 95 (1983), 144-168.  
AD A109 437
- 2292 Numerical Methods for Solving a Premixed Laminar Flame, Xi-Chang Zhong, (Oct, 1981) 65M99, 65M10, J. Computational Math. 1 (1983), 83-94.  
AD A110 449
- 2293 Nonlinear Two-Dimensional Salt Theory, Jean-Marc Vanden-Broeck, (Oct, 1981) 76B05, 45G05, Phys. Fluids 25 (1982), 420-423.  
AD A110 450
- 2294 Improved Sudakov-Type Bounds for Optimal Confidence Limits on the Reliability of Series Systems, Bernard Harris and Andrew P. Soms, (Oct, 1981) 62N05, 90B25.  
AD A110 451
- 2295 Forced Convection in Three-Dimensional Flows: III. Asymptotic Solutions for Viscous Heating, Matthew A. McClelland and Warren E. Stewart, (Nov, 1981) 35C20, 35K05, 76R05, 80A20, AIChE J. 29 (1983), 947-956.  
AD A110 452
- 2296 High Order Continuity Implies Good Approximations to Solutions of Certain Functional Equations, T. N. T. Goodman, I. J. Schoenberg and A. Sharma, (Nov, 1981) 15A06, 39B20, 41A10, - To Appear - J. Approximation Theory.  
AD A110 453
- 2297 New Descriptions of Dispersion in Flow Through Tubes: Convolution and Collocation Methods, James C. Wang and Warren E. Stewart, (Nov, 1981) 35A35, 41A10, 41A63, 44A30, 65N35, 65N40, 76R05, AIChE J. 29 (1983), 493-498.  
AD A110 454
- 2298 Dynamic Phase Transitions in a van der Waals Fluid, M. Slemrod, (Nov, 1981) 80A10, 76T05, 76N99, 35B99, 35M05, 35L65, 35L67, J. Differential Equations 52 (1984), 1-23.  
AD A110 455
- 2299 A New Approach to Euler Splines. I, I. J. Schoenberg, (Nov, 1981) 33A10, 41A05, 41A15, J. Approximation Theory 39 (1983), 324-337.  
AD A110 456

- 2300 Homogeneous and Non-Homogeneous Boundary Value Problems for First Order Linear Hyperbolic Systems Arising in Fluid-Mechanics (Part I), H. Belrao da Veiga, (Nov, 1981) 35F15, 35L50, 76N10, Comm. Partial Differential Equations 7 (1982), 1135-1149.  
AD A110 457
- 2301 Borsuk-Ulam Theorems for Arbitrary  $S^1$  Actions and Applications, E. R. Fadell, S. Y. Husseini, and P. H. Rabinowitz, (Nov, 1981) 55N25, 58E05, Trans. Amer. Math. Soc. 274 (1982), 345-360.  
AD A110 458
- 2302 Formation of Singularities for a Conservation Law with Damping, Shao-Shiung Lin and Reza Malek-Madani, (Nov, 1981) 35L65, 35L67, 35L45, 76N15.  
AD A114 515
- 2303 Maximal Monotonicity and Bifurcation from the Continuous Spectrum, Tassilo Kupper and Jurgen Weyer, (Nov, 1981) 34B15, 47E05, 47H05, Nonlinear Anal., Theory, Methods & Appl. 6 (1982), 723-731.  
AD A114 493
- 2304 A Unified Method for Constructing PBIB Designs Based on Triangular and  $L_2$  Schemes, Ching-Shui Cheng, (Nov, 1981) 62K10, 05B05, (with A. Hedayat and G. M. Constantine), J. Roy. Statist. Soc. Ser. B. 46 (1984), 31-37.  
AD A114 488
- 2305 The Central Role of the Propensity Score in Observational Studies for Causal Effects, Paul R. Rosenbaum and Donald B. Rubin, (Dec, 1981) 62P99, 62J05, 62F12, 62F11, Biometrika 70 (1983), 41-55.  
AD A114 514
- 2306 Structure of the Set of Steady-State Solutions and Asymptotic Behaviour of Semilinear Heat Equations, P. L. Lions, (Dec, 1981) 35K60, J. Differential Equations 53 (1984), 362-386.  
AD A114 624
- 2307 Convex Solutions to Nonlinear Elliptic and Parabolic Boundary Value Problems, Nicholas J. Korevaar, (Dec, 1981) 35B50, 35J25, Indiana Univ. Math. J. 32 (1983), 603-614.  
AD A114 485
- 2308 Classical Solutions of the Korteweg-deVries Equation for Non-Smooth Initial Data via Inverse Scattering, Robert L. Sachs, (Nov, 1981) 35C99, 35Q20, 34B25, Comm. Partial Differential Equations 10 (1985), 29-98.  
AD A114 503
- 2309 Upwind Differencing, False Scaling, and Non-Physical Solutions to the Driven Cavity Problem, John C. Strikwerda, (Dec, 1981) 65N99, J. Computational Phys. 47 (1982), 303-307.  
AD A114 626
- 2310 Distributed Bilinear Systems: Positive and Negative Results on Controllability, M. Slemrod, (Dec, 1981) 93B05, 93C10, 93C20, 93C25, IFAC Control of Distributed Parameter Systems 1982, Jean-Pierre Babary and Laurent Le Letty, eds., Pergamon Press, Oxford and New York (1983), 177-179.  
AD A114 625

- 2311 Structure of Invertible (BI) Infinite Totally Positive Matrices, C. de Boor, Rong-qing Jia and A. Pinkus, (Dec, 1981) 47B37 (Primary), 15A09, 15A48, Linear Algebra and Appl. 47 (1982), 41-55.  
AD A114 494
- 2312 Recent Advances in Statistical Methods for System Reliability Using Bernoulli Sampling of Components, Bernard Harris and Andrew P. Soms, (Dec, 1981) 62N05, 90B25, in 'Reliability in the Acquisitions Process', Douglas J. DePriest and Robert L. Launer, eds., Marcel Dekker, Inc., New York (1983), 55-67.  
AD A114 495
- 2313 A New Approach to Euler Splines II, I. J. Schoenberg, (Dec, 1981) 33A10, 41A05, 41A15.  
AD A114 472
- 2314 A New Class of Hermite-Birkhoff Quadrature Formulas of Gaussian Type, Nira Dyn, (Dec, 1981) 41A05, 41A55, Published under title 'Composite Hermite-Birkhoff Quadrature Formulas of Gaussian Type', Math. Comp. 43 (1984), 535-541.  
AD A114 487
- 2315 On the Swirling Flow Between Rotating Coaxial Disks: Existence and Nonuniqueness, Heinz-Otto Kreiss and Seymour V. Parter, (Jan, 1982) 34B15, 34E15, 35Q10, Comm. Pure Appl. Math. XXXVI (1983), 55-84.  
AD A114 489
- 2316 A Spectral Mapping Theorem for the Exponential Function, and Some Counterexamples, Tosio Kato, (Jan, 1982) 26A33, 47A10, 47A60, 47B25, 47B44, 47D05, 47D10.  
AD A114 486
- 2317 A Generalized Curve Approach to Elementary Particles, L. C. Young and P. Nowosad, (Jan, 1982) 81G25, 81G20, 81N05, 35D05, 49A10, J. Optimization Theory Appl. 41 (1983), 261-273.  
AD A114 504
- 2318 Source-Solutions and Asymptotic Behavior in Conservation Laws, Tai-Ping Liu and Michel Pierre, (Jan, 1982) 35L65, 35G25, 35B40, J. Differential Equations 51 (1984), 419-441.  
AD A114 505
- 2319 Approximation by Smooth Multivariate Splines, C. de Boor and R. DeVore, (Jan, 1982) 41A15, 41A63, 41A25, Trans. Amer. Math. Soc. 276 (1983), 775-788.  
AD A114 506
- 2320 B-Splines from Parallelepipeds, C. de Boor and K. Hollig, (Feb, 1982) 41A15, 41A63, 41A25, J. Analyse Math. 42 (1982/83), 99-115.  
AD A114 479
- 2321 Assessing Sensitivity to an Unobserved Binary Covariate in a Nonrandomized Experiment with Binary Outcome, Paul R. Rosenbaum and Donald B. Rubin, (Jan, 1982) 62P99, 62J05, 62F12, 62F11, J. Roy. Statist. Soc. Ser. B 45 (1983), 212-218.  
AD A114 478
- 2322 Activation Energy Asymptotics Applied to Burning Carbon Particles, David R. Kasoy and Paul A. Libby, (Jan, 1982) 80A25, 80A20, 80A30, 34E99, Combustion and Flame 48 (1982), 287-301.  
AD A114 477

- 2323 Cubic Lack of Fit for Three-Level Second Order Response Surface Designs, N. R. Draper, (Jan, 1982) 62J02, 62J05, 62K99, In shortened form as a 'Letter to the Editor', Technometrics 25 (1983), 217.  
AD A114 476
- 2324 Bubble in a Corner Flow, Jean-Marc Vanden-Broeck, (Jan, 1982) 76B10, 45G05, Proc. of the Second International Colloquium on Drops and Bubbles, Monterey, CA, Nov. (1981), 336-343.  
AD A114 527
- 2325 Asymptotic Numerical Analysis for the Navier-Stokes Equations (I), C. Foias and R. Temam, (Jan, 1982) 35Q10, 65N30, 76F99, In 'Nonlinear Dynamics and Turbulence', G. I. Barenblatt, G. Iooss, and D. D. Joseph, eds., Pitman (1983), 139-155.  
AD A114 549
- 2326 On Jointly Estimating Parameters and Missing Data by Maximizing the Complete-Data Likelihood, Roderick J. A. Little and Donald B. Rubin, (Feb, 1982) 62A10, 62F10, 62H12, The Amer. Statist. 37 (1983), 218-220.  
AD A114 533
- 2327 Using External Information in Linear Regression, with a Commentary on Ridge Regression, Toby J. Mitchell and Norman R. Draper, (Jan, 1982) 62J99.  
AD A114 530
- 2328 Iteratively Reweighted Least Squares - Encyclopedia Entry, Donald B. Rubin, (Feb, 1982) 62-04, 62F35, 62H12, 62J05, 65F10.  
AD A114 534
- 2329 Local Duality of Nonlinear Programs, O. Fujiiwara, S.-P. Han and O. L. Mangasarian, (Feb, 1982) 90C30, 15A03, SIAM J. Control Optimization 22 (1984), 162-169.  
AD A114 538
- 2330 On the Existence of a Free Boundary for a Class of Reaction-Diffusion Systems, J. Ildefonso Diaz and Jesus Hernandez, (Feb, 1982) 35J65, 35J15, 35B99, SIAM. J. Math. Anal. 15 (1984), 670-685.  
AD A114 577
- 2331 On Regular Generalized Line Graph Designs, Ching-Shul Cheng and Gregory M. Constantine, (Feb, 1982) 62K05, 05B05, Published under title 'On the Efficiency of Regular Generalized Line Graph Designs', J. Statist. Planning Inference 15 (1986), 1-10.  
AD A114 576
- 2332 On the Swirling Flow Between Rotating Coaxial Disks: A Survey, Seymour V. Parter, (Feb, 1982) 34B15, 34E15, 35Q10, Published in 'Theory and Applications of Singular Perturbations', Proc. of a Conf., Oberwolfach, Germany, 1981, Lecture Notes in Mathematics 942, Springer-Verlag-Berlin, Heidelberg, New York (1982), 258-280.  
AD A114 551
- 2333 Choice of Response Surface Design and Alphabetic Optimality, George E. P. Box, (Feb, 1982) 62K05, Utilitas Math. 21 (1982), 11-55.  
AD A114 550
- 2334 On a Conjecture of C. A. Micchelli Concerning Cubic Spline Interpolation at a Bilinear Knot Sequence, Rong-qing Jia, (Feb, 1982) 41A15, J. Approximation Theory 38 (1983), 284-292.  
AD A114 552



- 2335  $L_\infty$ -Upper Bound of  $L_2$ -Projections onto Splines at a Geometric Mesh, Rong-qing Jia, (Feb, 1982) 41A15, J. Approximation Theory 37 (1983), 293-310.  
AD A114 697
- 2336 Some Penalized Likelihood Procedures for Smoothing Probability Densities, Taskin Atilgan and Tom Leonard, (Feb, 1982) 62G05.  
AD A114 623
- 2337 A Bayesian Approach to Markovian Models for Normal and Poisson Data, Tom Leonard, (Feb, 1982) 62M05, 62M20, - To Appear - Technometrics.  
AD A114 622
- 2338 A Microscopic Model for Catalyst Surfaces - II. Supported Catalysts, Klavs F. Jensen and W. Harmon Ray, (Feb, 1982) 80-XX, Chem. Engr. Sci. 37 (1982), 1387-1410.  
AD A114 572
- 2339 An Empirical Bayesian Approach to the Smooth Estimation of Unknown Functions, Tom Leonard, (Feb, 1982) 62G05, 62M10, 62H12, - To Appear - Ann. Statist.  
AD A114 573
- 2340 The Numerical Solution of a Class of Constrained Minimization Problems, Nira Dyn and Warren E. Ferguson, Jr., (Feb, 1982) 49D40, 65F10, 65N20, Math. Comp. 41 (1983), 165-170.  
AD A114 574
- 2341 Collocation Analysis of Multicomponent Diffusion and Reactions in Porous Catalysts, Jan P. Sørensen and Warren E. Stewart, (Feb, 1982) 34B15, 41A30, 65L10, 80A20, 80A30, Chem. Engineering Sci. 37 (1982), 1103-1114.  
AD A114 580
- 2342 Bayes Estimation of a Multivariate Density, Tom Leonard, (Feb, 1982) 62G05, 62H12.  
AD A114 579
- 2343 Mathematical Modeling of Two-Phase Flow, D. A. Drew, (Mar, 1982) 76T05, Ann. Rev. Fluid Mech. 15 (1983), 261-291.  
AD A114 535
- 2344 Applications of the EM Algorithm to the Estimation of Bayesian Hyperparameters, Tom Leonard, (Mar, 1982) 62F15, 62H12, In 'Bayesian Studies in Probability and Statistics', (In honor of Bruno De Finetti), P. Goel, ed., Academic Press, NY (1983).  
AD A114 537
- 2345 Simultaneous Similarity of Matrices, Shmuel Friedland, (Mar, 1982) 15A21, 15A90, Advances in Math. 50 (1983), 189-265.  
AD A114 536
- 2346 Difference Methods for Parabolic History Value Problems, Peter Markowich, (Mar, 1982) 39A11, 65Q05, 45K05, 35K22, J. Numer. Func. Anal. Optimization 5 (1982-83), 289-317.  
AD A114 597
- 2347 Finite Data Lattice Algorithms for Instrumental Variable Recursions, Victor Solo, (Mar, 1982) 62M10, 93B30, IEEE Trans. Acoustics Speech & Signal Processing 31 (1983), 1202-1210.  
AD A114 598

- 2348 Stability Theory of a Confined Toroidal Plasma. Part I. Existence and Uniqueness, Peter Laurence and M. C. Shen, (Mar, 1982) 76W05, 76E25, Published under title 'Justification of the MHD Energy Principle for the Stability of a Confined Toroidal Plasma', Comm. Pure Appl. Math. XXXVI (1983), 233-252.  
AD A114 599
- 2349 Stability Theory of a Confined Toroidal Plasma. Part II. Modified Energy Principle and Growth Rates, Peter Laurence and M. C. Shen, (Mar, 1982) 76W05, 76E25, Published under title 'Justification of the MHD Energy Principle for the Stability of a Confined Toroidal Plasma', Comm. Pure Appl. Math. XXXVI (1983), 233-252.  
AD A114 578
- 2350 Bifurcation and Optimal Stochastic Control, P. L. Lions, (Mar, 1982) 35J65, 93E20, 35P30, 58E07, Nonlinear Analysis, Theory, Methods & Applications 7 (1983), 177-207.  
AD A116 215
- 2351 Homogeneous and Non-Homogeneous Boundary Value Problems for First Order Linear Hyperbolic Systems Arising in Fluid Mechanics (Part II), H. Beirao da Veiga, (Apr, 1982) 35F15, 35L50, 76N10, Comm. Partial Differential Equations 8 (1983), 407-432.  
AD A116 322
- 2352 Quasilinear Evolution Equations, M. Crandall and P. Souganidis, (Apr, 1982) 35G20, 47H20, 47H06.  
AD A116 178
- 2353 Numerical Computation of Periodic Solution Branches and Oscillatory Dynamics of the Stirred Tank Reactor with  $A \rightarrow B \rightarrow C$  Reactions, Eusebius J. Doedel and Robert F. Heinemann, (Mar, 1982) 80A20, 80A30, 65C20, 65L05, Chem. Engr. Sci. 38 (1983), 1493-1499.  
AD A116 164
- 2354 Existence of Infinitely Many Solutions for a Nonlinear Parabolic Equation, Klaus Hollig, (Mar, 1982) 35K55, 35K65, Trans. Amer. Math. Soc. 278 (1983), 299-316.  
AD A116 155
- 2355 Water Waves in a Channel of Variable Cross Section, Xi-Chang Zhong and M. C. Shen, (Mar, 1982) 76B15, 76B25, Published under title 'Fission of Solitons in a Symmetric Triangular Channel with Variable Cross Section', Wave Motion 5 (1983), 167-176.  
AD A116 214
- 2356 The Influence of Surface Tension on Cavitating Flow Past a Curved Obstacle, Jean-Marc Vanden-Broeck, (Mar, 1982) 76B10, 65N35, J. Fluid Mech. 133 (1983), 255-264.  
AD A116 321
- 2357 An Analytic, One-Parameter Family of Self-Adjoint Boundary Conditions for Schrodinger Operators on an Interval, Robert L. Sachs, (Apr, 1982) 34B10, 34B25.  
AD A116 165
- 2358 Imputing Income in the CPS: Comments on "What do we Know About Wages: The Importance of Non-Reporting and Census Imputation" by Lillard, Smith and Welch, Donald B. Rubin, (Apr, 1982) 62-06, 62-07, 62D05, 62F15, 62H99, 62P20, Published under title "Imputing Income in the CPS: Comments on 'Measures of Aggregate Labor Cost in the United States'", NBER 'The Measure of Labor Cost', Jack E. Triplett, ed., University of Chicago Press (1983), 333-343.  
AD A116 157

- 2359 Local Explicit Many-Knot Spline Hermite Approximation Schemes, D. X. Qi and S. Z. Zhou, (Apr, 1982) 41A15, J. Computational Math. 1 (1983), 317-321.  
AD A116 216
- 2360 Feedback Stabilization of "Hybrid" Bilinear Systems, M. Slemrod and E. L. Rogers, (Apr, 1982) 93B05, 93C10, 93C20, 93C25, - Submitted to - Quart. Appl. Math.  
AD A116 323
- 2361 Finite Difference Methods for the Stokes and Navier-Stokes Equations, John C. Strikwerda, (Apr, 1982) 65N05, 76D05, SIAM J. Sci. Stat. Comput. 5 (1984), 56-68.  
AD A116 177
- 2362 Rounding Error in Regression: The Appropriateness of Sheppard's Corrections, Arthur P. Dempster and Donald B. Rubin, (Apr, 1982) 62A10, 62F15, 62H12, 62J05, J. Roy. Statist. Soc. Ser. B 45 (1983), 51-59.  
AD A116 167
- 2363 The Riemann Problem In Two Space Dimensions for a Single Conservation Law, David H. Wagner, (Apr, 1982) 35C05, 35L60, 35L65, 35L67, 76L05, 76S05, SIAM J. Math. Anal. 14 (1983), 534-559.  
AD A116 154
- 2364 Global Existence of Solutions of the Equations of One-Dimensional Thermoviscoelasticity with Initial Data in  $BV$  and  $L^1$ , Jong Uhn Kim, (Apr, 1982) 35B99, 35K55, 35M05, 73B99, Ann. Scuola Norm. Sup. Pisa X (1983), 357-427.  
AD A116 324
- 2365 Some Data-Analytic Modifications to Bayes-Stein Estimation, Tom Leonard, (Apr, 1982) 62G05, 62H15, 62J07, - To Appear - Ann. Inst. Statist. Math. (1983).  
AD A116 218
- 2366 Mathematical and Numerical Analysis of a Turbulent Viscosity Model, C. M. Brauner and C. Lalne, (Apr, 1982) 35K55, 76F05.  
AD A116 176
- 2367 Interval Bounds for Stationary Values of Functionals, L. B. Rall, (Apr, 1982) 49-00, 49A29, 49G05, 34B25, 35P15, 45C05, 65G10, 65K10, 65L15, 65N25, Nonlinear Anal. 6 (1982), 855-861.  
AD A116 166
- 2368 A Unifying Note on Fatou's Lemma in Several Dimensions, E. J. Balder, (Apr, 1982) 49A50, Math. Operations Research 9 (1984), 267-275.  
AD A116 156
- 2369 Some Problems with Data from Finite Mixture Distributions, D. M. Titterton, (Apr, 1982) Primary 62-02; Secondary 62F05, 62F10, 62F12, 62G05, 62H30, 65D10.  
AD A116 175
- 2370 Sensitivity and Asymptotic Properties of Bayesian Reliability Estimates, Bernard Harris and Andrew P. Soms, (Apr, 1982) 62N05, - To Appear - Statist. & Decisions.  
AD A116 217

- 2371 Euler's Contribution to Cardinal Spline Interpolation: The Exponential Euler Splines, I. J. Schoenberg, (Apr, 1982) 01A50, 41A15, Contribution to volume in honor of Euler's bicentennial 'Leonardt Euler-Gedenkband 1983', Basel, Switzerland.  
AD A116 158
- 2372 Incomplete Data - Encyclopedia Entry, Roderick J. A. Little and Donald B. Rubin, (Apr, 1982) 62-07, 62D05, 62H12, Encyclopedia of Statistics and Sciences, Kotz and Johnson, eds., John Wiley, 46-53.  
AD A116 188
- 2373 Uniform Asymptotic Expansions for Unsteady Flow In Unconfined Aquifers, M. C. Shen, (Apr, 1982) 76S05, SIAM J. Math. 42 (1982), 1-9.  
AD A116 187
- 2374 Comparison Theorems for Reaction-Diffusion Systems Defined in an Unbounded Domain, David Terman, (Apr, 1982) 35K55.  
AD A116 186
- 2375 A Case Study of the Robustness of Bayesian Methods of Inference: Estimating the Total in a Finite Population Using Transformations to Normality, Donald B. Rubin, (May, 1982) 62-07, 62A15, 62D05, 62E25, 62F15, In 'Scientific Inference, Data Analysis, and Robustness', G. E. P. Box, Tom Leonard, and Chien-Fu Wu, eds., Academic Press, NY (1983), 213-244.  
AD A116 189
- 2376 Recursive Parameter Estimation Using Incomplete Data, D. M. Titterton, (May, 1982) 62A10, 62F10, 62L12, 62L20, J. Roy. Statist. Soc. 46 (1984), 257-267.  
AD A116 190
- 2377 Singularly Perturbed Hyperbolic Evolution Problems with Infinite Delay and an Application to Polymer Rheology, Michael Renardy, (May, 1982) 35L15, 45K05, 47D05, 76A10, SIAM J. Math. Anal. 15 (1984), 333-349.  
AD A116 212
- 2378 Estimation of Variance of the Ratio Estimator: An Empirical Study, Chien-Fu Wu and L. Y. Deng, (May, 1982) 62D05, 62E25, In 'Scientific Inference, Data Analysis, and Robustness', G. E. P. Box, Tom Leonard, and Chien-Fu Wu, eds., Academic Press, NY (1983), 245-277.  
AD A116 211
- 2379 Topics In Multivariate Approximation Theory, C. de Boor, (May, 1982) 41-02, 41A05, 41A10, 41A15, 41A63, 41A65, In 'Topics In Numerical Analysis', P. Turner, ed., Springer Lecture Notes In Mathematics 96S (1982), 39-78.  
AD A116 248
- 2380 The Linear Finite Element Method for a Two-Dimensional Singular Boundary Value Problem, S. Z. Zhou, (May, 1982) 65N30, 65N15, SIAM J. Numer. Anal. 20 (1983), 976-984.  
AD A116 247
- 2381 Weakly Nonlinear High Frequency Waves, John Hunter, (May, 1982) 35L60, 76N15, Comm. Pure Appl. Math. XXXVI (1983), 547-569.  
AD A116 246

- 2382 Kernel-Based Density Estimation Using Censored, Truncated or Grouped Data, D. M. Titterton, (May, 1982) Primary 62G05; Secondary 62-07, Commun. Statist.-Theor. Meth. 12 (1983), 2151-2167.  
AD A116 174
- 2383 Conjugate Cone Characterization of Positive Definite and Semidefinite Matrices, S.-P. Han and O. L. Mangasarian, (May, 1982) 15A63, 10C25, 90C20, Linear Algebra and Appl. 56 (1984), 89-103.  
AD A116 173
- 2384 A Right-Inverse for the Divergence Operator in Spaces of Piecewise Polynomials. Application to the p-Version of the Finite Element Method, Michael Vogelius, (May, 1982) 65N30, 73K25, Numer. Math. 41 (1983), 19-37.  
AD A116 172
- 2385 An Analysis of the p-Version of the Finite Element Method for Nearly Incompressible Materials. Uniformly Valid, Optimal Error Estimates, Michael Vogelius, (May, 1982) 65N30, 73K25, Numer. Math. 41 (1983), 39-53.  
AD A116 205
- 2386 Characterization of Positive Definite and Semidefinite Matrices via Quadratic Programming Duality, S.-P. Han and O. L. Mangasarian, (May, 1982) 90C20, 15A63, SIAM J. Algebraic Discrete Methods 5 (1984), 26-32.  
AD A116 203
- 2387 Solutions of the Porous Medium Equation in  $\mathbb{R}^N$  Under Optimal Conditions on Initial Values, Philippe Benilan, Michael G. Crandall and Michel Pierre, (May, 1982) 35K15, 35K65, Indiana Univ. Math. J. 33 (1984), 51-87.  
AD A116 204
- 2388 A Singularly Perturbed Boundary Value Problem Modelling a Semiconductor Device, Peter A. Markowich, Chr. A. Ringhofer, Siegfried Selberherr and Erasmus Langer, (May, 1982) 34B15, 34E15, SIAM J. Appl. Math. 44 (1984), 231-256.  
AD A116 213
- 2389 Approximation Order from Bivariate  $C^1$ -Cubics: A Counterexample, C. de Boor and K. Hollig, (June, 1982) 41A15, 41A63, 41A25, Proc. Amer. Math. Soc. 87 (1983), 649-655.  
AD A118 606
- 2390 Some Properties of Viscosity Solutions of Hamilton-Jacobi Equations, M. G. Crandall, L. C. Evans, and P. L. Lions, (June, 1982) 35F20, 35F25, 35L60, Trans. Amer. Math. Soc. 282 (1984), 487-502.  
AD A118 607
- 2391 Stewartson's Triple Deck, R. E. Meyer, (June, 1982) 76-02, 76B05, 76D15, 76D10, SIAM J. Appl. Math. 43 (1983), 639-663.  
AD A118 617
- 2392 Nonlinear Gravity-Capillary Standing Waves in Water of Arbitrary Uniform Depth, Jean-Marc Vanden-Broeck, (June, 1982) 76B15, 35B20, J. Fluid Mech. 139 (1984), 97-104.  
AD A118 597

- 2393 Lower Bounds for the Life Span of Solutions of Nonlinear Wave Equations in Three Dimensions, Fritz John, (June, 1982) 35L15, 35L67, 35L70, 35B40, Comm. Pure Appl. Math. 36 (1983), 1-35.  
AD A118 599
- 2394 The Selection of Smoothness Priors for Distributed Lag Estimation, Hirotugu Akaike, (June, 1982) 62F15, 62M10, 90A20, In 'Bayesian Inference and Decision Technique', P. Goel and A. Zellner, eds., Elsevier Science Publishers B.V., Chapter 8 (1985), 109-118.  
AD A118 598
- 2395 On the Fallacy of the Likelihood Principle, Hirotugu Akaike, (June, 1982) 62A10, 62A15, Statist. & Probability Letters 1 (1982), 75-78.  
AD A120 954
- 2396 Nonlinear Capillary Waves Under Gravity with Edge Constraints in a Channel, M. C. Shen, (June, 1982) 76B15, Phys. Fluids 26 (1983), 1417-1421.  
AD A120 955
- 2397 Prediction and Entropy, Hirotugu Akaike, (June, 1982) 62-02, 62A99, 62F99, In 'A Celebration of Statistics', The ISI Centenary volume, Anthony C. Atkinson and Stephen E. Fienberg, eds., Springer-Verlag (1985), 1-24.  
AD A120 956
- 2398 On the Crossing Rule, S. Friedland, J. W. Robbin, and J. H. Sylvester, (June, 1982) 15A18, 35L40, Comm. Pure Appl. Math. 37 (1984), 19-37.  
AD A120 957
- 2399 On the Relationship Between the Logarithmic Strain Rate and the Stretching Tensor, Morton E. Gurtin and Kathleen Spear, (June, 1982) 15A72, 15A90, 73B99, 73G99, Int. J. Solids Structures 19 (1983), 437-444.  
AD A120 958
- 2400 Differentiation in PASCAL-SC: Type Gradient, L. B. Rall, (July, 1982) 65-04, 65G05, 65H10, 65K10, 68-04, 68C20, ACM Trans. Math. Software 10 (1984), 161-184.  
AD A120 959
- 2401 Finite Amplitude Steady Waves in Stratified Fluids, J. L. Bona, D. K. Bose, and R. E. L. Turner, (July, 1982) 35J20, 35J60, 76B25, 76C10, J. Math. Pures Appl. 62 (1983), 389-439.  
AD A120 960
- 2402 Wave Reflection and Quasiresonance, R. E. Meyer, (July, 1982) 34E20, 41A60, 81F05, In 'Theory and Applications of Singular Perturbations', W. Eckhaus and E. M. de Jager, eds., Lecture Notes in Math. 942 (1982), 84-112.  
AD A120 961
- 2403 Boundary Conditions for Suppressing Rapidly Moving Components in Hyperbolic Systems, I, Robert L. Higdon, (July, 1982) 35L50, 65M99, (combined with #2404) SIAM J. Numer. Anal. 21 (1984), 413-432.  
AD A120 962
- 2404 Boundary Conditions for Suppressing Rapidly Moving Components in Hyperbolic Systems II: An Example, Robert L. Higdon, (July, 1982) 35L50, 65M99, (combined with #2403) SIAM J. Numer. Anal. 21 (1984), 413-432.  
AD A120 963

- 2405 A Note on Solitary and Cnoidal Waves with Surface Tension, Jean-Marc Vanden-Broeck and M. C. Shen, (July, 1982) 76B25, J. Appl. Math. Phys. (ZAMP) 34 (1983), 112-117.  
AD A120 964
- 2406 On Steady Vortex Flow in Two Dimensions, I, Bruce Turkington, (July, 1982) 76C05, 35R35, Comm. Partial Differential Equations 8 (1983), 999-1030.  
AD A120 965
- 2407 On Steady Vortex Flow in Two Dimensions, II, Bruce Turkington, (July, 1982) 76C05, 35R35, Comm. Partial Differential Equations 8 (1983), 1031-1071.  
AD A120 966
- 2408 An Apology for Ecumenism in Statistics, G. E. P. Box, (July, 1982) 62A15, 62A20, In 'Scientific Inference, Data Analysis and Robustness', G. E. P. Box, Tom Leonard, and Chien-Fu Wu, eds., Academic Press, NY (1983), 51-84.  
AD A120 967
- 2409 Dropping Observations without Affecting Posterior and Predictive Distributions, Norman R. Draper and Irwin Guttman, (Aug, 1982) 62F15, Canad. J. Statist. 11 (1983), 233-237.  
AD A120 968
- 2410 On Minimum Information Prior Distributions, Hirotugu Akaike, (Aug, 1982) 62A15, Ann. Inst. Statist. Math. 35 (1983), 139-149.  
AD A120 969
- 2411 Unstable Visco-Elastic Fluid Flow Exhibiting Hysteretic Phase Changes, J. K. Hunter and M. Slemrod, (Aug, 1982) 76A05, 76E30, Published under title 'Viscoelastic Fluid Flow Exhibiting Hysteretic Phase Changes', Phys. Fluids 26 (1983), 2345-2351.  
AD A120 970
- 2412 Experiments on Wave Trapping by a Submerged Cylindrical Island, B. J. S. Barnard, W. G. Pritchard, and D. G. Provis, (Aug, 1982) 76B15, Geophys. Astrophys. Fluid Dynamics 24 (1983), 23-48.  
AD A120 983
- 2413 The Viscosity-Capillarity Admissibility Criterion for Shocks and Phase Transitions, R. Hagan and M. Slemrod, (Aug, 1982) 80A10, 76T05, 76N99, 35B99, 35M05, 35L65, 35L67, Arch. Rational Mech. Anal. 83 (1983), 333-361.  
AD A120 988
- 2414 Solitary and Periodic Gravity-Capillary Waves of Finite Amplitude, J. K. Hunter and J.-M. Vanden-Broeck, (Aug, 1982) 76B25, 76B15, J. Fluid Mech. 134 (1983), 205-219.  
AD A120 984
- 2415 Bivariate Box Splines and Smooth pp Functions on a Three Direction Mesh, C. de Boor and K. Hollig, (Aug, 1982) 41A15, 41A63, 41A25, J. Comput. Appl. Math. 9 (1983), 13-28.  
AD A120 989
- 2416 An Inferential Approach to the Bloassay Design Problem, Tom Leonard, (Sept, 1982) 62P10, 62F15, - To Appear - Biometrics.  
AD A120 986
- 2417 Traveling Wave Solutions of a Multistable Reaction-Diffusion Equation, David Terman, (Sept, 1982) 35K55, Contemporary Mathematics 17 (1983), 361-378.  
AD A120 987

- 2418 A Cusp-Like Free-Surface Flow Due to a Submerged Source or Sink, E. O. Tuck and J.-M. Vanden-Broeck, (Sept, 1982) 76B10, J. Austral Math. Soc. Ser. B 25 (1984), 443-450. AD A120 985
- 2419  $C^{1+\alpha}$  Local Regularity of Weak Solutions of Degenerate Elliptic Equations, E. DiBenedetto, (Sept, 1982) 35J15, 35B65, 35B45, 35J70, Nonlinear Analysis 7 (1983), 827-849. AD A120 990
- 2420 Statistical Inference for the Skewed-Normal and Related Distributions, Tom Leonard and L. Broekhoven, (Sept, 1982) 60E05, 62F10, 62F15, 62F35, 62J02, 62P10. AD A120 991
- 2421 Consistent Directions of the Least Squares Estimators in Linear Models, Song-gui Wang and C. F. Jeff Wu, (Sept, 1982) Primary 62J05, Secondary 62E20, Proceedings of the Pacific Area Statistical Conference, 'Statistical Theory and Data Analysis', K. Matusita, ed., Elsevier Science Publishers B.V., North Holland (1985), 763-782. AD A120 992
- 2422 Weak Solution Classes for Parabolic Integro-Differential Equations, Hans Engler and Stephan Luckhaus, (Sept, 1982) 35K60, 73F15. AD A120 993
- 2423 Total Positivity of the Discrete Spline Collocation Matrix, Rong-Qing Jia, (Sept, 1982) 41A15, 15A48, J. Approximation Theory 39 (1983), 11-23. AD A120 994
- 2424 On the Solutions in the Large of the Two-Dimensional Flow of a Non-Viscous Incompressible Fluid, H. Beirão da Veiga, (Sept, 1982) 35B30, 35F25, 35Q20, J. Differential Equations 54 (1984), 373-389. AD A120 995
- 2425 A Uniqueness Theorem in Elastodynamics, D. S. Jones, (Sept, 1982) 73D30, 35Q20, Quart. J. Mech. Appl. Math. 37 (1984), 121-142. AD A120 996
- 2426 Testing the Normality of Residuals, N. R. Draper and J. A. John, (Sept, 1982) 62J05, 62J10, 62J99. AD A120 997
- 2427 Recursive Estimation Procedures for Missing-Data Problems, D. M. Titterton and J.-M. Jiang, (Sept, 1982) 62A10, 62F10, 62L12, 62M12, 62L20, Biometrika 70 (1983), 613-624. AD A124 358
- 2428 Difficulties with the Regression Analysis of Age Adjusted Rates, Paul R. Rosenbaum and Donald B. Rubin, (Sept, 1982) 62P99, 62J05, 62F12, 62F11, Biometrics 40 (1984), 437-443. AD A124 381
- 2429 Periodic Solutions of Non-Dissipatively Perturbed Wave Equations in Several Space Variables, Robert L. Sachs, (Sept, 1982) 35B10, 35L05. AD A124 367
- 2430 Initial Boundary Value Problems for the Equations of Motion of Compressible Viscous and Heat-Conductive Fluids, Akitaka Matsumura and Takaaki Nishida, (Sept, 1982) 35Q99, 76N10, Comm. Math. Phys. 89 (1983), 445-464. AD A124 382



- 2431 Two Approximations of Solutions of Hamilton-Jacobi Equations, Michael G. Crandall and P. L. Lions, (Sept, 1982) 65M15, 65M10, Math. Comp. 43 (1984), 1-19.  
AD A124 359
- 2432 The Bidimensional Stefan Problem with Convection: The Time-Dependent Case, J. R. Cannon, E. DiBenedetto, and G. H. Knightly, (Sept, 1982) 35B65, 35K60, 35K65, 35R35, 76D05, Comm. Partial Differential Equations 8 (1983), 1549-1604.  
AD A124 377
- 2433 Mean Values of Subsolutions of Elliptic and Parabolic Equations, William P. Ziemer, (Sept, 1982) 35J15, 35K65, Trans. Amer. Math. Soc. 279 (1983), 555-568.  
AD A124 355
- 2434 Frontogenesis In an Advective Mixed Layer Model, Will P. M. de Ruijter, (Oct, 1982) 35L67, 76L05, 86A05, J. Physical Oceanography 13 (1983), 487-495.  
AD A124 350
- 2435 Viscous Flow of a Droplet on a Flat Surface, Donald A. Drew, (Oct, 1982) 76D99, Trans. Twenty-Eighth Conf. Army Mathematicians, U. S. Army Research Office, Research Triangle Park, NC (1983), 205-217.  
AD A124 396
- 2436 Percentage Points and Power Calculations for Outlier Tests in a Regression Situation, Camil Fuchs and Norman R. Draper, (Oct, 1982) 62J05, 62J99, Comm. Statist. 14 (1985), 2473-2487.  
AD A124 369
- 2437 Convergence Rates for Multivariate Smoothing Spline Functions, Dennis D. Cox, (Oct, 1982) Primary 62G05, Secondary 62J99, 41A15, 41A25, SIAM J. Numer. Anal. 21 (1984), 789-813.  
AD A124 368
- 2438 Continuum Modeling of Two-Phase Flows, Donald A. Drew, (Oct, 1982) 76T05, In 'Theory of Dispersed Multiphase Flow', Richard E. Meyer, ed., Academic Press, NY (1983), 173-190.  
AD A124 385
- 2439 Capillary Surface Continuity Above Irregular Domains, Nicholas J. Korevaar, (Oct, 1982) 35J20, 35J25, Comm. Partial Differential Equations 8 (1983), 213-245.  
AD A124 384
- 2440 A Nonlinear Volterra Integrodifferential Equation Occurring In Heat Flow, S.-O. Londen and J. A. Nohel, (Oct, 1982) 45K05, 45D05, 45G10, 45N05, 45M10, 47H05, 47H15, 73D05, 73F99, 80A20, J. Integral Equations 6 (1984), 11-50.  
AD A124 349
- 2441 Highlights of the History of the Lambda-Calculus, J. Barkley Rosser, (Oct, 1982) 01A65, 03-03, 03B40, Ann. History Computing 6 (1984), 337-349.  
AD A124 383
- 2442 On a Volterra Equation with a Locally Finite Measure and  $L^\infty$ -Perturbation, Stig-Olof Londen, (Oct, 1982) 45D05, 45M05, 45G10.  
AD A124 347

- 2443 A Diffusion Equation with a Nonmonotone Constitutive Function, Klaus Hollig and John A. Nohel, (Oct, 1982) 35K55, 35K65, In 'Systems of Nonlinear Partial Differential Equations', J. M. Ball, ed., Reidel Publishing Co., Holland (1983), 409-422.  
AD A124 345
- 2444 N-Width and Entropy of  $H_p$ -Classes in  $L_q(-1,1)$ , H. G. Burchard and K. Hollig, (Nov, 1982) 41A46, 30055, - To Appear - J. Math. Anal.  
AD A124 346
- 2445 On the Domain Space for Constitutive Laws in Linear Viscoelasticity, Michael Renardy, (Nov, 1982) 76A10, Arch. Rational Mech. Anal. 85 (1984), 21-26.  
AD A124 360
- 2446 Existence of Forced Oscillations for Some Nonlinear Differential Equations, Abbas Bahri and Henri Berestycki, (Nov, 1982) 34C15, 58F05, 34C25, 58E05, Comm. Pure Appl. Math. 37 (1984), 403-442.  
AD A124 372
- 2447 Hidden Line Elimination in Projected Grid Surfaces, David P. Anderson, (Dec, 1982) CR Category Number 1.3.7, ACM Transactions on Graphics 1 (1982), 274-288.  
AD A124 348
- 2448 The Stability of One-Step Schemes for First-Order Two-Point Boundary Value Problems, C. de Boor, F. de Hoog and H. B. Keller, (Nov, 1982) 65L10, 65L07, SIAM J. Numer. Anal. 20 (1983), 1139-1146.  
AD A125 240
- 2449 A Class of Biharmonic End-Strip Problems Arising in Elasticity and Stokes Flow, D. A. Spence, (Nov, 1982) 31A30, 65F35, 73C35, 76D99, IMA J. Appl. Math. 30 (1983), 107-139.  
AD A125 305
- 2450 A Calculation of Wrinkled Flames, H. V. McConnaughey, G. S. S. Ludford and G. I. Sivashinsky, (Nov, 1982) 80A25, 76E99, 45G05, Combustion Sci. and Tech. 33 (1983), 113-121.  
AD A125 258
- 2451 Thermo-Elastic Response to a Short Laser Pulse, John C. Strikwerda and Andrew M. Scott, (Nov, 1982) 35Q20, 73C25, J. Thermal Stresses 7 (1984), 1-17.  
AD A125 247
- 2452 Differentiation and Generation of Taylor Coefficients in PASCAL-SC, L. B. Rall, (Nov, 1982) 65G10, 65H10, 65H15, 65K10, 65L05, 65V05, 68C20, In 'A New Approach to Scientific Computation', Academic Press, NY (1983), 291-309.  
AD A125 246
- 2453 Linear Parabolic Equations with a Singular Lower Order Coefficient, Klaus Hollig, (Nov, 1982) 35K20.  
AD A125 245
- 2454 Some Remarks on the Continuation Method of Leray-Schauder-Rabinowitz and the Method of Monotone Iterations, Philippe Clement, (Dec, 1982) Primary 47H07, Secondary 47H10, 35J65, Published under title 'On the Continuation Method and the Method of Monotone Iterations', Proceedings of Symposia in Pure Mathematics 45 (1986), 263-270.  
AD A125 267

- 2455 Sensitivity of Bayes Inference with Ignorable but Data-Dependent Stopping Rules, P. R. Rosenbaum and D. B. Rubin, (Dec, 1982) 62P99, 62J05, 62F12, 62F11, Amer. Statist. 38 (1984), 106-109.  
AD A125 306
- 2456 On the Quantitative Analysis of Liquid Flow In Physiological Tubes, H. Winet, (Dec, 1982) 76Z05.  
AD A125 284
- 2457 Linearized Stability of Extreme Shock Profiles for Systems of Conservation Laws with Viscosity, Robert L. Pego, (Nov, 1982) 35L65, 35L75, 35K45, 35B35, Trans. Amer. Math. Soc. 280 (1983), 431-461.  
AD A125 256
- 2458 Large Amplitude Time Periodic Solutions of a Semilinear Wave Equation, Paul H. Rabinowitz, (Dec, 1982) 35L70, 47H99, 58E05, Comm. Pure Appl. Math. 37 (1984), 189-206.  
AD A125 257
- 2459 Local Structure of Feasible Sets in Nonlinear Programming, Part I: Regularity, Stephen M. Robinson, (Dec, 1982) Primary 90C30, Secondary 90-02, Published in 'Numerical Methods', V. Pereya and A. Reinoza, eds., Springer-Verlag, Berlin (1983), 240-251.  
AD A125 244
- 2460 An Asymptotically Orthonormal Polynomial Family, Lothar Reichel, (Dec, 1982) 65E05, 30E10, 41A10, BIT 24 (1984), 647-655.  
AD A125 268
- 2461 On the Numerical Solution of Some 2-d Electromagnetic Interface Problems by the Boundary Collocation Method, Lothar Reichel, (Dec, 1982) 65N35, 35J05, Comp. Meth. Mech. Engrg. 53 (1985), 1-11.  
AD A125 269
- 2462 Lax-Wendroff Methods for Hyperbolic History Value Problems, Peter Markowich and Michael Renardy, (Dec, 1982) 35L67, 35L70, 45K05, 58C15, 65M10, 73F99, SIAM J. Numer. Anal. 21 (1984), 24-51.  
AD A125 283
- 2463 Conditional Permutation Tests and the Propensity Score In Observational Studies, Paul R. Rosenbaum, (Jan, 1983) 62A20, 62A15, 62B99, 62F05, 62F04, 62G10, 62-04, J. Amer. Statist. Assoc. 79 (1984), 41-48.  
AD A125 241
- 2464 Iterative Noise Elimination, Preliminary Report, K. T. Smith, (Jan. 1983) 41-04, 65D10.  
AD A127 756
- 2465 Some Aspects of Critical Point Theory, Paul H. Rabinowitz, (Jan, 1983) 35J65, 47H15, 58C30, 58C40, 58E05, - To Appear - Proc. of 3rd Internat. Symp. on Differential Equations and Differential Geometry.  
AD A127 757
- 2466 Quasiresonance of Long Life, R. E. Meyer, (Jan, 1983) 41A60, 34E20, J. Math. Phys. 27 (1986), 238-248.  
AD A127 763

- 2467 Self-Reflecting Skew Polygons and Polytopes in the 4-Dimensional Hypercube, I. J. Schoenberg, (Jan, 1983) 51N20, 52A25, Geometriae Dedicata 14 (1983), 355-373.  
AD A127 762
- 2468 Balanced Subclassification in Observational Studies Using the Propensity Score: A Case Study, Paul R. Rosenbaum and Donald B. Rubin, (Jan, 1983) 62F99, 62H99, 62P10, 62H17, Published under title 'Reducing Bias in Observational Studies Using Subclassification on the Propensity Score', J. Amer. Statist. Assoc. 79 (1984), 516-524.  
AD A127 760
- 2469 On Confidence Intervals for Cyclic Regenerative Processes, Peter W. Glynn, (Jan, 1983) 60K05, 68J99, Operations Res. Letters 2 (1983), 66-71.  
AD A127 761
- 2470 Accurate Computations for Steep Solitary Waves, J. K. Hunter and J.-M. Vanden-Broeck, (Jan, 1983) 76B25, J. Fluid Mech. 136 (1983), 63-71.  
AD A127 706
- 2471 The Importance of Practice in the Development of Statistics, George E. P. Box, (Jan 1983) 62-03, 01A99, 62A15, 62A20, Technometrics 26 (1984), 1-7.  
AD A127 705
- 2472 On Polynomial Approximation in the Uniform Norm by the Discrete Least Squares Method, Lothar Reichel, (Jan, 1983) 65D10, 41A10, - To Appear - BIT.  
AD A127 693
- 2473 A Variational Approach to Surface Solitary Waves, R. E. L. Turner, (Jan, 1983) 35J20, 35J60, 76B25, 76C99, J. Differential Equations 55 (1984), 401-438.  
AD A127 707
- 2474 Bayesian Models for Response Surfaces of Uncertain Functional Form, David M. Steinberg, (Jan, 1983) 62F15, 62J05.  
AD A127 703
- 2475 A Nonlinear Integral Equation Occurring in a Singular Free Boundary Problem, Klaus Hollig and John A. Nohel, (Jan, 1983) 35K55, 35K65, 45G05, Trans. Amer. Math. Soc. 283 (1984), 145-155.  
AD A127 940
- 2476 A Condition Number for Differentiable Convex Inequalities, O. L. Mangasarian, (Jan, 1983) 90C25, 65F35, Math. Operations Res. 10 (1985), 175-179.  
AD A127 941
- 2477 A Comparison of Solutions of Two Model Equations for Long Waves, J. L. Bona, W. G. Pritchard, and L. R. Scott, (Feb, 1983) 35Q20, 76B15, Lectures Appl. Math. 20 (1983), 235-267.  
AD A128 076
- 2478 A Small Sample Evaluation of a Bayesian Design Method for Quantal Response Models, Tom Leonard, (Feb, 1983) 62K99, 62F15.  
AD A127 942
- 2479 Malliavin's Calculus and Stochastic Integral Representations of Functionals of Diffusion Processes, Daniel Ocone, (Feb, 1983) 60H05, 60H10, Stochastics (1984), 1-25.  
AD A127 726

- 2480 Explicit Smooth Velocity Kernels for Vortex Methods, J. T. Beale and A. J. Majda, (Feb, 1983) 65M15, 76C05, Published under title 'High Order Accurate Vortex Methods with Explicit Velocity Kernels', J. Computational Phys. 58 (1985), 188-208.  
AD A127 781
- 2481 Computational Implementation of the Multivariate Halley Method for Solving Nonlinear Systems of Equations, Annie A. M. Cuyt and L. B. Rail, (Feb, 1983) 65-04, 65H10, 65V05, ACM Trans. Math. Software 11 (1985), 20-36.  
AD A127 782
- 2482 A Singular Perturbation Approach for the Analysis of the Fundamental Semiconductor Equations, Peter A. Markowich, Christian A. Ringhofer and Stegfried Selberherr, (Feb, 1983) 35C20, 35K50, 65N05, 65N15, IEEE Trans. Electron Devices 30 (1983), 1165-1180.  
AD A127 728
- 2483 On Collocation Schemes for Quasilinear Singularly Perturbed Boundary Value Problems, Christian Ringhofer, (Feb, 1983) 34E99, 65L10, SIAM J. Numer. Anal. 21 (1984), 864-882.  
AD A127 727
- 2484 A Boundary Value Problem for Quasilinear Degenerate Parabolic Equations, Zhuoqun Wu, (Feb, 1983) 35K60, 35K65.  
AD A127 729
- 2485 Bivariate Cardinal Interpolation by Splines on a Three-Direction Mesh, Carl de Boor, Klaus Hollig and Sherman Riemenschneider, (Mar, 1983) 41A05, 41A15, 41A63, Illinois J. Math. 29 (1985), 533-566.  
AD A127 939
- 2486 Some Nonlinear Problems of Water Waves In a Channel, M. C. Shen, (Feb, 1983) 76B15, 76B25, In 'Nonlinear Waves', L. Debnath, ed., Cambridge University Press, England (1983), 69-83.  
AD A128 075
- 2487 Some Asymptotic Formulas for Markov Chains with Applications to Simulation, Peter W. Glynn, (Mar, 1983) 60J20, 68J05, J. Statist. Comp. & Simulation 19 (1984), 97-112.  
AD A128 074
- 2488 Existence of Viscosity Solutions of Hamilton-Jacobi Equations, Panagiotis E. Souganidis, (Mar, 1983) 35F20, 35F25, 35L60, J. Differential Equations 56 (1985), 345-390.  
AD A127 691
- 2489 An Interface Tracking Algorithm for the Porous Medium Equation, E. DiBenedetto and D. C. Hoff, (Mar, 1983) 35K65, 35Q20, 35R35, 39A12, 39-04, Trans. Amer. Math. Soc. 284 (1984), 463-500.  
AD A127 685
- 2490 An Iterative Method for Solving Finite Difference Approximations to the Stokes Equations, John C. Strikwerda, (Mar, 1983) 65F10, 65N20, SIAM J. Numer. Anal. 21 (1984), 447-458.  
AD A127 704
- 2491 Stable Viscosity Matrices for Systems of Conservation Laws, Andrew Majda and Robert Pego, (Mar, 1983) 35L65, 35L67, 35B99.  
AD A127 759

- 2492 Differential Games and Representation Formulas for Solutions of Hamilton-Jacobi-Isaacs Equations, L. C. Evans and P. E. Souganidis, (Mar, 1983) 35F20, 35L60, 90D05, 90D25, 78A05, Indiana Univ. Math. J. 33 (1984), 773-797.  
AD A127 758
- 2493 Blow-Up of Radial Solutions of  $\square u = \frac{\partial F(u)}{\partial t}$  In Three Space Dimensions, Fritz John, (Mar, 1983) 35L15, 35L67, 35L70, 35B40, Published under title 'Blow-Up of Radial Solutions of  $u_{tt} = c^2(u_t)\Delta u$  In Three Space Dimensions', Mat. Applic. Comp. 4 (1985), 3-18.  
AD A128 093
- 2494 Approximation by Smooth Bivariate Splines on a Three-Direction Mesh, Rong-qing Jia, (Mar, 1983) 41A15, 41A63, 41A25, In 'Approximation Theory IV', C. K. Chui, L. L. Schumaker and J. D. Ward, eds., Academic Press, NY (1983), 539-545.  
AD A128 072
- 2495 On a Nonlinear Eigenvalue Problem Occurring In Population Genetics, Ph. Clement and L. A. Peletier, (Mar, 1983) 34B15, 35K55, Proc. Roy. Soc. Edinburgh 100A (1985), 85-101.  
AD A128 073
- 2496 Estimation of a Filtered Marked Poisson Process from Noisy Observations with Applications to Signal Processing, Dennis D. Cox and John E. Ehrenberg, (Mar, 1983) Primary 62M99; Secondary 65U05, 60G55.  
AD A127 692
- 2497 Automatic Generation of Taylor Series In PASCAL-SC: Basic Operations and Applications to Ordinary Differential Equations, George Corliss and L. B. Rall, (Mar, 1983) 65-04, 65G10, 65L05, 65L07, 65V05, Trans. First Army Conf. on Applied Mathematics and Computing, ARO Report 84-1, U. S. Army Research Office, Research Triangle Park, NC (1984), 177-209.  
AD A129 075
- 2498 Normal Solutions of Linear Programs, O. L. Mangasarian, (Mar, 1983) 90C05, 90C06, 90C20, 15A39, Math. Programming Study 22 (1984), 206-216.  
AD A129 073
- 2499 Some New Gravity Waves In Water of Finite Depth, Jean-Marc Vanden-Broeck, (Mar, 1983) 76B15, Phys. Fluids 26 (1983), 2385-2387.  
AD A129 178
- 2500 Ray Method for Flow of a Compressible Viscous Fluid, M. C. Shen, (Mar, 1983) 76N10, 78A05, SIAM J. Appl. Math. 43 (1983), 822-833.  
AD A129 098
- 2501 Formation of Singularities for a Conservation Law with Memory, Reza Malek-Madani and John A. Nohel, (Apr, 1983) 35L65, 35L67, 45G10, 45K05, 45D05, 45M10, 45M99, 47H10, 47H15, 47H17, 73F15, 73H10, 76N15, SIAM J. Math. Anal. 16 (1985), 530-540.  
AD A129 403
- 2502 On a Nonlinear Degenerate Parabolic Equation In Infiltration or Evaporation Through a Porous Medium, J. Ildefonso Diaz and Robert Kersner, (Apr, 1983) 35K55, 35K65, Submitted to - J. Differential Equations.  
AD A129 186

- 2503 Instability of the Flow of Immiscible Liquids with Different Viscosities in a Pipe, D. D. Joseph, M. Renardy, and Y. Renardy, (Apr, 1983) 49A21, 76E05, 76T05, J. Fluid Mech. 141 (1984), 309-317.  
AD A129 097
- 2504 Stable Viscosities and Shock Profiles for Systems of Conservation Laws, Robert L. Pego, (Apr, 1983) 35L65, 35L67, 35B99, 35Q10, 76N10, 35K65, Trans. Amer. Math. Soc. 282 (1984), 749-763.  
AD A129 179
- 2505 Nonexistence of a Shock Layer in Gas Dynamics with a Nonconvex Equation of State, Robert L. Pego, (Apr, 1983) 76N10, 35Q10, 76L05, 35L65, 35B99, Arch. Rational Mech. Anal. 94 (1986), 165-178.  
AD A129 169
- 2506 A Note on the Geometry of Kullback-Leibler Information Numbers, Wei-Yin Loh, (Apr, 1983) Primary 60-00, 60E05, 62B10; Secondary 62F03, Comm. Statist.-Theor. Meth. 14 (1985), 895-904.  
AD A129 170
- 2507 All Spectral Dominant Norms are Stable, S. Friedland and C. Zenger, (Apr, 1983) 15A60, 39A11, Linear Algebra and Appl. 58 (1984), 97-107.  
AD A129 076
- 2508 Periodic Solutions of Hamiltonian Systems of Prescribed Period, Vieri Benci, Alberto Capozzi and Donato Fortunato, (Apr, 1983) 58E05, 34C25, 70K99, Published under title 'Periodic Solutions of Hamiltonian Systems with Superquadratic Potential', Ann. Mat. Pura Appl. 143 (1986), 1-46.  
AD A129 096
- 2509 Existence of Solutions to the Nonhomogeneous Steady Navier-Stokes Equations, Charles J. Amick, (Apr, 1983) 35Q10, 76D05, 35B50, Indiana Univ. Math. J. 33 (1984), 817-830.  
AD A129 171
- 2510 Smooth Solutions to a Quasi-Linear System of Diffusion Equations for a Certain Population Model, Jong Uhn Kim, (Apr, 1983) 35K55, 35K60, 35B65, 92A15, J. Nonlinear Anal.: Theory, Methods & Applications 8 (1984), 1121-1144.  
AD A129 180
- 2511 Approximation Schemes for Viscosity Solutions of Hamilton-Jacobi Equations, Panagiotis E. Souganidis, (Apr, 1983) 35F20, 35F25, 35L60, 65M15, 65M10, 49A45, 49B40, Published in two parts: 'Approximation Schemes for Viscosity Solutions of Hamilton-Jacobi Equations', J. Differential Equations 59 (1985), 1-43; 'Max-Min Representations and Product Formulas for the Viscosity Solutions of Hamilton-Jacobi Equations with Applications to Differential Games', Nonlinear Analysis, Theory, Methods & Applications 9 (1985), 217-257.  
AD A129 187
- 2512 A Very Small Remark on Smooth Denjoy Maps of the Circle, Glen Richard Hall, (Apr, 1983) 58F99, 54H20.  
AD A129 185
- 2513 Implications of Analytical Investigations About the Semiconductor Equations on Device Modeling Programs, Ch. Ringhofer and S. Selberherr, (Apr, 1983) 35J55, 35J60, 65N05, 65N10, IEEE Trans. Computer-Aided Design CAD-3 (1984), 52-64.  
AD A130 549

- 2514 On Complex Rational Approximation by Interpolation at Preselected Nodes, Lothar Reichel, (Apr, 1983) 65E05, 65D05, 30C30, Complex Variables 4 (1984), 63-85.  
AD A130 526
- 2515 A Multiplicity Result for a Semilinear Dirichlet Problem, J. V. A. Goncalves, (Apr, 1983) 35J20, 35P30, Published under title 'On Multiple Solutions for a Semilinear Dirichlet Problem', Houston J. Math. 12 (1986), 43-53.  
AD A130 492
- 2516 A Generalization of Denjoy's Theorem on Diffeomorphisms of the Circle, Glen Richard Hall, (May, 1983) 58F10, 58F22, 58F12.  
AD A130 575
- 2517 A Stable Adaptive Numerical Scheme for Hyperbolic Conservation Laws, Bradley J. Lucier, (May, 1983) 65M10, 35L65, SIAM J. Numer. Anal. 22 (1985), 180-203.  
AD A130 512
- 2518 Fingers In a Hele-Shaw Cell with Surface Tension, Jean-Marc Vanden-Broeck, (May, 1983) 76S05, Phys. Fluids 26 (1983), 2033-2034.  
AD A130 548
- 2519 Resonance Zones In Two-Parameter Families of Circle Homeomorphisms, Glen Richard Hall, (May, 1983) 58F22, 58F14, SIAM J. Math. Anal. 15 (1984), 1075-1081.  
AD A130 493
- 2520 Nonlinear Gravity-Capillary Waves on a Compressible Viscous Fluid with Edge Constraints, M. C. Shen, (May, 1983) 76E30, 76N99.  
AD A130 545
- 2521 Transonic Small-Disturbance Theory for Dusty Gases, Donald A. Drew and Fredrick J. Ziegler, (May, 1983) 76T05, - To Appear - AIAA J.  
AD A130 511
- 2522 On the Superlinear Ambrosetti-Prodi Problem, Djalro G. de Figueiredo, (May, 1983) 35J65, 47H07, 58E30, Nonlinear Analysis - Theory, Methods & Applications 8 (1984), 655-665.  
AD A130 574
- 2523 Directionally Efficient Robust Estimators of Location via Exponential Embedding, Wei-Yin Loh, (May, 1983) Primary 62F35; Secondary 62G05, Published under title 'Partially-Adaptive Robust Estimators of Location Via Exponential Embedding', Comm. Statist. - Theor. Meth. 13 (1984), 2549-2570.  
AD A130 525
- 2524 The Effect of Surface Tension on the Shape of the Kirchhoff Jet, Jean-Marc Vanden-Broeck, (May, 1983) 76B10, Phys. Fluids 27 (1984), 1933-1936.  
AD A130 497
- 2525 A Free Boundary Arising from McKean's Model for Nerve Conduction, David Terman, (May, 1983) 35K55, J. Differential Equations 58 (1985), 345-363.  
AD A130 496
- 2526 Anatomy of Some Time Series Models, George E. P. Box, (June, 1983) 62M10, In 'Statistics: An Appreciation', H. A. David and H. T. David, eds., Iowa State University Press (1984), 489-508.  
AD A130 498



- 2527 An Asymptotic Analysis of Single-Junction Semiconductor Devices, Peter A. Markowich, C. A. Ringhofer, E. Langer, and S. Selberherr, (June, 1983) 34C11, 34D15, 34E15.  
AD A130 499
- 2528 The Estimation of Time Series Models. Part I. Yet Another Algorithm for the Exact Likelihood of ARMA Models, G. Tunncliffe-Wilson, (June, 1983) 62M10, 65U05.  
AD A130 500
- 2529 Granular Jumps Down an Inclined Plane, M. C. Shen, (June, 1983) 73N99, 76A99.  
AD A130 501
- 2530 A Local Existence and Uniqueness Theorem for a K-BKZ-Fluid, Michael Renardy, (June, 1983) 35L15, 45K05, 47D05, 76A10, Arch. Rational Mech. Anal. 88 (1985), 83-94.  
AD A130 503
- 2531 Constrained Nonlinear Least Squares, George E. P. Box and Hiromitsu Kanemasu, (June, 1983) 62J02, In 'Experimental Design, Statistical Models, and Genetic Statistics', Essays in honor of Oscar Kempthorne, Marcel Dekker, Chapter 17 (1984), 297-318.  
AD A130 502
- 2532 Multiple Critical Points of Invariant Functionals and Applications, D. G. Costa and M. Willem, (June, 1983) 34C25, 35J20, 58E05, - To Appear - Nonlinear Analysis, Theory, Methods & Applications.  
AD A130 544
- 2533 Asymptotic Behaviors of the Solution of an Elliptic Equation with Penalty Terms, Hideo Kawarada and Takao Hanada, (June, 1983) 35J05, 35J67, 34E05, 34E99.  
AD A130 473
- 2534 Central Configurations of the N-Body Problem, Filomena Pacella, (June, 1983) 58E05, 70F10, 70F15, 70G25, - To Appear - Arch. Rational Mech. Anal.  
AD A132 820
- 2535 Droplet Decomposition in a Reactive Atmosphere: Complete Responses for Large Activation Energies, H. V. McConnaughey and G. S. S. Lüdford, (June, 1983) 80A25, 34E05, Physica 9D (1983), 209-224.  
AD A132 840
- 2536 Numerical Solution of Free Boundary Problem for Unsteady Slag Flow in the Hearth, Makoto Natori and Hideo Kawarada, (June, 1983) 34E05, 34E99, 35J05, 35J67, 35R35, 39A99.  
AD A132 808
- 2537 Note on Evaporation in Capillaries, R. E. Meyer, (July, 1983) 76S05, 80A20, IMA J. Appl. Math. 32 (1984), 235-252.  
AD A132 850
- 2538 The Interfaces of One-Dimensional Flows in Porous Media, Juan L. Vazquez, (July, 1983) 35K65, 76S05, 35B40, Trans. Amer. Math. Soc. 285 (1984), 717-737.  
AD A132 862
- 2539 On the Use of Marginal Likelihood in Time Series Model Estimation, G. Tunncliffe-Wilson, (July, 1983) 62A10, 62F10, 62M10, 90A20.  
AD A132 828

- 2540 A Free-Boundary Problem Arising from a Galvanizing Process, Thomas I. Vogel, (July, 1983) 35R35, SIAM J. Math. Anal. 16 (1985), 970-979.  
AD A132 853
- 2541 Numerical Analysis of Boundary Value Problem of Elliptic Type by Means of the Penalty and the Finite Difference and its Application to Free Boundary Problem, T. Hanada, H. Kawarada and O. Pironneau, (July, 1983) 34E05, 34E99, 35J05, 35J67, 35R35, 39A99, 69-00.  
AD A132 805
- 2542 Rapid Convergence Methods for a Singular Perturbation Problem, Paul H. Rabinowitz, (July, 1983) 35B25, 35J60, 47H15, Ann. Inst. H. Poincaré, Analyse Nonlinéaire 1 (1984), 1-17.  
AD A132 837
- 2543 Numerical Analysis of a Stefan Problem, H. Kawarada and C. Saguez, (July, 1983) 35K99, 35R35, 65-02.  
AD A132 823
- 2544 Keynesian Chaos, Richard H. Day and Wayne Shafer, (July, 1983) 90A16, 34C35, 39A10, 28D99, J. Macroeconomics 7 (1985), 277-295.  
AD A132 836
- 2545 Directed Graphs and Traveling Waves, David Terman, (July, 1983) 35K55, Trans. Amer. Math. Soc. 289 (1985), 809-847.  
AD A132 861
- 2546 A Collocation Method for Computing Eigenvalues and Eigenfunctions of the Laplacian, Lothar Reichel, (July, 1983) 65N25, 65N35, - To Appear - (In extended form).  
AD A132 827
- 2547 On a Viscometric Flow of a Simple Fluid, K. R. Rajagopal, (Aug, 1983) 76A05.  
AD A132 852
- 2548 Some Remarks on the Creeping Flow of the Second Grade Fluid, K. R. Rajagopal, (Aug, 1983) 76A05, J. Non-Newtonian Fluid Mech. 15 (1984), 239-246.  
AD A132 807
- 2549 Measures of Nonlinearity for Segmented Regression Models, Miriam L. Goldberg, (Aug, 1983) 62J02.  
AD A132 838
- 2550 Implementation of a Subgradient Projection Algorithm II, Robert W. Owens, (Aug, 1983) 90C25, 65K05, Internat. J. Comput. Math. 16 (1984), 57-69.  
AD A132 835
- 2551 Free Boundary Problem for Unsteady Slag Flow in the Hearth, Hideo Kawarada, (Aug, 1983) 34E05, 34E99, 35J05, 35J67, 35R35.  
AD A132 822
- 2552 More Results on the Convergence of Iterative Methods for the Symmetric Linear Complementarity Problem, Jong-Shi Pang, (Aug, 1983) 90C20, 90C33, J. Optimization Theory Appl. 49 (1986), 107-134.  
AD A132 863

- 2553 Existence for a Problem in Ground Freezing, E. DiBenedetto and C. M. Elliott, (Aug, 1983) 35J65, 35Q99, 76R05, 76S05, 76T05, Nonlinear Analysis, Theory, Methods & Applications 9 (1985), 953-967.  
AD A132 826
- 2554 An Efficient Generator of Uniformly Distributed Random Deviates Between Zero and One, Arne Thesen, (Aug, 1983) 65C10, 68J10, 90-04, Simulation 44 (1985), 17-22.  
AD A132 851
- 2555 Stabilization of Solutions for a Class of Parabolic Integro-Differential Equations, Hans Engler, (Aug, 1983) 35K55, 45K05, J. Nonlinear Anal.: Theory, Methods, & Applications 8 (1984), 1337-1371.  
AD A132 821
- 2556 Cauchy Flux and Sets of Finite Perimeter, William P. Ziemer, (Aug, 1983) 80A05, 49F20, Arch. Rational Mech. Anal. 84 (1983), 189-201.  
AD A132 834
- 2557 A 3-Component System of Competition and Diffusion, Masayasu Mimura and Paul C. Fife, (Aug, 1983) 92A17, 34E99, Hiroshima Math. J. 16 (1986), 189-207.  
AD A132 860
- 2558 Initial-Boundary Value Problems for Linear Hyperbolic Systems, Robert L. Higdon, (Aug, 1983) 35L50, SIAM Rev. 28 (1986), 177-217.  
AD A132 644
- 2559 One-Dimensional Structured Phase Transformations Under Prescribed Loads, Jack Carr, Morton E. Gurtin, and Marshall Slemrod, (Aug, 1983) 73G05, J. Elasticity 15 (1985), 133-142.  
AD A132 807
- 2560 A Coordinate Transformation for the Porous Media Equation that Renders the Free-Boundary Stationary, Morton E. Gurtin, Richard C. MacCamy, and Eduardo A. Socolovsky, (Aug, 1983) 35K65, Quart. Appl. Math. (1984), 345-357.  
AD A132 839
- 2561 The Froude Number for Solitary Waves, J. B. McLeod, (Aug, 1983) 35R35, 76B15, 76B25, Proc. Roy. Soc. Edinburgh Sect. A 97 (1984), 193-197.  
AD A134 548
- 2562 Some Efficient Random Number Generators for Micro Computers, Arne Thesen and Tzyh-Jong Wang, (Sept, 1983) 65C10, 68J10, 90-04.  
AD A134 558
- 2563 Efficient Model-Based Sequential Designs for Sensitivity Experiments, C. F. Jeff Wu, (Sept, 1983) 62K05, 62L05.  
AD A134 573
- 2564 On Perturbations of Stability Inequalities with an Application to Finite Difference Approximations of ODE's, R. D. Grigorieff, (Sept, 1983) 65J10, 65L07, 65L10.  
AD A134 535
- 2565 Diffusion on Viscous Fluids, Existence and Asymptotic Properties of Solutions, H. Beirão-da-Veiga, (Sept, 1983) 35K55, 76D99, 76R99, Ann. Scuola Norm. Sup. Pisa 10 (1983), 341-355.  
AD A134 538

- 2566 Homogenization for a Volterra Equation, Hedy Attouch and Alain Damlamian, (Sept, 1983) 45D05, 73K20, 80A20, 45G10, 47H05.  
AD A134 427
- 2567 Morse Type Index Theory for Flows and Periodic Solutions for Hamiltonian Equations, Charles Conley and Eduard Zehnder, (Sept, 1983) 58E05, 70H05, 58F22, 70H25. Comm. Pure Appl. Math. 37 (1984), 207-253.  
AD A134 431
- 2568 A Variational Approach to Superlinear Elliptic Problems, Djairo G. de Figueiredo and Sergio Solimani, (Sept, 1983) 35J65, 47H15, Comm. Partial Differential Equations 9 (1984), 699-717.  
AD A134 541
- 2569 The Birkhoff-Lewis Fixed Point Theorem and a Conjecture of V. I. Arnold, Charles C. Conley and Eduard Zehnder, (Sept, 1983) 58F22, 58C30, 70H15, 70H30, 54H20, Invent. Math. 73 (1983), 33-49.  
AD A134 534
- 2570 Note on Subharmonic Solutions of a Hamiltonian Vector Field, C. Conley and E. Zehnder, (Sept, 1983) 34C25, 58F05, 58F22, 58E05, 49H05, 70H05, 70H30, Physica 124A (1984), 649-658.  
AD A134 537
- 2571 Some Experiences with GASP-like Microcomputer Simulation Languages in FORTRAN, Pascal, and Ada, Arne Thesen and Rekha De Silva, (Sept, 1983) 90-04, 68J99, 68B99.  
AD A134 543
- 2572 Sufficiency of Exact Penalty Minimization, O. L. Mangasarian, (Sept, 1983) 90C30, 90C25, SIAM J. Control Optimization 23 (1985), 30-37.  
AD A134 559
- 2573 Minimal Drag for Wings with Prescribed Lift, Roll Moment and Yaw Moment, Karl L. E. Nickel, (Sept, 1983) 76B05, 39A10, 45E05, 49A34, Proceedings of the German-Italian Symposium "Applications of Mathematics in Technology", V. Boffi and H. Neunzert, eds., B. G. Teubner, Stuttgart (1984), 7-50.  
AD A134 572
- 2574 A Parametric Bootstrap Procedure for Testing Separate Families of Hypotheses, Wei-Yin Loh, (Sept, 1983) 62F03, J. Amer. Statist. Assoc. 80 (1985), 362-368.  
AD A134 533
- 2575 On the Model Equations which Describe Nonlinear Wave Motions in a Rotating Fluid, Jong Uhn Kim, (Sept, 1983) 35Q20, 76B15, 35B10, 35B32, 35B40, Trans. Amer. Math. Soc. 287 (1985), 403-417.  
AD A134 556
- 2576 A Characterization of an Element of Best Simultaneous Approximation, R. W. Owens, (Sept, 1983) 41A28, Numer. Funct. Anal. Optimization 6 (1983), 447-455.  
AD A134 542
- 2577 Periodic Solutions of Lagrangian Systems on a Compact Manifold, Vieri Benci, (Sept, 1983) 70H35, 34C25, 58E05, 58F05, In revised form, J. Differential Equations 63 (1986), 135-161.  
AD A134 557

- 2578 Remarks on the Stability of Viscometric Flow, M. Ahrens, D. D. Joseph, M. Renardy and Y. Renardy, (Oct, 1983) 35M05, 76A10, Rheol. Acta. 23 (1984), 345-354.  
AD A134 571
- 2579 The Number of Solutions of an Equation from Catalysis, S. P. Hastings and J. B. McLeod, (Oct, 1983) 34E99, 80A20, 80A30, - To Appear - Proc. Roy. Soc. Edinburgh Sect. A.  
AD A134 555
- 2580 An Accurate Theory and Simple Fourth Order Governing Equations for Orthotropic Cylindrical Shells, Shun Cheng and F. B. He, (Oct, 1983) 73L10, 73C30, Trans. ASME, J. Appl. Mech. 84-WA/APM-29 (1984), 1-9.  
AD A134 532
- 2581 The Mathematical Structure of Elementary Particles, P. Nowosad, (Oct, 1983) 81B05, 81G25, 81M05, 83C45, 83E05.  
AD A136 295
- 2582 A Singular Free Boundary Problem, Klaus Hollig and John A. Nohel, (Oct, 1983) 35K55, 35K65, 45G05, Proc. Conf. Phys. Math. and Nonlinear PDE, Lecture Notes in Pure and Appl. Math., Vol. 102, Marcel Dekker, Inc. (1985), 85-94.  
AD A136 325
- 2583 Interval Methods for Fixed-Point Problems, L. B. Rall, (Oct, 1983) 47H10, 58C30, 65G10, 65J10, 65R20, Herrn Professor Dr. Karl Nickel zum 60. Geburtstag Gewidmet, Vol. 11, J. Garloff, A. Neumaier, D. Norbert, and A. Schäfer, eds., Inst. Appl. Math., Univ. Freiburg (1984), 335-353; Numer. Funct. Anal. and Optimiz. 9 (1987), 35-59.  
AD A136 323
- 2584 Finite Difference Methods for the Incompressible Navier-Stokes Equations - A Survey, John C. Strikwerda, (Oct, 1983) 65N05, 76D05.  
AD A136 353
- 2585 A Singular Perturbation Analysis of the Fundamental Semiconductor Device Equations, Peter A. Markowich, (Oct, 1983) 78A30, 35J65, 35B25, 35C20, SIAM J. Appl. Math. 44 (1984), 896-928.  
AD A136 322
- 2586 Structure and Stability of Finite Dimensional Approximations for Functional Differential Equations, Dietmar Salamon, (Oct, 1983) 34K99, 65L07, SIAM J. Control & Optimization 23 (1985), 928-951.  
AD A136 324
- 2587 Combined Tension-Torsion of a Cylindrical Mixture of an Elastic Solid and Fluid, Mukesh Gandhi, K. R. Rajagopal and A. S. Wineman, (Oct, 1983) 73C99, - To Appear - J. Elasticity.  
AD A136 351
- 2588 On ARMA Representations for White Noise in a Markovian Environment, Peter W. Glynn, (Oct, 1983) 62M15, 93E03, - Submitted to - J. Time Series Anal.  
AD A136 354
- 2589 Initial Value Problems for Viscoelastic Liquids, M. Renardy, (Nov, 1983) 35A07, 35S10, 45K05, 76A10, Lecture Notes in Physics, 'Trends and Applications of Pure Mathematics to Mechanics', Springer-Verlag, New York 195 (1984), 331-345.  
AD A136 425

- 2590 Using Interval Methods for the Numerical Solution of ODE's, Karl L. E. Nickel, (Nov, 1983) 34A50, 65-04, 65G10, 65L05, Z. Angew. Math. Mech. 66 (1986), 513-523.  
AD A136 373
- 2591 The Cauchy and Born Hypotheses for Crystals, J. L. Ericksen, (Nov, 1983) 73S99, 82A25, 82A60, In 'Phase Transformations and Material Instabilities in Solids', Morton E. Gurtin, ed., Academic Press, NY (1984), 61-77.  
AD A136 374
- 2592 A Unified Approach to ARMA Model Identification and Preliminary Estimation, G. Tunncliffe-Wilson and D. Piccolo, (Nov, 1983) 62M10, 65U05, J. Time Series Anal. 5 (1984), 183-204.  
AD A136 426
- 2593 Natural Constraints in Critical Point Theory and Applications to Periodic Solutions of Natural Hamiltonian Systems, E. W. C. van Groesen, (Nov, 1983) 34C15, 34C25, 58E30.  
AD A136 348
- 2594 Natural Constraints in Critical Point Theory and Applications to Boundary Value Problems on Domains with Rotation Symmetry, E. W. C. van Groesen, (Nov, 1983) 35J20, 35B10, 58E05, 58E30, 34C10, Arch. Math. 44 (1985), 171-179.  
AD A136 404
- 2595 A Nonlinear Eigenvalue Problem Modelling the Avalanche Effect in Semiconductor Diodes, Peter A. Markowich, (Nov, 1983) 34B15, 58C40, 78A25, SIAM J. Math. Anal. 16 (1985), 1268-1283.  
AD A136 368
- 2596 A High-Order Test for Optimality of Bang-Bang Controls, Alberto Bressan, (Nov, 1983) 49B10, 49B27, SIAM J. Control 23 (1985), 38-48.  
AD A136 375
- 2597 Linear Complementarity Problems Solvable by an Efficient Polynomially Bounded Pivoting Algorithm, Jong-Shi Pang, (Nov, 1983) 90C20, 90C33, Math. Programming Study 25 (1985), 13-27.  
AD A136 405
- 2598 Global Existence and Asymptotics in One-Dimensional Nonlinear Viscoelasticity, W. J. Hrusa and J. A. Nohel, (Nov, 1983) 35L70, 45K05, 73F15, Lecture Notes of Physics, 'Trends and Applications of Pure Mathematics to Mechanics', Springer-Verlag, New York 195 (1984), 165-187.  
AD A136 367
- 2599 Numerical Methods for Stiff Two-Point Boundary Value Problems, Heinz-Otto Kreiss, N. K. Nichols and David L. Brown, (Nov, 1983) 65L10, SIAM J. Numer. Anal. 23 (1986), 325-368.  
AD A136 427
- 2600 Stable Convex Sets of Matrices, Shmuel Friedland, (Nov, 1983) 15A60, 39A11, Linear and Multilinear Algebra 16 (1984), 285-294.  
AD A136 659
- 2601 Simplified Confidence Intervals for an Awkward Nonlinear Model, Miriam L. Goldberg, Peter Bloomfield and Margaret F. Fels, (Nov, 1983) 62J02.  
AD A136 403

- 2602 Influence of Surface Tension and Surface Shear on Final Coat Thickness in Jet-Stripped Continuous Coating of Sheet Materials, E. O. Tuck and J.-M. Vanden-Broeck, (Nov, 1983) 76B10, A.I.Ch.E. Journal 30 (1984), 808-811.  
AD A136 402
- 2603 Randomized Estimators for Time Integrals, Peter W. Glynn, (Nov, 1983) 60G57, 68J05, - To Appear - Advances in Appl. Probability.  
AD A137 921
- 2604 Numerical Schemes for a Model for Nonlinear Dispersive Waves, J. L. Bona, W. G. Pritchard, and L. R. Scott, (Nov, 1983) 65M05, J. Comp. Phys. 60 (1985), 167-186.  
AD A137 920
- 2605 Computation of Current-Voltage-Characteristics in a Semiconductor Device Using Arc-Length Continuation, Peter A. Markowich, Christian A. Ringhofer, and Alois Steindl, (Dec, 1983) 35B30, 35P30, IMA J. Appl. Math. 33 (1984), 175-187.  
AD A137 919
- 2606 Numerical Methods for Transient Semiconductor Device Modelling, Christian Ringhofer, (Dec, 1983) 35G25, 35M05, 65M15.  
AD A137 970
- 2607 Comparison of the Dichotomous and Polychotomous Quantal Response Models, Siu-Keung Tse and C. F. Jeff Wu, (Dec, 1983) 62K99, 62N05, 62B15, J. Statist. Planning Inference 14 (1986), 187-202.  
AD A137 938
- 2608 On the Logical Development of Statistical Models, Daniel Pena, (Dec, 1983) 62-03, 01A99, 62A99.  
AD A137 936
- 2609 Some Considerations in Estimating Data Transformations, George E. P. Box and Conrad A. Fung, (Dec, 1983) 62-07, 62A10, 62A15.  
AD A137 960
- 2610 Normal Modes of a Lagrangian System Constrained in a Potential Well, V. Benci, (Dec, 1983) 34C25, 70K99, 58E05, Ann. Inst. Henri Poincare 1 (1984), 379-400.  
AD A137 948
- 2611 Simple Computable Bounds for Solutions of Linear Complementarity Problems and Linear Programs, O. L. Mangasarian, (Nov, 1983) 90C05, 90C20, Math. Programming Study 25 (1985), 1-12.  
AD A137 949
- 2612 The Autocorrelation Function of Seasonal ARMA Models, Daniel Pena, (Dec, 1983) 62M10, J. Time Series Anal. 5 (1984), 269-272.  
AD A137 929
- 2613 Edge Waves by Boundary Collocation, L. Reichel and P. Chapman, (Dec, 1983) 65N25, 65N35, J. Computational Appl. Math. 15 (1986), 59-73.  
AD A137 959

- 2614 The Dirichlet-Neumann Boundary Control Problem Associated with Maxwell's Equations in a Cylindrical Region, D. L. Russell, (Dec, 1983) 93B05, 93C20, 78A25, 35L15, 35L20, - To Appear - SIAM J. Control and Optimization.  
AD A137 937
- 2615 A Topological Version of a Theorem of Mather on Twist Maps, Glen Richard Hall, (Dec. 1983) 58F22, 57M25, Ergod. Th. & Dynam. Sys. 4 (1984), 585-603.  
AD A137 950
- 2616 On the Asymptotics of Maximum Likelihood and Related Estimators Based on Type II Censored Data, Gouri K. Bhattacharyya, (Dec, 1983) Primary 62F12; Secondary 62N05, J. Amer. Statist. Assoc. 80 (1985), 398-404.  
AD A137 958
- 2617 Developments in the Theory of Nonlinear First-Order Partial Differential Equations, Michael G. Crandall and Panagiotis E. Souganidis, (Dec, 1983) 35F20, 35F25, 35D05, 35L60, 35C05, Differential Equations, I. W. Krontos and R. T. Lewis, eds., North Holland Math. Studies 92, North Holland, Amsterdam (1984), 131-143.  
AD A138 020
- 2618 New Exact Solutions in Non-Linear Elasticity, K. R. Rajagopal and A. S. Wineman, (Jan, 1984) 73C99, - To Appear - Internat. J. Engrg. Sci.  
AD A137 928
- 2619 Minimax Methods for Indefinite Functionals, Paul H. Rabinowitz, (Jan, 1984) 35J65, 47H15, 58C30, 58C40, 58E05, Proceedings of Symposia in Pure Mathematics, American Mathematical Society, Providence, RI, 45 (1986), 287-306.  
AD A137 953
- 2620 A Bivariate  $C^2$  Clough-Tocher Scheme, Peter Alfeld, (Jan, 1984) 65D05, 65D07, Computer Aided Geometric Design 1 (1984), 257-267.  
AD A137 930
- 2621 Differential Games, Optimal Control and Directional Derivatives of Viscosity Solutions of Bellman's and Isaacs' Equations, P. L. Lions and P. E. Souganidis, (Jan, 1984) 35F30, 35L60, 90D25, 49C20, SIAM J. Control Optimization 23 (1985), 566-583.  
AD A137 939
- 2622 Two-Fluid Couette Flow Between Concentric Cylinders, Yuriko Renardy and Daniel D. Joseph, (Jan, 1984) 76E05, 76T05, 76U05, J. Fluid Mech. 150 (1985), 381-394.  
AD A137 969
- 2623 A Boundary Modulus of Continuity for a Class of Singular Parabolic Equations, E. DiBenedetto, (Jan, 1984) 35K65, 35R35, 35K55, J. Differential Equations 63 (1986), 418-447.  
AD A138 019
- 2624 The Linear Quadratic Optimal Control Problem for Infinite Dimensional Systems with Unbounded Input and Output Operators, A. J. Pritchard and D. Salamon, (Jan, 1984) 34K35, 93C20, 93C25, 93D15, - To Appear - SIAM J. Control and Optimization.  
AD A139 333
- 2625 Residuals in Nonlinear Regression, R. D. Cook and C. L. Tsai, (Jan, 1984) 62J02, Biometrika 72 (1985), 23-29.  
AD A139 309



- 2626 Exact Boundary Conditions at an Artificial Boundary for Partial Differential Equations in Cylinders, Thomas Hagstrom and H. B. Keller, (Jan, 1984) 35A05, 35A40, 35C20, 65N99, SIAM J. Math. Anal. 17 (1986), 322-341.  
AD A139 310
- 2627 A Finite Difference Study of the Stretching and Break-Up of Filaments of Polymer Solutions, Peter Markowich and Michael Renardy, (Jan, 1984) 65P05, 76A10, J. Non-Newtonian Fluid Mech. 17 (1985), 13-22.  
AD A139 258
- 2628 Uniqueness of Connecting Orbits in the Equation  $Y^{(3)} = Y^2 - 1$ , Christopher K. McCord, (Jan, 1984) 34C99, 34C35, J. Math. Anal. Appl. 114 (1986), 584-592.  
AD A139 261
- 2629 Bootstrap Inference with Stratified Samples, J. N. K. Rao and C. F. J. Wu, (Jan, 1984) 62D05, 62G15, Proceedings of 1984 American Statistical Association Meeting, Section on Survey Research Methods (1985), 106-112.  
AD A139 313
- 2630 Bifurcation and Multiplicity Results for Nonlinear Elliptic Problems Involving Critical Sobolev Exponents, Giovanna Cerami, Donato Fortunato and Michael Struwe, (Jan, 1984) 35A15, 58E99, Ann. Inst. H. Poincaré 1 (1984), 341-350.  
AD A139 332
- 2631 Bubbles Rising in a Tube and Jets Falling from a Nozzle, Jean-Marc Vanden-Broeck, (Jan, 1984) 76B10, Phys. Fluids 27 (1984), 1090-1093.  
AD A139 266
- 2632 On the Equidecomposability of a Regular Triangle and a Square of Equal Areas, D. W. Crowe and I. J. Schoenberg, (Jan, 1984) 51-01, 51N20, Mitteilungen Mathem. Seminar Giessen, Sonderdruck aus Heft 164 (1984), 59-64.  
AD A139 270
- 2633 Remarks on the Ambrosetti-Prodi Problem, D. G. Costa and D. G. de Figueiredo, (Jan, 1984) 35J65, 47H15, Published under title 'Radial Solutions for a Dirichlet Problem in a Ball', J. Differential Equations 60 (1985), 80-89.  
AD A139 237
- 2634 The Stability of Inviscid Vortex Streets of Finite Cored Vortices, D. I. Meiron, P. G. Saffman and J. C. Schatzman, (Jan, 1984) 76C05, 76E99, J. Fluid Mech. 147 (1984), 187-212.  
AD A139 311
- 2635 On the Taylor Approximation of Control Systems, Alberto Bressan, (Jan, 1984) 93C10, 49E15.  
AD A139 255
- 2636 The Dirichlet Problem for Harmonic Maps from the Disk into the Euclidean n-Sphere, V. Benci and J. M. Coron, (Jan, 1984) 35J65, 58E12, Ann. Inst. Henri Poincaré 2 (1985), 119-141.  
AD A139 259

- 2637 On Small Period, Large Amplitude Normal Modes of Natural Hamiltonian Systems, E. W. C. van Groesen, (Jan, 1984) 34C15, 34C25, 58E30, Nonlinear Analysis, Theory, Methods & Applications 10 (1986), 41-53.  
AD A139 314
- 2638 Estimating Time Averages Via Randomly-Spaced Observations, Bennett L. Fox and Peter W. Glynn, (Jan, 1984) 62M15, 65C05, 68J05, 60G55, - To Appear - SIAM J. Appl. Math.  
AD A139 315
- 2639 Experimental Design: Review and Comment, David M. Steinberg and William G. Hunter, (Feb, 1984) 62Kxx, 62K05, 62K10, 62K15, Technometrics 26 (1984), 71-130.  
AD A139 268
- 2640 Local Asymptotic Approximation of Nonlinear Control Systems, Alberto Bressan, (Feb, 1984) 93B10, 93C10, Internat. J. Control 41 (1985), 1331-1336.  
AD A139 260
- 2641 Multivariate Perpendicular Interpolation, Peter Alfeld, (Feb, 1984) 65D05, SIAM J. Numer. Anal. 22 (1985), 95-106.  
AD A139 254
- 2642 On the Almost Periodicity of the Solutions of an Integrodifferential Equation, Olof J. Staffans, (Feb, 1984) 45J05, 45A05, 45E10, 42A75, J. Integral Equations 8 (1985), 249-260.  
AD A139 312
- 2643 Hydrodynamic Interactions Between Particles in Low-Reynolds-Number Flow: A Modular Approach, Sangtae Kim, (Feb, 1984) 76D05, 35Q10, Published under title 'A Note on Faxen Laws for Nonspherical Particles', Int. J. Multiphase Flow 11 (1985), 713-719.  
AD A139 269
- 2644 An Introduction to the Scientific Computing Language Pascal-SC, L. B. Rall, (Feb, 1984) 68-02, 65-04, Transactions of the Second Army Conference on Applied Mathematics and Computing, U. S. Army Research Office, Research Triangle Park, NC (1985), 117-148.  
AD A139 316
- 2645 Bias in Nonlinear Regression, R. D. Cook, C. L. Tsai, and B. C. Wei, (Feb, 1984) 62J02, Biometrika 73 (1986), 615-624.  
AD A139 239
- 2646 The Numerical Calculation of Traveling Wave Solutions of Nonlinear Parabolic Equations on the Line, Thomas Hagstrom and H. B. Keller, (Feb, 1984) 65M99, 35K15, - To Appear - SIAM J. Sci. Statist. Comp.  
AD A139 238
- 2647 On a Theorem of Szegö on Univalent Convex Maps of the Unit Circle, I. J. Schoenberg, (Feb, 1984) 30C20, 52A10, (with A. W. Goodman) J. Analyse Math. 44 (1984/85), 200-204.  
AD A139 256
- 2648 A Note on Equality in Anderson's Theorem, Andrew P. Soms, (Feb, 1984) 60E15, 62H99.  
AD A141 509

- 2649 Remarks on the Flow Between Two Parallel Rotating Plates, Seymour V. Parter and K. R. Rajagopal, (Feb, 1984) 34B15, 34D10, 76D05, Arch. Rational Mech. Anal. 86 (1984), 305-315.  
AD A141 582
- 2650 Use of Simultaneous Autoregressive Models in Balanced Incomplete Block and Lattice Square Designs, N. R. Draper and D. Faraggi, (Feb, 1984) 62K10.  
AD A141 661
- 2651 A Direct Approach to the Villarceau Circles of a Torus, I. J. Schoenberg, (Mar, 1984) 51-01, 01A55, - To Appear - J. Simon Stevin, Gent, Belgium.  
AD A141 653
- 2652 Global Existence of Classical Solutions to the Equations of Motion for Materials with Fading Memory, William J. Hrusa, (Feb, 1984) 35L70, 34K99, 73B20, 73F15, 'Physical Mathematics and Nonlinear Partial Differential Equations', James H. Lightbourne, III and Samuel M. Rankin, III, eds., Marcel Dekker, New York (1985), 97-110.  
AD A141 607
- 2653 A Maximum Principle for an Elliptic System and Applications to Semilinear Problems, Djairo G. de Figueiredo and Enzo Mitidieri, (Mar, 1984) 35J65, 35J50, 47H15, SIAM J. Math. Anal. 17 (1986), 836-849.  
AD A141 600
- 2654 Asymptotic Estimates for Resolvents of Some Nonintegrable Volterra Kernels, Stig-Olof Londen, (Mar, 1984) 45D05, 45M05, 42A38, Published under title 'On Some Nonintegrable Volterra Kernels with Integrable Resolvents Including Some Applications to Riesz Potentials', J. Integral Equations 10 (1985), 241-289.  
AD A141 662
- 2655 Closed Geodesics for the Jacobi Metric and Periodic Solutions of Prescribed Energy of Natural Hamiltonian Systems, V. Benci, (Mar, 1984) 58E10, 58F22, 70J10, 34C25, Ann. Inst. Henri Poincaré 1 (1984), 401-412.  
AD A141 654
- 2656 A Free Boundary Problem for Degenerate Quasilinear Parabolic Equations, Zhuoqun Wu, (Mar, 1984) 35K60, 35K65, Nonlinear Analysis, Theory, Methods & Applications 9 (1985), 937-951.  
AD A141 608
- 2657 Hyperbolicity and Change of Type in the Flow of Viscoelastic Fluids, Daniel D. Joseph, Michael Renardy and Jean-Claude Saut, (Mar, 1984) 35A30, 35F05, 35M05, 47F05, 76A10, Arch. Rational Mech. Anal. 87 (1985), 213-251.  
AD A141 508
- 2658 The Cauchy Problem in One-Dimensional Nonlinear Viscoelasticity, W. J. Hrusa and J. A. Nohel, (Mar, 1984) 35L70, 45K05, 73F15, J. Differential Equations 59 (1985), 388-412.  
AD A141 507
- 2659 Stochastic Models for Common Failures of Components, Bernard Harris, (Mar, 1984) 62N05, 60K10, 90B25, Reliability and Quality Control, A. P. Basu, ed., Elsevier Science Publishers B.V., North-Holland (1986), 185-200.  
AD A141 490

- 2660 On Pairs of Positive Solutions for a Class of Semilinear Elliptic Problems, Djairo G. de Figueiredo and Pierre-Louis Lions, (Mar, 1984) 35J20, 35J25, 47H15, Indiana Univ. Math. J. 34 (1985), 591-606.  
AD A141 504
- 2661 On the Range of a Regenerative Sequence, Peter W. Glynn, (Mar, 1984) 60K05, 60J27 60F15, - To Appear - Stochastic Processes Appl.  
AD A141 652
- 2662 Multiple Limit Point Bifurcation for Fredholm Operators of Non-Zero Index, R. R. Huilgol, (Mar, 1984) 58E07, 76A05, J. Appl. Math. Phys. (ZAMP) 35 (1984), 825-832.  
AD A141 660
- 2663 Note on the Displacement Effect in a Spinning Fluid, R. E. Meyer, (Mar, 1984) 76-02, 76U05, 76D10.  
AD A141 599
- 2664 Directional Convexity and Finite Optimality Conditions, Alberto Bressan, (Mar, 1984) 49E15, 58E25, 93C10, J. Math. Anal. Appl. (1987).  
AD A141 698
- 2665 Simple Bounds for Solutions of Monotone Complementarity Problems and Convex Programs, O. L. Mangasarian and L. McLinden, (Mar, 1984) 90C30, 90C25, Math. Programming 32 (1985), 32-40.  
AD A141 699
- 2666 Dynamic Changes of Phase in a van der Waals Fluid, R. Hagan and J. Serrin, (Apr, 1984) 80A10, 76T05, 76N99, 35B99, 35M05, 35L65, 35L67, In 'New Perspectives in Thermodynamics', J. Serrin, ed., Springer-Verlag, Heidelberg (1986), 240-260.  
AD A141 708
- 2667 On a Class of Quasilinear Partial Integrodifferential Equations with Singular Kernels, W. J. Hrusa and Michael Renardy, (Apr, 1984) 35L15, 45E10, 45K05, 73F15, 76A10, J. Differential Equations 64 (1986), 195-220.  
AD A141 700
- 2668 Morse Theory for Symmetric Functionals on the Sphere and an Application to a Bifurcation Problem, Vieri Benci and Filomena Pacella, (Apr, 1984) 35A15, 35B32, 58E05, 57S17, Nonlinear Analysis, Theory, Methods & Applications 9 (1985), 763-773.  
AD A141 709
- 2669 The Effect of Aggregation in Nonlinear Regression, Miriam L. Goldberg, (Apr, 1984) 62J02, 62P99.  
AD A141 728
- 2670 Analysis of an Integration Method for Rapidly Oscillating Integrands, D. Levin, L. Reichel and C. Ringhofer, (Apr, 1984) 65D32.  
AD A141 731
- 2671 Local Linear Independence of the Translates of a Box Spline, Rong-Qing Jia, (May, 1984) 41A15, 41A63, 15A03, Constr. Approx. 1 (1985), 175-182.  
AD A141 749

- 2672 Two-Step Sequential Reactions for Large Activation Energies - Revisited, H. V. McConnaughey and G. S. S. Ludford, (Apr, 1984) 80A25, 34E05, Combustion and Flame 60 (1985), 239-244.  
AD A141 750
- 2673 A Remark on Semilinear Perturbations of Abstract Parabolic Equations, Michael G. Crandall, (Apr, 1984) 35K15, 34G20, 47H20, 35K30, Nonlinear Analysis, Theory, Methods & Applications 9 (1985), 1331-1335.  
AD A141 695
- 2674 Estimation of the Generalized Extreme-Value Distribution by the Method of Probability Weighted Moments, J. R. M. Hosking, J. R. Wallis and E. F. Wood, (Apr, 1984) 62F10, 62G30, Technometrics 27 (1985), 251-261.  
AD A141 696
- 2675 Jackknife and Bootstrap Inference in Regression and a Class of Representations for the LSE, C. F. Jeff Wu, (Apr, 1984) 62J05, 62J02, 62G15, Ann. Statist. 14 (1986), 1261-1350.  
AD A141 505
- 2676 Gwilym Jenkins, Experimental Design and Time Series, George E. P. Box, (Apr, 1984) 62M10, Questio 7 (1983), 515-525.  
AD A141 506
- 2677 A Geometric Proof of Total Positivity for Spline Interpolation, C. de Boor and R. DeVore, (Apr, 1984) 41A15, 41A05, 15A48, Math. Comp. 45 (1985), 497-504.  
AD A141 606
- 2678  $L^\infty$  Stability of an Exponentially Decreasing Solution of the Problem  $\Delta u + f(x,u) = 0$  in  $R^n$ , Hiroshi Matano, (Apr, 1984) 35K55, 35B35, 35J60, Japan J. Appl. Math. 2 (1985), 85-110.  
AD A141 601
- 2679 Wave-Less Free-Surface Pressure Distributions, J.-M. Vanden-Broeck and E. O. Tuck, (Apr, 1984) 76B20, J. Ship Res. 29 (1985), 151-158.  
AD A141 630
- 2680 Spline Approximation for Retarded Systems and the Riccati Equation, F. Kappel and D. Salamon, (Apr, 1984) 34K35, 41A15, 93D15, - Submitted to - SIAM J. Control and Optimization.  
AD A142 963
- 2681 Oscillatory Instability in a Two-Fluid Bénard Problem, Yuriko Renardy and Daniel D. Joseph, (Apr, 1984) 76E15, 76E20, 76T05, 76V05, Phys. Fluids 28 (1985), 788-793.  
AD A142 792
- 2682 Bayesian Models for Response Surfaces I: The Equivalence of Several Models and Their Relationship to Smoothing Splines, David M. Steinberg, (Apr, 1984) 62F15, 62J05.  
AD A142 843
- 2683 Bayesian Models for Response Surfaces II: Estimating the Response Surface, David M. Steinberg, (Apr, 1984) 62F15, 62J05.  
AD A142 768

- 2684 Finite Dimensional Compensators for Infinite Dimensional Systems with Unbounded Control Action, R. F. Curtain and D. Salamon, (May, 1984) 34K20, 93C15, 93C25, 93D15, - To Appear - SIAM J. Control and Optimization.  
AD A142 808
- 2685 Equitable Assignment Rules, P. Glynn and J. L. Sanders, (May, 1984) 49C20, 60K10, 93E20, - To Appear - Operations Res.  
AD A142 809
- 2686 Convergence of Bivariate Cardinal Interpolation, Carl de Boor, Klaus Hollig and Sherman Riemenschneider, (May, 1984) 41A05, 41A15, 41A63, Constr. Approx. 1 (1985), 183-193.  
AD A142 894
- 2687 On the Behavior Near the Crest of Waves of Extreme Form, C. J. Amick and L. E. Fraenkel, (May, 1984) 76B15, 45G05, Trans. Amer. Math. Soc. 299 (1987), 273-298.  
AD A142 892
- 2688 The Arithmetic of Differentiation, L. B. Rall, (May, 1984) 26-01, 26-04, 26A06, 65H05, 68B99, Math. Mag. 59 (1986), 275-282.  
AD A142 964
- 2689 Hopf Bifurcation in Two-Component Flow, M. Renardy and D. D. Joseph, (May, 1984) 35B32, 35Q10, 76E05, 76V05, SIAM J. Math. Anal. 17 (1986), 894-910.  
AD A142 844
- 2690 Numerical Solution of Viscoplastic Flow Problems by Augmented Lagrangians, Patrick Le Tallec, (May, 1984) 65K10, 65N30, 73F05, 76A05, IMA J. Numer. Anal. 6 (1986), 185-219.  
AD A142 793
- 2691 Weighted Inequalities and Degenerate Elliptic Partial Differential Equations, E. W. Stredulinsky, (May, 1984) 35J70, Lecture Notes in Mathematics, A. Dold and B. Eckmann, eds., Springer-Verlag 1074 (1984), 1-143.  
AD A142 895
- 2692 Efficient Sequential Designs with Binary Data, C. F. Jeff Wu, (May 1984) 62K05, 62L05, J. Amer. Statist. Assoc. 80 (1985), 974-984.  
AD A142 904
- 2693 A Study of the Drawing Process for Optical Fibers, John C. Strikwerda, (May, 1984) 80A20, 76D30.  
AD A142 930
- 2694 Assessment of Local Influence, R. Dennis Cook, (May, 1984) 62-07, J. Roy. Statist. Soc. 48 (1986), 133-169.  
AD A143 002
- 2695 Statistical Inference for Reliability from Stress Strength Relationships: The Normal Case, Benjamin Reiser and Irwin Guttman, (May, 1984) 62F10, 62F15, 62N05, Published in two parts, Part I - 'Statistical Inference for  $Pr(Y < X)$ : The Normal Case', Technometrics 28 (1986), 253-258; Part II - 'Estimation of  $P(Y < X)$  for Normal Theory', Comp. Statist. & Data Anal. (1987).  
AD A142 893

- 2696 On the Controlled Approximation Order from Certain Spaces of Smooth Bivariate Splines, Rong-Qing Jia, (May, 1984) 41A15, 41A63, 41A25, - Submitted to - Sci. Sinica.  
AD A142 868
- 2697 Global Solutions for the One-Dimensional Equations of a Viscous Reactive Gas, Alberto Bressan, (May, 1984) 35K55, 35M05, 76N15, Boll. Un. Mat. Ital. 5-B (1986), 291-308.  
AD A142 931
- 2698 Role of the Papadakis Estimator in One- and Two-Dimensional Field Trials, N. R. Draper and D. Faraggi, (May, 1984) 62K10, Biometrika 72 (1985), 223-226.  
AD A142 906
- 2699 Globally Convergent Procedures for Solving Nonlinear Minimization Problems, Alexander Eydeland, (May 1984) 49D37, 65K05.  
AD A142 905
- 2700 A Perturbation Solution for Rigid Dumbbell Suspensions in Steady Shear Flow, Sangtae Kim and Xijun Fan, (June, 1984) 76A05, 35L65, J. Rheology 28 (1984), 117-122.  
AD A144 876
- 2701 MICROSCOPE: A Software System for Multivariate Analysis, Peter Alfeld and Bill Harris, (June, 1984) 65D05.  
AD A144 720
- 2702 A Trivariate Clough-Tocher Scheme for Tetrahedral Data, Peter Alfeld, (June, 1984) 65D05, Computer Aided Geometric Design 1 (1984), 169-181.  
AD A144 740
- 2703 Multivariate Scattered Data Derivative Generation by Functional Minimization, Peter Alfeld, (June, 1984) 65D05, Published under title 'Derivative Generation from Multivariate Scattered Data by Functional Minimization', Computer Aided Geometric Design 2 (1985), 281-296.  
AD A144 663
- 2704 Partitions of Unity and Approximation, C. de Boor and R. DeVore, (June, 1984) 41A15, 41A25, Proc. Amer. Math. Soc. 93 (1985), 705-709.  
AD A144 717
- 2705 Rising Bubbles in a Two-Dimensional Tube with Surface Tension, Jean-Marc Vanden-Broeck, (June, 1984) 76B10, Phys. Fluids 27 (1984), 2604-2607.  
AD A144 693
- 2706 Splashless Bow Flows in Two Dimensions, E. O. Tuck and J.-M. Vanden-Broeck, (June, 1984) 76B20, Proc. 15th Symp. on Naval Hydrodynamics, Hamburg, Germany (1984), 293-301.  
AD A144 741
- 2707 Triangular Extrapolation, Peter Alfeld, (June, 1984) 65D05.  
AD A144 660
- 2708 Quasistable Parametric Optimization without Compact Level Sets, L. McLinden, (June 1984) Primary: 49-00, 49A27, 49B27; Secondary: 65K10, 90C25, 90D05.  
AD A144 716

- 2709 Birkhoff Orbits for Non-Monotone Twist Maps, Glen Richard Hall, (June, 1984) 58F22, 57M25.  
AD A144 718
- 2710 The Generic Local Time-Optimal Stabilizing Controls in Dimension 3, Alberto Bressan, (July, 1984) 49B10, 93C10, SIAM J. Control and Optimization 24 (1986), 177-190.  
AD A144 662
- 2711 Convergence of Difference Approximations of Quasilinear Evolution Equations, Michael G. Crandall and Panagiotis E. Souganidis, (July 1984) 35G20, 47H20, 47H06, Nonlinear Analysis, Theory, Methods & Applications 10 (1986), 425-445.  
AD A144 694
- 2712 Numerical Solutions for Cavitating Flow of a Fluid with Surface Tension Past a Curved Obstacle, Jean-Marc Vanden-Broeck, (July, 1984) 76B10, Phys. Fluids 27 (1984), 2601-2603.  
AD A144 695
- 2713 On Wave Propagation in Linear Viscoelasticity, W. J. Hrusa and M. Renardy, (July, 1984) 35A22, 35L67, 35R05, 35S10, 45K05, 73D10, 73F99, 76A10, Quart. Appl. Math. 43 (1985), 237-253.  
AD A144 739
- 2714 Some Families of Near-Orthonormal Analytic and Harmonic Functions, Lothar Reichel, (July, 1984) 65E05, 30E10, - Submitted.  
AD A144 722
- 2715 Non-Existence of Global Solutions of  $\frac{\partial}{\partial t} F(u_t)$  in Two and Three Space Dimensions, Fritz John, (July, 1984) 35L67, 35L70, 73C50, Atti del Convegno Celebrativo del 1° Centenario del Circolo Matematico di Palermo, Suppl. Rend. Circ. Mat. Palermo, Serie II, numero 8 (1985), 229-249.  
AD A144 692
- 2716 The Rate of Convergence of a Class of Block Jacobi Schemes, Warren E. Ferguson, Jr., (July, 1984) 65F10, SIAM J. Numer. Anal. 23 (1986), 297-303.  
AD A144 738
- 2717 Morse Theory for Flows in Presence of a Symmetry Group, Filomena Pacella, (July, 1984) 20J06, 55N25, 57R70, 57S10, 58F25.  
AD A144 661
- 2718 Influential Observation in Time Series, Daniel Pena, (July, 1984) 62M10, 62F35, 62-07, - Submitted to - J. Roy. Statist. Soc.  
AD A144 719
- 2719 On Existence and Uniqueness of Solutions of Hamilton-Jacobi Equations, Michael G. Crandall and Pierre-Louis Lions, (July, 1984) 35F20, 35F25, 35L60, Nonlinear Analysis, Theory, Methods & Applications 10 (1986), 353-370.  
AD A147 597
- 2720 Some Applications of Penalty Functions in Mathematical Programming, O. L. Mangasarian, (July, 1984) 90C30, 90C25, 90C05, Lecture Notes in Mathematics No. 1190, 'Optimization and Related Fields', R. Conti, E. De Giorgi and F. Giannessi, eds., Springer-Verlag, Berlin (1986), 307-329.  
AD A147 443



- 2721 Model Robust Response Surface Designs: Scaling Two-Level Factorials, David Steinberg, (July 1984) 62F15, 62K15, *Biometrika* 72 (1985), 513-526.  
AD A147 494
- 2722 A Factor Analysis for Time Series, Daniel Pena and George E. P. Box, (July, 1984) 62M10, 62H25, 60G35, *J. Amer. Statist. Assoc.*, June (1987).  
AD A147 495
- 2723 Viscosity Solutions of Hamilton-Jacobi Equations at the Boundary, Michael G. Crandall and Richard Newcomb, (July, 1984) 35D99, 35F30, *Proc. Amer. Math. Soc.* 94 (1985), 283-290.  
AD A147 444
- 2724 Nonlinear Semigroups and Evolution Governed by Accretive Operators, Michael G. Crandall, (Aug, 1984) 47H07, 47H09, 47H15, 35-02, 39-02, *Proceedings of Symposia in Pure Mathematics*, F. Browder, ed., American Mathematical Society, Providence, RI, 45 (1986), 305-337.  
AD A147 556
- 2725 An Asymptotic Analysis of a Transient p-n Junction Model, Christian Ringhofer, (Aug, 1984) 35G25, 35M05, 65M15, - To Appear - *SIAM J. Appl. Math.*  
AD A147 270
- 2726 The Theory of Optimal Confidence Limits for Systems Reliability with Counterexamples for Results on Optimal Confidence Limits for Series Systems, Bernard Harris and Andrew P. Soms, (Aug, 1984) 62N05, 90B25.  
AD A147 236
- 2727 Asymptotic Behaviour of the Plasma Equation, Y. C. Kwong, (Aug, 1984) 35K15, 35K20, 35K55, 35K65.  
AD A147 242
- 2728 Self Similar Solutions for a Degenerate Cauchy Problem, Klaus Hollig and John A. Nohel, (Aug, 1984) 35K55, 34B30, 35R35, *Proc. 2nd Army Conf. on Applied Mathematics and Computing*, ARO Report 85-1 (1985), 177-183.  
AD A147 241
- 2729 Response Surface Designs, Norman R. Draper, (Aug, 1984) 62K10, 62K15, 62K99, 62J05, *Encyclopedia of Statistical Sciences*, S. Kotz, N. L. Johnson and C. B. Read, eds., John Wiley and Sons, Inc., Vol. 7. (1987).  
AD A147 202
- 2730 Existence of Slow Steady Flows of Viscoelastic Fluids with Differential Constitutive Equations, Michael Renardy, (Aug, 1984) 35M05, 35Q99, 76A10, *Z. Angew. Math. Mech.* 65 (1985), 449-451.  
AD A147 240
- 2731 On the Asymptotic Analysis of Travelling Shocks and Phase Boundaries in Elastic Bars, Thomas J. Pence, (Aug, 1984) 35M05, 35L67, 73D99, 35L65, 41A60, 39B30, *Transactions of the Second Army Conference on Applied Mathematics and Computing*, May 1984, ARO Report 85-1, 859-874.  
AD A147 239
- 2732 The Lindstrom-Madden Method for Series Systems with Repeated Components, Andrew P. Soms, (Aug, 1984) 62N05, 90B25.  
AD A147 238

- 2733 A Dual Quadratic Programming Algorithm, Klaus Ritter, (Aug, 1984) 90C20, 90C25, in 'Operations Research and Economic Theory', H. Hauptmann, W. Krelle and K. C. Mosler, eds., Springer-Verlag, Berlin (1984), 345-363.  
AD A147 237
- 2734 Stable Monotone Variational Inequalities, L. McLinden, (Aug, 1984) 47H05, 49A29, 90C33, 90C05.  
AD A147 123
- 2735 The Resistance and Mobility Functions of Two Equal Spheres in Low Reynolds Number Flow, Sangtae Kim and Richard T. Mifflin, (Aug, 1984) 76D05, 35Q10, Phys. Fluids 28 (1985), 2033-2045.  
AD A147 301
- 2736 An Invariant Measure for the Equation  $u_{tt} - u_{xx} + u^3 = 0$ , L. Friedlander, (Aug, 1984) 35L70, 28D05, 58F11, Comm. Math. Phys. 98 (1985), 1-16.  
AD A147 300
- 2737 An Iterative Scheme for Linear Complementarity Problems, Tzong-Huei Shih, (Aug, 1984) 65K05, 90C33.  
AD A147 464
- 2738 Belief Structures, Michael Goldstein, (Aug, 1984) 62A15.  
AD A147 526
- 2739 Sedimentation of Two Arbitrarily Oriented Spheroids in a Viscous Fluid, Sangtae Kim, (Aug, 1984) 76D05, 35Q10, Int. J. Multiphase Flow 11 (1985), 699-712.  
AD A147 303
- 2740 Stability of Rigid Motions and Rollers in Bicomponent Flows of Immiscible Liquids, Daniel D. Joseph, Y. Renardy, M. Renardy, and K. Nguyen, (Aug, 1984) 76E99, 76T05, 76U05, J. Fluid Mech. 153 (1985), 151-165.  
AD A147 302
- 2741 Splitting Methods for the Numerical Solution of the Incompressible Navier-Stokes Equations, R. Glowinski, (Aug, 1984) 65P05, 76D05.  
AD A147 463
- 2742 Regularity of the Free Boundary for the Porous Medium Equation, K. Hollig and M. Pilant, (Sept, 1984) 35K55, 35R35, - To Appear - Indiana J. Math.  
AD A147 299
- 2743 A Counterexample to a Result of Strang and Fix Concerning Controlled Approximation, Rong-Qing Jia, (Sept, 1984) 41A25, 41A15, 41A63, 65N30, Proc. Amer. Math. Soc. 97 (1986), 647-654.  
AD A147 360
- 2744 The Stable Evaluation of Multivariate B-Splines, Thomas A. Grandine, (Sept, 1984) 41A15, 65D07.  
AD A147 386
- 2745 On the Local Behaviour of Solutions of Degenerate Parabolic Equations with Measurable Coefficients, E. DiBenedetto, (Sept, 1984) 35K65, 35K55, 35K10, 35D10, 35B65, Ann. Scuola Norm. Sup. Pisa. (1987).  
AD A147 412

- 2746 Analyzing Two-Level Fractional Factorial Experiments for Possible Dispersion Effects, George E. P. Box and R. Daniel Meyer, (Sept, 1984) 62K15, Revised title 'Studies in Quality Improvement. 1: Dispersion Effects from Fractional Designs', Technometrics 28 (1986), 11-18.  
AD A149 455
- 2747 Local Behavior of Solutions of an Elliptic-Parabolic Equation, Emmanuele DiBenedetto and Ronald Garlepy, (Sept, 1984) 35K10, 35K55, 35K65, Arch. Rational Mech. Anal. (1987).  
AD A149 624
- 2748 Periodic Solutions of Prescribed Energy for a Class of Hamiltonian Systems, Vieri Benci and Paul H. Rabinowitz, (Sept, 1984) 34C15, 34C25.  
AD A149 487
- 2749 Approximation Order from Certain Spaces of Smooth Bivariate Splines on a Three-Direction Mesh, Rong-Qing Jia, (Sept, 1984) 41A15, 41A63, 41A25, Trans. Amer. Math. Soc. 295 (1986), 199-212.  
AD A149 633
- 2750 A New Method of Approximating Normal and t-Tail Areas, Andrew P. Soms, (Sept, 1984) 62Q05.  
AD A149 457
- 2751 The Likelihood Displacement: A Unifying Principle for Influence Measures, R. Dennis Cook, Daniel Pena and Sanford Welsberg, (Sept, 1984) 62J05, 62F35, 62J99.  
AD A149 456
- 2752 Asymptotic Distributions of the Sample Mean, Autocovariances and Autocorrelations of Long-Memory Time Series, J. R. M. Hosking, (Sept, 1984) 62E20, 62M10.  
AD A149 409
- 2753 Connected Simple Systems and the Conley Index of Isolated Invariant Sets, Dietmar Salamon, (Sept, 1984) 58F12, 58F25, 58F30, 58F35, 34C35, Trans. Amer. Math. Soc. 291 (1985), 1-41.  
AD A149 383
- 2754 Numerical Solution of Semi-Linear Elliptic Problems on Unbounded Domains, Thomas M. Hagstrom and H. B. Keller, (Sept, 1984) 35J25, 65N99, - To Appear - Math. Comp.  
AD A149 559
- 2755 Single Integral Constitutive Equations for Viscoelastic Fluids, Poul Bach and Ole Hassager, (Sept, 1984) 65D99, 76A10, 73G10.  
AD A149 410
- 2756 Some Qualitative Properties of Bivariate Euler-Frobenius Polynomials, Carl de Boor, Klaus Hollig and Sherman Riemenschneider, (Oct, 1984) 41A15, 41A63, - To Appear - J. Approximation Theory.  
AD A149 408
- 2757 On the Spans of Polynomials and the Spans of a Laguerre-Polya-Schur Sequence of Polynomials, I. J. Schoenberg, (Oct, 1984) 12D10, 30D15.  
AD A149 384

- 2758 Estimation of Variance of the Regression Estimator, Lih-Yuan Deng and C. F. Jeff Wu, (Oct, 1984) 62D05, J. Amer. Statist. Assoc., June (1987).  
AD A149 407
- 2759 Symmetry Breaking for a Class of Semi-Linear Elliptic Problems, Cleonora Canani, (Oct, 1984) 58E07, 47H15, 35J25, 35B32, Nonlinear Analysis, Theory, Methods & Applications 10 (1986), 1-14.  
AD A149 093
- 2760 A Remark on Regularization in Hilbert Spaces, J. M. Lasry and P. L. Lions, (Oct, 1984) 41A65, Israel J. Math. (1987).  
AD A149 046
- 2761 Neumann Type Boundary Conditions for Hamilton-Jacobi Equations, P. L. Lions, (Oct, 1984) 35F30, 49C99, Duke Math. J. 52 (1985), 793-820.  
AD A149 069
- 2762 A Note on the Disturbance Decoupling Problem for Retarded Systems, Ruth F. Curtain and Dietmar Salamon, (Oct, 1984) 34K35, 93C25, Systems and Control Letters 5 (1985), 335-338.  
AD A149 045
- 2763 Controlled Approximation and a Characterization of the Local Approximation Order, C. de Boor and R.-Q. Jia, (Oct, 1984) 41A25, 41A15, 41A63, 65N30, Proc. Amer. Math. Soc. 95 (1985), 47-553.  
AD A149 095
- 2764 A New Approach to "Queer" Differential Equations, Peter Laurence and Edward W. Stredulinsky, (Oct, 1984) 35J20, Comm. Pure Appl. Math. 38 (1985), 333-355.  
AD A149 231
- 2765 Regenerative Structure of Markov Chains Simulated via Common Random Numbers, Peter W. Glynn, (Oct, 1984) 65C05, 60K05, 60J05, - To Appear - Operations Res. Letters.  
AD A149 092
- 2766 Robust Kalman Filtering and its Applications, Irwin Guttman and Daniel Pena, (Oct, 1984) 62M20, 60G35, 62F35, (In revised form) - Submitted to - J. Amer. Statist. Assoc.  
AD A149 044
- 2767 On Interacting Populations that Disperse to Avoid Crowding: Preservation of Segregation, M. Bertsch, M. E. Gurtin, D. Hilhorst, and L. A. Peletier, (Nov, 1984) 65P05, 92A15, J. Math. Biology 23 (1985), 1-13.  
AD A149 230
- 2768 A Method on Calculating Periodic Solutions of Second Order Dynamical Systems, A. Eydeland, (Nov, 1984) 65K10, 34C15, 34C25.  
AD A149 634
- 2769 Hamilton-Jacobi Equations in Infinite Dimensions, Part I: Uniqueness of Viscosity Solutions, Michael G. Crandall and Pierre-Louis Lions, (Nov, 1984) 35F30, 49C99, J. Functional Analysis 62 (1985), 379-396.  
AD A149 094

- 2770 Recent Developments and Open Problems in the Mathematical Theory of Viscoelasticity, Michael Renardy, (Nov, 1984) 35K15, 35K20, 35K55, 35L15, 35L67, 35L70, 35M05, 35S10, 45K05, 76A10, In 'Viscoelasticity and Rheology', A. S. Lodge, M. Renardy and J. A. Nohel, eds., Academic Press, New York (1985), 345-360.  
AD A149 043
- 2771 Frequency/Period Estimation and Adaptive Rejection of Periodic Disturbances, D. L. Russell, (Nov, 1984) 93B30, 93B40, 93C40, 45A05, 45D05, - To Appear - SIAM J. Control and Optimization.  
AD A149 229
- 2772 Asymptotic Representation of Solutions of the Basic Semiconductor Device Equations, Peter A. Markowich and Christian Schmeiser, (Nov, 1984) 34B15, 34D15, 34E05, 78A35, IMA J. Appl. Math. 36 (1986), 43-57.  
AD A149 040
- 2773 On the Quadratic Mean Radius of a Polynomial in  $C[z]$ , I. J. Schoenberg, (Nov, 1984) 30C10, 30C15, Published under title 'A Conjectured Analogue of Rolle's Theorem for Polynomials with Real or Complex Coefficients', Amer. Math. Monthly 93 (1986), 8-13.  
AD A149 189
- 2774 Recent Research in Experimental Design for Quality Improvement with Applications to Logistics, George E. P. Box, (Nov, 1984) 62K15, Proceedings of Design of Experiments Conference (1985).  
AD A149 190
- 2775 Perturbation of a Multiple Eigenvalue in the Bénard Problem for Two Fluid Layers, Yuriko Renardy and Michael Renardy, (Dec, 1984) 76E15, 76E20, 76T05, 76V05, Published under title 'Perturbation Analysis of Steady and Oscillatory Onset in a Bénard Problem with Two Similar Liquids', Phys. Fluids 28 (1985), 2699-2707.  
AD A149 068
- 2776 A Quadratic Programming Algorithm, M. J. Best and K. Ritter, (Dec, 1984) 90C20, 90C25, - Submitted to - Math. Programming.  
AD A153 476
- 2777 Sensitivity Analysis of Initial Value Problems with Mixed ODE's and Algebraic Equations, Makis Caracotsios and Warren E. Stewart, (Dec, 1984) 34-04, 65L05, 65H10, Comput. Chem. Engrg. 9 (1985), 359-365.  
AD A153 528
- 2778 Finding the Largest  $\ell^p$ -Ball in a Polyhedral Set, Tzong-Huei Shiau, (Dec, 1984) 90C05, 90C50.  
AD A153 542
- 2779 Linear Models for Field Trials, Smoothing, and Cross-Validation, Peter J. Green, (Dec, 1984) 62G05, 62J07, 62P10, Biometrika 72 (1985), 527-537.  
AD A153 522
- 2780 A Variable-Complexity Norm Maximization Problem, O. L. Mangasarian and T.-H. Shiau, (Jan, 1985) 03D15, 90C05, 90C30, SIAM J. Alg. Disc. Meth. 7 (1986), 455-461.  
AD A153 514

- 2781 Computable Numerical Bounds for Lagrange Multipliers of Stationary Points of Nonconvex Differentiable Nonlinear Programs, O. L. Mangasarian, (Jan, 1985) 90C30, Operations Res. Letters 4 (1985), 47-48.  
AD A153 513
- 2782 Hyperbolic Phenomena in the Flow of Viscoelastic Fluids, D. D. Joseph, (Jan, 1985) 35A30, 35L40, 35L67, 35M05, 73F99, 76A10, In 'Viscoelasticity and Rheology', Arthur S. Lodge, Michael Renardy and John A. Nohel, eds., Academic Press, Orlando (1985), 235-308.  
AD A153 533
- 2783 About Product Formulas with Variable Step-Size, Michel Pierre and Mounir Rihani, (Jan, 1985) 47H20, 65J15, 35R15.  
AD A153 527
- 2784 The Cauchy Problem for  $u_t = \Delta u^m$  when  $0 < m < 1$ , Miguel A. Herrero and Michel Pierre, (Jan, 1985) 35Q20, 35K55, 76X05, Trans. Amer. Math. Soc. 291 (1985), 145-158.  
AD A153 521
- 2785 Nonparametric Renewal Function Estimation, Edward W. Frees, (Jan, 1985) Primary 62G05; Secondary 60K05, 62M99, - To Appear - Ann. Statist.  
AD A153 474
- 2786 On Approximating a Set-Valued Function Locally, V. F. Demjanov, C. Lemarechal and J. Zowe, (Jan, 1985) 41-01, 46G05, Published under title 'Attempts to Approximate a Set-Valued Mapping', Lecture Notes in Economics and Mathematical Systems, Nondifferentiable Optimization; Motivations and Applications, V. F. Demjanov and D. Pallaschke, eds., Springer-Verlag 255 (1985), 3-7.  
AD A153 540
- 2787 Instability at the Interface Between Two Shearing Fluids in a Channel, Yuriko Renardy, (Feb, 1985) 76E05, 76T05, 76V05, Phys. Fluids 28 (1985), 3441-3443.  
AD A153 532
- 2788 The Role of Ellipticity and Normality Assumptions in Formulating Live-Boundary Conditions in Elasticity, P. Podio-Guidugli, G. Vergara Caffarelli, and E. G. Virga, (Feb, 1985) 73C50, 35J60, - To Appear - Quart. Appl. Math.  
AD A153 475
- 2789 Limit Theorems for the Method of Replication, Peter W. Glynn, (Feb, 1985) 65C05, 62M09, 68J05.  
AD A153 541
- 2790 Singularity Solutions for Ellipsoids in Low-Reynolds-Number Flows: With Applications to the Calculation of Hydrodynamic Interactions in Suspensions of Ellipsoids, Sangtae Kim, (Feb, 1985) 76D05, 35Q10, Int. J. Multiphase Flow 12 (1986), 469-491.  
AD A153 503
- 2791 A Global Optimization Algorithm Using Stochastic Differential Equations, Filippo Aluffi-Pentini, Valerio Parisi and Francesco Zirilli, (Feb, 1985) 65K10, 60H10, 49D25, - Submitted to - ACM Trans. Math. Software.  
AD A153 526

- 2792 Least-Squares Approximation to Minimum Chi-Square Estimators of Location and Scale Parameters and their Effect on the Pearson Chi-Square Test, Alan E. Muhly and John Gurland, (Feb, 1985) 62E20, 62F12, 62F03.  
AD A153 534
- 2793 Effect of some Estimators on a Large Sample Approximation to the Non-Null Distribution of the Pearson Chi-Square Statistic, Alan E. Muhly and John Gurland, (Feb, 1985) 62E20, 62F12, 62F03.  
AD A153 515
- 2794 Infinite Dimensional Linear Systems with Unbounded Control and Observation: A Functional Analytic Approach, Dietmar Salamon, (Feb, 1985) 93C25, 34G10, 49A27, 34K05, 35K35, 35L35, - To Appear - Trans. Amer. Math. Soc.  
AD A153 535
- 2795 Nonparametric Estimation of the Probability of Ruin, Edward W. Frees, (Feb, 1985) Primary 62P05; Secondary 60G40, 62G99, ASTIN Bulletin 16 S, 81-90.  
AD A153 523
- 2796 Studies in Quality Improvement I: Dispersion Effects from Fractional Designs, George E. P. Box and R. Daniel Meyer, (Feb, 1985) 62K15, Technometrics 28 (1986), 19-27.  
AD A153 516
- 2797 Studies in Quality Improvement II: An Analysis for Unreplicated Fractional Factorials, George E. P. Box and R. Daniel Meyer, (Mar, 1985) 62K15, Technometrics 28 (1986), 11-18.  
AD A153 539
- 2798 Local Epi-Continuity and Local Minimization, Stephen M. Robinson, (Mar, 1985) 90C30, Published under title 'Local Epi-Continuity and Local Optimization', - To Appear - Math. Programming.  
AD A154 812
- 2799 Analysis of Unreplicated Factorials Allowing for Possibly Faulty Observations, George E. P. Box and R. Daniel Meyer, (Mar, 1985) 62K15, In 'Design, Data and Analysis', Colin Mallows, ed., John Wiley, Inc., NY (1987).  
AD A154 813
- 2800 On the Limiting Configuration of Interfacial Gravity Waves, R. E. L. Turner and J.-M. Vanden-Broeck, (Mar, 1985) 76B15, 76C10, Phys. Fluids 29 (1986), 372-375.  
AD A154 821
- 2801 A Second Order Difference Scheme for Transient Semiconductor Device Simulation, Christian A. Ringhofer, (Mar, 1985) 35G25, 35M05, 65M15, - Submitted to - SIAM J. Sci. Statist. Comp.  
AD A154 824
- 2802 A Note on a Theorem of R. Duffin, Paul H. Rabinowitz, (Mar, 1985) 34B15, 47H15, Arch. Rational Mech. Anal. 93 (1986), 91-102.  
AD A154 786
- 2803 The Optimality of Lower Confidence Limits for the Reliability of Series Systems Obtained by the Method of Key Test Results or Other Related Techniques, Bernard Harris and Andrew P. Soms, (Mar, 1985) 62N05, 62F25.  
AD A154 880

- 2804 Adjusted Belief Structures, Michael Goldstein, (Mar, 1985) Primary 62A15; Secondary 60A99.  
AD A154 804
- 2805 The Distribution of the Number of Empty Cells in a Generalized Random Allocation Scheme, Bernard Harris, Morris Marden and C. J. Park, (Mar, 1985) 60C05, 60F05, 05A15, - To Appear - Ann. Discrete Math.  
AD A154 806
- 2806 SIGMA - A Stochastic-Integration Global Minimization Algorithm, Filippo Aluffi-Pentini, Valerio Parisi and Francesco Zirilli, (Mar, 1985) 65K10, 60H10, 49D25, - Submitted to - ACM Trans. Math. Software.  
AD A154 878
- 2807 Instability and Chaotic Behaviour In a Free-Surface Flow, W. G. Pritchard, (Mar, 1985) 76-05, 76Exx, J. Fluid Mech. 165 (1986), 1-60.  
AD A154 879
- 2808 A Numerical Study of Taylor Vortex Flow, John C. Strikwerda, (Apr, 1985) 76D05.  
AD A154 787
- 2809 Large-Time Behavior of Viscous Surface Waves, J. T. Beale and T. Nishida, (Apr, 1985) 76D05, 35Q10, 35R35, In "Recent Topics in Nonlinear PDE II, Sendai, 1985", Lecture Notes in Num. Appl. Anal., K. Masuda and M. Mimura, eds., North-Holland, Kinokuniya, 8 (1985), 1-14.  
AD A154 805
- 2810 Index Filtrations and the Homology Index Braid for Partially Ordered Morse Decompositions, Robert Franzosa, (Apr, 1985) Primary 58F35; Secondary 58F12, 34C35, Trans. Amer. Math. Soc. 298 (1986), 193-213.  
AD A154 823
- 2811 Sobolev-Poincare's Inequality and the Neumann Problem for  $u_t = \operatorname{div}(|\nabla u|^{p-2} \nabla u)$ , Isamu Fukuda, (Apr, 1985) 35K55, 35K60.  
AD A154 788
- 2812 Finite Element Methods for Viscoelastic Flow, David S. Malkus, (Apr, 1985) 65N30, 76A05, 76A10, In 'Viscoelasticity and Rheology', A. S. Lodge, M. Renardy and J. Nohel, eds., Academic Press, NY (1985), 391-419.  
AD A154 877
- 2813 On the Turning Lozange of Constant Side Whose Vertices Alternate Between Two Fixed Circles of a Ring, I. J. Schoenberg, (Apr, 1985) 51M15, 53A17, (combined with #2842).  
AD A154 803
- 2814 Interfacial Stability in a Two-Layer Bénard Problem, Yuriko Renardy, (Apr, 1985) 76E15, 76E20, 76T05, 76V05, Phys. Fluids 29 (1986), 356-363.  
AD A158 138
- 2815 Adaptive, Self-Validating Numerical Quadrature, George F. Corliss and L. B. Rall, (May, 1985) 65D30, 65G10, Transactions of the 3rd Army Conference on Applied Mathematics and Computing, pp. 757-787. ARO Report 86-1, U. S. Army Research Office, Research Triangle Park, NC (1986).  
AD A158 164



- 2816 Computable Bounds for Solutions of Integral Equations, L. B. Rall, (May, 1985) 65G10, 65J10, 65R20, Proceedings of the 11th IMACS World Congress on System Simulation and Scientific Computation, Oslo, Norway 1 (1985), 119-121.  
AD A158 189
- 2817 B-Splines and Linear Combinations of Uniform Order Statistics, Z. G. Ignatov and V. K. Kalshev, (May, 1985) Primary 62G30; Secondary 60E05.  
AD A158 151
- 2818 The Mathematical Structure of Elementary Particles - II, P. Nowosad, (May, 1985) 81B05, 81G25, 81M05, 83C45, 83E05.  
AD A158 191
- 2819 Penalized Likelihood for General Semi-Parametric Regression Models, Peter J. Green, (May, 1985) 62F10, 62G05, 62J02, 65U05, - Submitted to - Internat. Statist. Rev.  
AD A158 133
- 2820 The Uniqueness of Hill's Spherical Vortex, C. J. Amick and L. E. Fraenkel, (May, 1985) 76C05, 35R05, 35R35, Arch. Rational Mech. Anal. 92 (1986), 91-119.  
AD A158 149
- 2821 Development of Singularities in Nonlinear Viscoelasticity, J. A. Nohel and M. Renardy, (May, 1985) 35L70, 45K05, 73F15, - To Appear - Proceedings of Workshop on Amorphous Polymers, Springer-Verlag Lecture Notes.  
AD A158 190
- 2822 Approximation of the Initial Reserve for Known Ruin Probabilities, Edward W. Frees, (May, 1985) Primary 62P05, Secondary 62L20, 60K10, 62G30, Insurance: Math. Economics 5 (1986), 187-196.  
AD A158 167
- 2823 Uniformly High-Order Accurate Non-Oscillatory Schemes I, Ami Harten and Stanley Osher, (May, 1985) Primary 65M10; Secondary 65M05, - To Appear - SIAM J. Numer. Anal.  
AD A158 177
- 2824 A Floquet Decomposition for Volterra Equations with Periodic Kernel and a Transform Approach to Linear Recursion Equations, David L. Russell, (June, 1985) 39A10, 39A11, 39A12, 44A10, 44A50, 34K20, 34K30, - Submitted to - J. Differential Equations.  
AD A158 148
- 2825 A Linear Combination Test for Detecting Serial Correlation in Multivariate Samples, Richard A. Johnson and Thorø Langeland, (June, 1985) 62H10, 62E20.  
AD A158 179
- 2826 Hamilton-Jacobi Equations in Infinite Dimensions, Part II. Existence of Viscosity Solutions, Michael G. Crandall and Pierre-Louis Lions, (June, 1985) 35F30, 49C99, J. Functional Analysis 65 (1986), 368-405.  
AD A158 137
- 2827 A Functional Equation Governing Moving Phase Boundaries in an Elastic Bar, Thomas J. Pence, (June, 1985) 35L65, 35L67, 39B05, 41A60, 73D05, - To Appear - Quart. Appl. Math.  
AD A158 178

- 2828  $C^\infty$ -Regularity for the Porous Medium Equation, K. Höllig and H.-O. Kreiss, (June, 1985) 35K55, 35R35.  
AD A158 147
- 2829 On High-Order Accurate Interpolation for Non-Oscillatory Shock Capturing Schemes, Ami Harten, (June, 1985) 65M05, 65D05, Proceedings of Oscillation Theory, Computation and Methods of Compensated Compactness, Constantine Dafermos, J. L. Ericksen, David Kinderlehrer, and Marshall Slemrod, eds., in The IMA Volumes in Mathematics and Its Applications, George R. Sell and Hans Weinberger, Series Editors, Springer-Verlag, Vol. 2, pp. 71-105.  
AD A158 131
- 2830 Boundary Integral Techniques for Multi-Connected Domains, G. R. Baker and M. J. Shelley, (June, 1985) 65N99, 65R20, 76B15, J. Computational Phys. 64 (1986), 112-132.  
AD A158 171
- 2831 Decay with a Rate for Noncompactly Supported Solutions of Conservation Laws, Blake Temple, (June, 1985) 65M10, 76N99, 35L65, 35L67, Trans. Amer. Math. Soc. 298 (1986), 43-82.  
AD A158 163
- 2832 Global Optimization Using Automatic Differentiation and Interval Iteration, L. B. Rall, (June, 1985) 65K10, 65G10, 68Q40, - To Appear - Transactions of the 4th Army Conference on Applied Mathematics and Computing.  
AD A158 150
- 2833 Two Results on Dense Imbeddings, Michael Renardy, (June, 1985) 46E35, Trans. Amer. Math. Soc. 298 (1986), 241-243.  
AD A158 132
- 2834 Convergence of Cardinal Series, Carl de Boor, Klaus Höllig and Sherman Riemenschneider, (June, 1985) 41A63, 41A30, 42B99, - To Appear - Proc. Amer. Math. Soc. (1986).  
AD A158 166
- 2835 Realization Theory in Hilbert Space, Dietmar Salamon, (July, 1985) 93B15, 93C60, - Submitted to - Math. Systems Theory.  
AD A158 172
- 2836 Conditioning in a Missing Data Problem, C. J. Skinner, (July, 1985) 62A20, 62D05, 62F25.  
AD A158 202
- 2837 A Class of One-Dimensional Degenerate Parabolic Equations, John A. Nohel, (July, 1985) 35K55, 34B30, 35R35, Czechoslovak Math. J. 111 (1986), 294-303.  
AD A160 962
- 2838 Lipschitz Continuity of Solutions of Linear Inequalities, Programs and Complementarity Problems, O. L. Mangasarian and T.-H. Shiao, (July, 1985) 15A39, 90C05, 65F35, SIAM J. Control & Optimization (1987).  
AD A160 957
- 2839 On the Secondary Bifurcation of Three-Dimensional Standing Waves, Thomas J. Bridges, (July, 1985) 76B15, 35B10, 35B32, 35R35, - To Appear - SIAM J. Appl. Math.  
AD A160 971

- 2840 What Kind of Workstation Should I Buy? Seven-Fold Criteria for Hardware and Software, L. Ridgway Scott, (July, 1985) 00A99.  
AD A160 985
- 2841 Design Effects of Two-Stage Sampling, C. J. Skinner, (July, 1985) 62D05, 62H10, J. Roy. Statist. Soc. B 48 (1986), 89-99.  
AD A160 960
- 2842 On the Anti-Cylinder, I. J. Schoenberg, (July, 1985) 51-01, 70B15, (combined with #2813).  
AD A160 984
- 2843 Error Bounds for Newton's Iterates Derived from the Kantorovich Theorem, Tetsuro Yamamoto, (July, 1985) 65G99, 65J15, Numer. Math. 48 (1986), 91-98.  
AD A160 959
- 2844 A Note on Least Two Norm Solutions of Monotone Complementarity Problems, P. K. Subramanian, (July, 1985) 90C30, 90C25.  
AD A160 961
- 2845 Gauss-Newton Methods for the Nonlinear Complementarity Problem, P. K. Subramanian, (Aug, 1985) 90C30, 90C25.  
AD A160 983
- 2846 Error Bounds for Newton-Like Methods Under Kantorovich Type Assumptions, T. Yamamoto, (July, 1985) 65G99, 65J15, Japan J. Appl. Math. 3 (1986), 295-313.  
AD A160 994
- 2847 Semi-Parametric Generalized Linear Models, Peter J. Green and Brian S. Yandell, (Aug, 1985) 62F10, 62G05, 62J02, 65U05, Lecture Notes in Statistics, Springer-Verlag 32 (1985), 44-55.  
AD A160 958
- 2848 The Theory of Standardized Time Series, Peter W. Glynn and Donald L. Iglehart, (Aug, 1985) 65C05, 62E20, 62M09, 60F17, - To Appear - Numer. Math.  
AD A158 383
- 2849 A Joint Central Limit Theorem for the Sample Mean and Regenerative Variance Estimator, Peter W. Glynn and Donald L. Iglehart, (Aug, 1985) 65C05, 60K05, 62M09.  
AD A158 393
- 2850 Discrete-Time Conversion for Simulating Semi-Markov Processes, Bennett L. Fox and Peter W. Glynn, (Aug, 1985) 65C05, 60K15.  
AD A161 007
- 2851 Concavity of Solutions of the Porous Medium Equation, Philippe Benilan and Juan Luis Vazquez, (Aug, 1985) 35K65, 76S05.  
AD A160 969
- 2852 Optimal Control Techniques for Computing Stationary Flows of Viscoelastic Fluids, Patrick Le Tallec, (Aug, 1985) 49D10, 65K10, 65N30, 65C20, 76A05, 76A10, J. Non-Newtonian Fluid Mech. 20 (1986), 241-256.  
AD A160 993

- 2853 Asymptotic Inference from Sequential Design in a Nonlinear Situation, C. F. J. Wu, (Aug, 1985) 62L05, 62M10, Biometrika 72 (1985), 553-558.  
AD A160 970
- 2854 Implicit B-Differentiability in Generalized Equations, Stephen M. Robinson, (Aug, 1985) 90C33, 90C30, - Submitted to - Math. Programming.  
AD A160 980
- 2855 Sup-Norm Estimates in Glimm's Method, Blake Temple, (Aug, 1985) 65M10, 76N99, 35L65, 35L67.  
AD A160 981
- 2856 The Asymptotic Behaviour Near the Crest of Waves of Extreme Form, J. B. McLeod, (Aug, 1985) 76B15, 45G05.  
AD A161 064
- 2857 Fixed Point Methods for the Complementarity Problem, P. K. Subramanian, (Aug, 1985) 90C30, 90C25.  
AD A160 976
- 2858 Singular Solutions for Some Semilinear Elliptic Equations, Haïm Brezis and Luc Oswald, (Aug, 1985) 35J60, - To Appear - Arch. Rational Mech. Anal.  
AD A160 982
- 2859 On the Density of the Range for Some Superquadratic Operators, Yiming Long, (Aug, 1985) 34C25, 35L10.  
AD A160 978
- 2860 A Fast Algorithm for Non-Newtonian Flow, David S. Malkus, (Sept, 1985) 65N30, 76A05, 76A10.  
AD A160 977
- 2861 A Global Theory of Internal Solitary Waves in Two-Fluid Systems, C. J. Amick and R. E. L. Turner, (Sept, 1985) 35J60, 76B25, 76C10, Trans. Amer. Math. Soc. 298 (1986), 431-484.  
AD A160 979
- 2862 Error Bounds for Monotone Linear Complementarity Problems, O. L. Mangasarian and T.-H. Shiau, (Sept, 1985) 90C25, 65F35, Math. Programming 36 (1986), 81-89.  
AD A160 975
- 2863 Calibration of Hole-Pressure Measurements in Non-Newtonian Flow by Numerical Methods, David S. Malkus, (Sept, 1985) 65N30, 76A05, 76A10.  
AD A160 974
- 2864 The Motion of Ellipsoids in a Second Order Fluid, Sangtae Kim, (Sept, 1985) 76D05, 35Q10, J. Non-Newtonian Fluid Mech. 21 (1986), 255-269.  
AD A160 973
- 2865 Analysis of Factorial Experiments, R. Daniel Meyer, (Sept, 1985) 62A15, 62K15, 62N10.  
AD A160 972
- 2866 Comparisons of Least Squares and Errors-in-Variables Regression, with Special Reference to Randomized Analysis of Covariance, Raymond J. Carroll, Paul Gallo and Leon Jay Gleser, (Sept, 1985) Primary 62J05; Secondary 62F10, J. Amer. Statist. Assoc. 80 (1985), 929-932.  
AD A160 967

- 2867 Characterization of the Consistent Weighted Regression Estimators, Lih-Yuan Deng, (Sept, 1985) 62D05.  
AD A163 605
- 2868 Degenerate Systems of Conservation Laws, Blake Temple, (Sept, 1985) 65M10, 76N99, 35L65, 35L67, Contemporary Mathematics 60 (1987), 125-133.  
AD A163 621
- 2869 The Equation  $c(z)_+ = \varphi(z)_{xx}$ : the Free Boundary Induced by a Discontinuity in the Derivative of  $c$ , M. Bertsch, M. E. Gurtin and D. Hilhorst, (Sept, 1985) 35K65, 92A15, - To Appear - J. Differential Equations.  
AD A163 630
- 2870 Bias and Efficiency of the Consistent Weighted Regression Estimators In Finite Population Sampling, Lih-Yuan Deng, (Sept, 1985) 62D05.  
AD A163 601
- 2871 Regularity for a Singular Conservation Law, R. E. Meyer, (Sept, 1985) 35L65, 35L80, 35R25, 76B15, - To Appear - Adv. Appl. Math.  
AD A163 620
- 2872 On the Shore Singularity of Water Waves. Part I. The Local Model, R. E. Meyer, (Oct, 1985) 76B15, Phys. Fluids 29 (1986), 3152-3163.  
AD A163 707
- 2873 On the Shore Singularity of Water-Wave Theory. Part II. Small Waves Don't Break on Gentle Beaches, R. E. Meyer, (Oct, 1985) 76B15, Phys. Fluids 29 (1986), 3164-3171.  
AD A163 652
- 2874 A Proof of Grace's Theorem by Induction, A. W. Goodman and I. J. Schoenberg, (Oct, 1985) 30C10, 30C15, - Submitted to - Indag. Math.  
AD A163 714
- 2875 Remarks on the Existence and Uniqueness of Unbounded Viscosity Solutions of Hamilton-Jacobi Equations, Michael G. Crandall and Pierre-Louis Lions, (Oct, 1985) 35F20, 35B40, 35L60, - To Appear - Illinois J. Math.  
AD A163 701
- 2876 Convergence of Cubic Spline Interpolation with the Not-a-Knot Condition, Carl de Boor, (Oct, 1985) 41A15, 41A05.  
AD A163 705
- 2877 On the Effect of Two-Stage Sampling on the  $F$  Statistic, C. F. J. Wu, D. Holt and D. J. Holmes, (Oct, 1985) 62J05, 62D05, - Accepted - J. Amer. Statist. Assoc.  
AD A163 653
- 2878 On the Two-Dimensional Periodic Surface Waves Occurring in Rectangular Vessels: Theory Versus Experiment, Thomas J. Bridges, (Oct, 1985) 76B15, 35B10, 35B32, 35R35, Published under title 'Cnoidal Standing Waves and the Transition to the Traveling Hydraulic Jump', Phys. Fluids 29 (1986), 2819-2827.  
AD A163 708
- 2879 A Convergence Theorem for Newton's Method in Banach Spaces, Tetsuro Yamamoto, (Oct, 1985) 65G99, 65J15, Japan J. Appl. Math. 3 (1986), 37-52.  
AD A163 625

- 2880 The Ordinary Least Squares Estimation for the General-Link Linear Models, with Applications, Naihua Duan and Ker-Chau Li, (Oct, 1985) 62-XX, 62G05, AD A163 599
- 2881  $L^p$ -Stability for the Strong Solutions of the Navier-Stokes Equations in the Whole Space, H. Beirão da Veiga and P. Secchi, (Oct, 1985) 35B40, 35K55, 35Q10, 76D05, - To Appear - Arch. Rational Mech. Anal. AD A163 631
- 2882 A Statistical Analysis of the Effect of Freestream Turbulence of the Blasius Boundary Layer, Thomas J. Bridges and Philip J. Morris, (Oct, 1985) 15A18, 15A15, 70L05, 76D10, - To Appear - I.J.N.M.F.D. AD A163 606
- 2883 Stationary Motions and Incompressible Limit for Compressible Viscous Fluids, H. Beirão da Veiga, (Nov, 1985) 35G30, 35M05, 35Q10, 76D05, 76N10, - Accepted - Houston J. Math. AD A163 600
- 2884 Note on Loss of Regularity for Solutions of the 3-D Incompressible Euler and Related Equations, Petre Constantin, (Nov, 1985) 35Q10, 35Q99, 76C99, 76D05, Commun. Math. Phys. 104 (1986), 311-326. AD A163 632
- 2885  $L^2$  Stability for Weak Solutions of the Navier-Stokes Equations in  $R^3$ , Paolo Secchi, (Nov, 1985) 35B35, 35K55, 35Q10, 76D05, Indiana Univ. Math. J. 3 (1987). AD A163 612
- 2886 Some Remarks on the Navier-Stokes Equations with a Pressure-Dependent Viscosity, Michael Renardy, (Nov, 1985) 35J25, 35J55, 35J65, 35Q10, 76D05, Comm. Part. Differential Equations 11 (1986), 779-793. AD A163 726
- 2887 Flow of Viscoelastic Fluids Between Plates Rotating About Distinct Axes, K. R. Rajagopal, M. Renardy, Y. Renardy and A. S. Wineman, (Nov, 1985) 76A10, Rheol. Acta 25 (1986), 459-467. AD A163 700
- 2888 Improved Interval Bounds for Ranges of Functions, L. B. Rall, (Nov, 1985) 65G10, 65K10, In 'Interval Mathematics', Karl Nickel, ed., (1985), 143-155. Lecture Notes in Computer Science, No. 212, Springer, New York (1986). AD A163 627
- 2889 The Chinese Remainder Problem and Polynomial Interpolation, I. J. Schoenberg, (Nov, 1985) 10A10, 41A05. AD A163 626
- 2890 Maximum Likelihood Recursion and Stochastic Approximation in Sequential Designs, C. F. J. Wu, (Nov, 1985) 62L20, 62L05, In 'Adaptive Procedures and Related Methods', Springer-Verlag (1987). AD A163 628
- 2891 The Classification of Solutions of Quadratic Riemann Problems (I), E. Isaacson, D. Marchesin, B. Plohr and B. Temple, (Dec, 1985) 65M10, 76N99, 35L65, 35L67, - Submitted to - Comm. Pure Appl. Math. AD A163 706

- 2892 The Classification of Solutions of Quadratic Riemann Problems (II), E. Isaacson and B. Temple, (Dec, 1985) 65M10, 76N99, 35L65, 35L67, - Submitted to - SIAM J. Num. Sci. Comp.  
AD A163 651
- 2893 Pointed Bubbles Rising in a Two-Dimensional Tube, Jean-Marc Vanden-Broeck, (Dec, 1985) 76B10, Phys. Fluids 29 (1986), 1343-1344.  
AD A163 624
- 2894 On the Two-Phase Stefan Problem with Interfacial Energy and Entropy, Morton E. Gurtin, (Dec, 1985) 35K05, 80A15, Arch. Rational Mech. Anal. 96 (1986), 199-241.  
AD A163 715
- 2895 On K-BKZ and Other Viscoelastic Models as Continuum Generalizations of the Classical Spring-Dashpot Models, Amitabh Narian, (Dec, 1985) 76A10, Rheol. Acta 25 (1986), 1-14.  
AD A163 703
- 2896 B-Splines Without Divided Differences, Carl de Boor and Klaus Höllig, (Dec, 1985) 41A15, In 'Geometric Modelling', J. Farin, ed., SIAM (1987).  
AD A163 702
- 2897 Orbital Compactness and Asymptotic Behavior of Nonlinear Parabolic Systems with Functionals, Reinhard Redlinger, (Jan, 1986) 35R10, 34G20, Proc. Roy. Soc. Edinburgh Sect. A 104A (1986).  
AD A167 486
- 2898 Nonparametric Estimation of the Probability of Discovering a New Species, Murray K. Clayton and Edward W. Frees, (Jan, 1986) Primary 92A10; Secondary 62G05, 62P10, J Amer. Statist. Assoc. (1987).  
AD A167 493
- 2899 The Thin-Layer Effect and Interfacial Stability in a Two-Layer Couette Flow with Similar Liquids, Yuriko Renardy, (Jan, 1986) 76E05, 76V05, 35B20, Phys. Fluids (1987).  
AD A167 517
- 2900 Outdoor Sculptures, I. J. Schoenberg, (Jan, 1986) 51-01, 51N10.  
AD A167 488
- 2901 On the Existence of Periodic Solutions for a Class of Symmetric Hamiltonian Systems, Paul H. Rabinowitz, (Jan, 1986) 34C25, 58E05, 58F22, 70H05, 70H25, 70K99, - To Appear - Nonlinear Analysis, Theory, Methods & Applications.  
AD A167 487
- 2902 Tree-Structured Classification via Generalized Discriminant Analysis, Wei-Yin Loh and N. Vanichsetakul, (Jan, 1986) 62H30, 68G10.  
AD A167 453
- 2903 Steady-State Problems of Nonlinear Electro-Magneto-Thermo-Elasticity, Robert C. Rogers and Stuart S. Antman, (Jan, 1986) 73R05, 35J60, Arch. Rational Mech. Anal. 95 (1986), 279-323.  
AD A167 454
- 2904 A Convergence Theorem for Newton-Like Methods in Banach Spaces, Tetsuro Yamamoto, (Jan, 1986) 65G99, 65J15.  
AD A167 455

- 2905 The Neumann Problem for Nonlinear Second Order Singular Perturbation Problems, Benoit Perthame and Richard Sanders, (Jan, 1986) 35F30, 65M15.  
AD A167 456
- 2906 On Travelling-Wave Solutions to Systems of Conservation Laws with Singular Viscosity, Howard Prue and Richard Sanders, (Jan, 1986) 35K65, 35L65.  
AD A167 518
- 2907 Hamilton-Jacobi Equations in Infinite Dimensions, Part III, Michael G. Crandall and Pierre-Louis Lions, (Feb, 1986) 35F25, 49C99, J. Functional Analysis 68 (1986), 214-247.  
AD A167 521
- 2908 Secondary Bifurcation and Change of Type for Three Dimensional Standing Waves in Shallow Water, Thomas J. Bridges, (Feb, 1986) 76B15, 35B10, 35B32, 35R35, - To Appear - J. Fluid Mech.  
AD A167 516
- 2909 The Evaluation of Inner Products of Multivariate Simplex Splines, Thomas A. Grandine, (Feb, 1986) 41A15, 65D07.  
AD A167 485
- 2910 A New Result in the Theory and Computation of the Least Norm Solution of a Linear Program, Stefano Lucidi, (Feb, 1986) 90C05, 90C20.  
AD A167 515
- 2911 Linear Stability of Plane Couette Flow of an Upper Convected Maxwell Fluid, Michael Renardy and Yuriko Renardy, (Feb, 1986) 76A10, 76E05, J. Non-Newtonian Fluid Mech. 22 (1986), 23-33.  
AD A167 927
- 2912 On a Theorem of Weinstein, Paul H. Rabinowitz, (Feb, 1986) 34C25, 58E05, 58F22, 70H05, 70H25, 70K99, - To Appear - J. Differential Equations.  
AD A167 492
- 2913 Computing Narrow Inclusions for Definite Integrals, George F. Corliss, (Feb, 1986) 65D30, 65G10.  
AD A167 491
- 2914 Hartree-Fock Theory in Nuclear Physics, D. Gogny and P. L. Lions, (Feb, 1986) 81H05, 81G05, 35J60, 35P30, 81D20, 35Q20, Math. Modelling Numer. Anal. 20 (1986), 571-637.  
AD A167 490
- 2915 Zero and Negative Masses in Finite Element Vibration and Transient Analysis, David S. Malkus and M. E. Plesha, (Feb, 1986) 65N05, 65N25, 65N30, 73K25, - To Appear - Comp. Math. Appl. Mech. Engr.  
AD A167 489
- 2916 Inflow Boundary Conditions for Steady Flows of Viscoelastic Fluids with Differential Constitutive Laws, Michael Renardy, (Feb, 1986) 35M05, 76A10, - To Appear - Rocky Mountain J. Math.  
AD A167 452
- 2917 On  $L_1$ -Contraction for Systems of Conservation Laws, Jorge G. S. Patiño, (Feb, 1986) 35L65, 76N10.  
AD A167 484



- 2918 Minimal Support for Bivariate Splines, Carl de Boor and Klaus Höllig, (Feb, 1986) 41A15, 41A63, - To Appear - J. Approximation Theory Appl. AD A167 519
- 2919 Weir Flows, Jean-Marc Vanden-Broeck and Joseph B. Keller, (Mar, 1986) 76B10, - To Appear - J. Fluid Mech. AD A167 495
- 2920 Optimal Implementation of Differentiation Arithmetic, L. B. Rall, (Mar, 1986) 13F25, 65D25, 65G05. AD A167 494
- 2921 A Free Streamline Model for a Rising Bubble, Jean-Marc Vanden-Broeck, (Mar, 1986) 76B10, Phys. Fluids 29 (1986), 2798-2801. AD A167 535
- 2922 Solitary and Periodic Waves in Swirling Flow, Scott A. Markel, (Mar, 1986) 35J20, 35J60, 76B25, 76C05, 76C10. AD A167 538
- 2923 Iterative Refinement of the Method of Moments, George Miel, (Mar, 1986) 65J10, 65B99. AD A167 537
- 2924 Error Bounds for Strongly Convex Programs and (Super)Linearly Convergent Iterative Schemes for the Least 2-Norm Solution of Linear Programs, O. L. Mangasarian and R. De Leone, (Mar, 1986) 90C25, 90C05, - Submitted to - Appl. Math. Optimization. AD A167 536
- 2925 Pointwise A-Priori Bounds for Strongly Coupled Semilinear Parabolic Systems, Reinhard Redlinger, (Mar, 1986) 35K55. AD A167 539
- 2926 The Computational Cost of Simplex Spline Functions, Thomas A. Grandine, (Mar, 1986) 41A15, 65D07. AD A167 513
- 2927 The Hamilton-Jacobi-Bellman Equation with a Gradient Constraint, Naoki Yamada, (Mar, 1986) 35J65, 35J60. AD A167 532
- 2928 Flow Under a Gate, Jean-Marc Vanden-Broeck, (Apr, 1986) 76B10, Phys. Fluids 29 (1986), 3148-3151. AD A167 533
- 2929 The Central Limit Theorem and Poincaré-Type Inequalities, Louis H. Y. Chen, (Apr, 1986) Primary 60F05, 60E15; Secondary 26D10. AD A167 534
- 2930 The Polynomials in the Linear Span of Integer Translates of a Completely Supported Function, Carl de Boor, (Apr, 1986) 41A15, 41A63, 41A25, Constructive Approximation 3 (1987). AD A167 530

- 2931 Upper Bounds on Poisson Tail Probabilities, Peter W. Glynn, (Apr, 1986) 60E15, 60F10, 60J25, 65C10, 65B10.  
AD A167 531
- 2932 Free Surface Flow Due to a Sink, Jean-Marc Vanden-Broeck and Joseph B. Keller, (Apr, 1986) 76B10, J. Fluid Mech. 175 (1987), 109-117.  
AD A167 514
- 2933 Steep Gravity Waves: Havelock's Method Revisited, Jean-Marc Vanden-Broeck, (Apr, 1986) 76B15, Phys. Fluids 29 (1986), 3084-3085.  
AD A167 520
- 2934 Finite Difference Methods for Polar Coordinate Systems, John C. Strikwerda and Yvonne Nagel, (Apr, 1986) 65N05, 65M05.  
AD A167 512
- 2935 An Existence Theorem for the Dirichlet Initial-Boundary Value Problem in Incompressible Nonlinear Elasticity, William J. Hrusa and Michael Renardy, (Apr, 1986) 35L70, 35M05, 73C50.  
AD A172 952
- 2936 Pouring Flows, Jean-Marc Vanden-Broeck and Joseph B. Keller, (May, 1986) 76B10, - To Appear - Phys. Fluids.  
AD A172 775
- 2937 An Iterative Method for Computing Bivariate  $C^1$  Piecewise Cubic Polynomial Interpolants, Thomas A. Grandine, (June, 1986) 41A15, 41A63, 65D05, 65F10.  
AD A172 776
- 2938 An  $L^p$ -Theory for the n-Dimensional, Stationary, Compressible, Navier-Stokes Equations, and the Incompressible Limit for Compressible Fluids. The Equilibrium Solutions, H. Beirao da Veiga, (June, 1986) 35G30, 35M05, 35Q10, 76D05, 76N10, - To Appear - Comm. Math. Phys.  
AD A172 778
- 2939 Monte Carlo Optimization of Stochastic Systems: Two New Approaches, Peter W. Glynn and Jerry L. Sanders, (July, 1986) 60J10, 60K25, 60A10, 65C05, 68J05.  
AD A172 777
- 2940 Convergence Theorems for Semi-Groups of Linear Operators of Class  $(1,A)$ , Nazar H. Abdelaziz, (July, 1986) 47D05.  
AD A172 583
- 2941 Analysis of a Singularly-Perturbed Linear Two-Point Boundary-Value Problem, Warren E. Ferguson, Jr., (July, 1986) 34B27, 34E15, 65L10, SIAM J. Numer. Anal. 23 (1986), 940-947.  
AD A172 582
- 2942 Minimizing the Reflection of Electromagnetic Waves by Surface Impedance, T. J. Bridges, G. Chen, and G. Crosta, (July, 1986) 35L05, 49E05, 78A50, - To Appear - Wave Motion.  
AD A172 585
- 2943 On Hole-Pressures in Plane Poiseuille Flow Over Transverse Slots, D. S. Malkus and Minwu Yao, (July, 1986) 76A10.  
AD A172 586

- 2944 Nonlinear Viscoelastic Materials with Fading Memory, John A. Nohel, (July, 1986) 35L15, 35L70, 45E10, 45K05, 35F15, 76A10, - To Appear - Proceedings of the International Conference on Nonlinear Partial Differential Equations and Applications, L'Aquila, Italy, February 1986, Springer-Verlag.  
AD A172 587
- 2945 A Finite Algorithm for the Least Two-Norm Solution of a Linear Program, Stefano Lucidi, (July, 1986) 90C05, 90C20.  
AD A172 588
- 2946 On the Method of Tangent Hyperbolas in Banach Spaces, Tetsuro Yamamoto, (July, 1986) 65G99, 65J15.  
AD A172 589
- 2947 Parallel Successive Overrelaxation Methods for Symmetric Linear Complementarity Problems and Linear Programs, O. L. Mangasarian and R. DeLeone, (Aug, 1986) 90C25, 90C05, J. Optimization Theory Appl. 54 (1987).  
AD A172 590
- 2948 A Numerical Method for the Incompressible Navier-Stokes Equations in Three-Dimensional Cylindrical Geometry, John C. Strikwerda and Yvonne M. Nagel, (Aug, 1986) 76D05, 65N20, - To Appear - J. Computational Phys.  
AD A172 591
- 2949 Preconditioning for Singular Perturbation Problems, Seymour V. Parter, (Aug, 1986) 65F10, 65N20, presented at the BAIL IV Conference, July 7-11, 1986, Novosibirsk, Akademgorodok, USSR.  
AD A172 592
- 2950 Multivariate Approximation, Carl de Boor, (Aug, 1986) 41-02, 41A05, 41A10, 41A15, 41A63, 41A65, In 'The State of the Art in Numerical Analysis', A. Iserles and M. J. D. Powell, eds., IMA, Essex, England (1987).  
AD A172 584
- 2951 An Extension of the Kreiss Matrix Theorem, Bruce A. Wade and John C. Strikwerda, (Aug, 1986) 15A60, 65M15, - Submitted to - SIAM J. Numer. Anal.  
AD A172 779
- 2952 B(asic)-Spline Basics, Carl de Boor, (Aug, 1986) 41A15, 65D10.  
AD A172 773
- 2953 A Global Branch of Steady Vortex Rings, C. J. Amick and R. E. L. Turner, (Aug, 1986) 76C05, 35B32, 35R05, 35R35, - Submitted to - J. Reine Angew. Math.  
AD A172 774
- 2954 The Chinese Remainder Problem and Polynomial Interpolation, Isaac J. Schoenberg, (Aug, 1986) 10A10, 41A10.  
AD A172 772
- 2955 On the Theory and Practice of Multi-Dim. Indices mod  $m$ . A Circular Slide-Rule for the Modulus  $m = 100$ , I. J. Schoenberg, (Aug, 1986) 10A10, 10A99.  
AD A172 771

- 2956 Further Details of an Analysis for Unreplicated Fractional Factorials, R. Daniel Meyer, (Sept, 1986) 62K15, 62F15.
- 2957 B-Form Basics, C. de Boor, (Sept, 1986) 41A15, 65D10, In 'Geometric Modelling', J. Farin, ed., SIAM (1987).
- 2958 The Classification of Solutions of Quadratic Riemann Problems (III), E. Isaacson and B. Temple, (Oct, 1986) 65M10, 76N99, 35L65, 35L67, - Submitted to - SIAM J. Num. Sci. Comp.
- 2959 Identification of Active Factors in Unreplicated Fractional Factorial Experiments, R. Daniel Meyer and George Box, (Nov, 1986) 62A15, 62K15, 62N10.
- 2960 On the Accuracy of Finite Element and Finite Difference Predictions of Non-Newtonian Slot Pressures for a Maxwell Fluid, David S. Malkus and Michael F. Webster, (Dec, 1986) 65N99, 76A10.
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- 2965 Augmented Lagrangian Methods for the Solution of Variational Problems, R. Glowinski and P. Le Tallec, (Jan, 1987) 65K10, 65N30.
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- 2968 Modeling of Shockless Acceleration of Thin Plates Using a Tracked Random Choice Method, Bradley J. Plohr, (Feb, 1987) 76-04, 76N10, 76L05, 73D05, 65M25, 65C20, 35L65, 35L67.

- 2969 Divisor Structure of Finite Element Eigenproblems Arising from Negative and Zero Masses, David S. Malkus and Qiu Xianjun, (Feb, 1987) 15A21, 65F15, 65N30, 73K25.
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- 2974 Pseudo-Orbits of Contact Forms, Abbas Bahri, (Feb, 1987) 34C15, 34C25, 34C35, 34E15, 49F05, 53C15.
- 2975 On Perturbations of  $Z_2$  Symmetric Functionals, Vieri Benci and Paul H. Rabinowitz, (Feb, 1987) 35J65, 47H15, 58E05.
- 2976 Weak Solutions for a Nonlinear System in Viscoelasticity, J. A. Nohel, R. C. Rogers, and A. Tzavaras, (Feb, 1987) 35B45, 35L60, 35L65, 35K55, 45K05, 73F15.

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A99 Miscellaneous Topics  
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A55 19th Century  
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E35 Consistency and Independence Results  
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A10 Factorials, Binomial Coefficients, Combinatorial Functions  
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A15 Combinatorial Enumeration Problems, Generating Functions  
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**05Cxx Graph Theory (For applications of graphs, see 68D90, 68E10, 94C15.)**

C10 Topological Graph Theory, Imbedding (See also 57M15, 57M25.)  
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C15 Chromatic Theory of Graphs and Maps  
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C30 Enumeration of Graphs and Maps  
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**06-XX ORDER, LATTICES, ORDERED ALGEBRAIC STRUCTURES (See also 18B35.)**

**06Axx Ordered Sets**

A10 Partial Order  
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**10Axx Elementary Number Theory (For analogues in number fields, see 12A05.)**

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A99 None of the above, but in this section  
2955

**10Cxx Forms (Especially Quadratic) (For quadratic forms in linear algebra, see 15A63.)**  
C25 Minima of Forms (See also 10E20.)  
2383

**10Kxx Probabilistic Theory; Measure, Dimension, etc.**  
K15 Diophantine Approximation (See also 10Fxx.)  
1880

K99 None of the above, but in this section  
1570

## 12-XX ALGEBRAIC NUMBER THEORY, FIELD THEORY AND POLYNOMIALS

**12Dxx Real and Complex Fields**  
D10 Polynomials: Location of Zeros (Algebraic Theorems) (For the analytic theory, see 26C10, 30C15.)  
2757

## 13-XX COMMUTATIVE RINGS AND ALGEBRAS

**13Fxx Arithmetic Rings (See also 12-XX.)**  
F25 Formal Power Series Rings  
2920

## 15-XX LINEAR AND MULTILINEAR ALGEBRA; MATRIX THEORY (Finite and Infinite)

-02 Advanced Exposition (Research Surveys, Monographs, etc.)  
1651, 1776

-03 Historical  
1842,

-04 Explicit Machine Computation and Programs (not the Theory of Computation or Programming)  
2000

A03 Vector Spaces, Linear Dependence, Rank  
2329, 2671

A06 Linear Equations  
2296

A09 Matrix Inversion, Generalized Inverses  
1855, 1879, 1894, 1977, 2000, 2049, 2057, 2155, 2159, 2311

A12 Conditioning of Matrices (See also 65F35.)  
1759

A15 Determinants, Permanents, Other Special Matrix Functions  
1713, 1882, 2882

A18 Eigenvalues, Singular Values, and Eigenvectors  
1955, 1963, 2398, 2882

A21 Canonical Forms, Reductions, Classification  
1829, 1928, 2082, 2345, 2969

- A23 Factorization of Matrices  
2163
- A24 Matrix Equations and Identities  
1702, 1776
- A39 Linear Inequalities  
1553, 1757, 1842, 2231, 2498, 2838
- A42 Inequalities Involving Eigenvalues and Eigenvectors  
1931
- A45 Miscellaneous Inequalities Involving Matrices  
1702, 1776, 1882
- A48 Positive Matrices and Their Generalizations  
1713, 1757, 1963, 2155, 2159, 2163, 2311, 2423, 2677
- A54 Matrices Over Function Rings in One or More Variables  
1928, 2082
- A57 Other Types of Matrices (Hermitian, Skew-Hermitian, etc.)  
1879, 1894, 1977
- A60 Norms of Matrices, Numerical Range, Applications of Functional Analysis to  
Matrix Theory (See also 65F35, 65J05.)  
2108, 2507, 2600, 2951
- A63 Quadratic and Bilinear Forms, Inner Products (See mainly 10Cxx.)  
2383, 2386
- A72 Vector and Tensor Algebra, Theory of Invariants  
2399
- A90 Applications to Physics  
2345, 2399

**20-XX GROUP THEORY AND GENERALIZATIONS**

**20Jxx Connections with Homological Algebra and Category Theory**

- J06 Cohomology of Finite Groups  
2717

**20Mxx Semigroups**

- M20 Semigroups of Transformations, etc. (See also 47D05, 47H20, 54H15.)  
1865, 2149

**26-XX REAL FUNCTIONS (See also 54C30.)**

- 01 Elementary Exposition, Textbooks  
2688
- 04 Explicit Machine Computation and Programs (Not the Theory of Computation or  
Programming)  
2688

**26Axx Functions of One Variable**

- A06 One-Variable Calculus  
2688
  
- A16 Lipschitz (Holder) Classes  
1994
  
- A24 Differentiation (Functions of One Variable): General Theory, Generalized Derivatives, Mean-value Theorems (See also 28A15.)  
1687, 2043
  
- A27 Nondifferentiability (Nondifferentiable Functions, Points of Nondifferentiability), Discontinuous Derivatives  
1687
  
- A33 Fractional Derivatives and Integrals  
2316
  
- A42 Integrals of Riemann, Stieltjes and Lebesgue Type (See also 28-XX.)  
2087, 2190
  
- A48 Monotonic Functions, Generalizations  
1593
  
- A51 Convexity, Generalizations  
1553, 1610

**26Bxx Functions of Several Variables**

- B05 Continuity and Differentiation Questions  
1829
  
- B10 Implicit Function Theorems, Jacobians, Transformations with Several Variables  
1707
  
- B12 Calculus of Vector Functions  
2286
  
- B40 Representation and Superposition of Functions  
1656, 1994, 2036

**26Cxx Polynomials, Rational Functions**

- C05 Polynomials: Analytic Properties, Inequalities, etc.  
1726
  
- C10 Polynomials: Location of Zeros (See also 12D10, 30C15, 65H05.)  
1726

**26Dxx Inequalities (For maximal function inequalities, see 42B25; for functional inequalities, see 39C05.)**

- D05 Inequalities for Trigonometric Functions and Polynomials  
1726, 2113, 2156
  
- D10 Inequalities Involving Derivatives and Differential and Integral Operators  
1563, 1645, 1678, 1726, 1809, 2929



**26Exx Miscellaneous Topics (See also 58Cxx.)**

E15 Calculus of Functions on Infinite-Dimensional Spaces  
2286

E20 Calculus of Functions Taking Values in Infinite-Dimensional Spaces  
2286

E25 Set-Valued Functions (See also 54C60.)  
2286

**28-XX MEASURE AND INTEGRATION (For analysis on manifolds, see 58-XX.)****28Axx Classical Measure Theory**

A25 Integration with Respect to Measures and Other Set Functions  
1612

**28Bxx Measures and Integrals with Values in Abstract Spaces**

B20 Set-Valued Measures; Integration of Set-Valued Functions; Measurable  
Selections (See also 54C60, 54C65.)  
2087, 2190, 2268

**28Dxx Measure-Theoretic Ergodic Theory (See also 22D40, 47A35, 54H20, 58Fxx, 60Fxx,  
60G10.)**

D05 Measure-Preserving Transformations  
1710, 2736

D99 None of the above, but in this section  
2544

**30-XX FUNCTIONS OF COMPLEX VARIABLE (For analysis on manifolds, see 58-XX.)**

-04 Explicit Machine Computation and Programs (not the Theory of Computation or  
Programming)  
2104

**30Axx General Properties**

A10 Inequalities in the Complex Domain  
2009

**30Bxx Series Expansions**

B30 Boundary Behavior of Power Series, Over-Convergence  
2204

B40 Analytic Continuation  
2103

**30Cxx Geometric Function Theory**

C10 Polynomials  
1726, 2773, 2874

C15 Zeros of Polynomials, Rational Functions, and Other Analytic Functions (e.g.  
Zeros of Functions with Bounded Dirichlet Integral) (For algebraic theory,  
see 12D10; for real methods, see 26C10.)  
2022, 2773, 2874

C20 Conformal Mappings of Special Domains  
2647

C30 Numerical Methods in Conformal Mapping Theory (See also 65E05.)  
2514

**30Dxx Entire and Meromorphic Functions, and Related Topics**

D15 Special Classes of Entire Functions and Growth Estimates  
1637, 2757

D55  $H^p$ -Classes  
2444

**30Exx Miscellaneous Topics of Analysis in the Complex Domain**

E10 Approximation in the Complex Domain  
2204, 2460, 2714

E15 Asymptotic Representations in the Complex Domain  
1726, 2068, 2103, 2263, 2264, 2265

E20 Integration, Integrals of Cauchy Type, Integral Representations of Analytic  
Functions (See also 45Exx.)  
1726

E25 Boundary Value Problems (See also 45Exx.)  
2051

**31-XX POTENTIAL THEORY (For probabilistic potential theory, see 60J45.)**

-02 Advanced Exposition (Research Surveys, Monographs, etc.)  
1793

**31Axx Two-Dimensional Theory**

A30 Biharmonic, Polyharmonic Functions and Equations, Poisson's Equation  
1874, 2449

**31Cxx Other Generalizations**

C15 Potentials and Capacities  
2109

C25 Dirichlet Spaces  
2109

**33-XX SPECIAL FUNCTIONS (33-XX deals with the properties of functions as functions. General systems of orthogonal functions are treated in 42C05. Expansions in orthogonal functions are treated in 42C10, 42C15.)**

-04 Explicit Machine Computation and Programs (not the Theory of Computation or  
Programming)  
1572, 1717

A10 Exponential and Trigonometric Functions  
2299, 2313

A15 Gamma and Beta Functions  
1572, 1717

- A25 Elliptic Functions and Integrals  
1669
- A30 Simple Hypergeometric Functions of One and Several Variables  
1557, 1574, 1603, 1606, 1669, 1711, 1851
- A40 Cylindrical Functions, Bessel Functions  
1572, 1711, 2103
- A45 Spherical Functions, (Legendre Polynomials and Functions, Spherical Harmonics), Ultraspherical Polynomials  
1603, 1851, 2250
- A65 Orthogonal Special Functions and Polynomials (Chebyshev, Hermite, Jacobi, Laguerre, etc.)  
1574, 1609, 1696, 1726, 1833, 1851, 2130
- A70 Other Special Functions  
2250

**34-XX ORDINARY DIFFERENTIAL EQUATIONS**

- 1887
- 02 Advanced Exposition (Research Surveys, Monographs, etc.)  
1848
- 04 Explicit Machine Computation and Programs (not the Theory of Computation or Programming)  
1664, 2777

**34Axx General Theory**

- A10 Initial Value Problems: General Existence and Uniqueness Theorems; Continuous Dependence of Solutions on Parameters, Initial Conditions and Boundary Conditions (See also 45005.)  
1664, 1729, 2016, 2205
- A15 Initial Value Problems: Continuation of Solutions  
2150
- A20 Differential Equations in the Complex Domain (See also 30005.)  
2135
- A25 Analytical Theory: Series, Transformations, Transforms, Operational Calculus, etc. (See also 44-XX, 47E05.)  
1928, 2082
- A34 Nonlinear Equations and Systems, General  
2039, 2101
- A45 Theoretical Approximation of Solutions  
2157, 2285
- A50 Numerical Approximation of Solutions (For numerical analysis, see 65Lxx.)  
1848, 1923, 2590

- A99 None of the above, but in this section  
1580
- 34Bxx Boundary Value Problems**
- B05 Linear Equations  
1670, 2140, 2157, 2289
- B10 Multipoint Boundary Value Problems  
1581, 1582, 2055, 2357
- B15 Nonlinear Boundary Value Problems  
1551, 1566, 1665, 1681, 1766, 1792, 1861, 1941, 1947, 1981, 2039, 2115,  
2146, 2165, 2205, 2285, 2303, 2315, 2332, 2341, 2388, 2495, 2595,  
2649, 2772, 2802
- B20 Weyl Theory and its Generalizations  
1676
- B25 Spectral Theory, Sturm-Liouville, and Scattering Theory; Eigenfunctions,  
Eigenvalues, and Expansions (See also 42-XX, 43-XX, 45C05, 47Axx, 47Bxx,  
47E05.)  
1683, 1688, 1824, 2046, 2157, 2199, 2207, 2308, 2357, 2367
- B27 Green Functions  
2941
- B30 Special Equations (Mathieu, Hill, Bessel, etc.) (See also 33-XX.)  
2728, 2837
- 34Cxx Qualitative Theory**
- C05 Location of Integral Curves, Singular Points, Limit Cycles  
1664, 1913, 1962, 2138, 2142, 2144, 2146, 2156, 2205, 2285
- C10 Zeros, Disconjugacy, Oscillation of Solutions  
2594
- C11 Growth, Boundedness, Comparison of Solutions  
2138, 2157, 2247, 2285, 2527
- C15 Nonlinear Oscillations  
1769, 1783, 1854, 1878, 1927, 2001, 2023, 2030, 2052, 2154, 2278, 2446,  
2593, 2637, 2748, 2768, 2974
- C20 Transformation and Reduction of Equations and Systems  
2027
- C25 Periodic Solutions  
1709, 1769, 1783, 1854, 1878, 1927, 2001, 2023, 2027, 2030, 2050, 2154,  
2232, 2233, 2278, 2446, 2508, 2532, 2570, 2577, 2593, 2610, 2637, 2655,  
2748, 2768, 2859, 2901, 2912, 2963, 2974
- C30 Manifolds of Solutions  
1604

- C35 Dynamical Systems (See also 54H20, 58Fxx, 70-XX.)  
1718, 1751, 1801, 1830, 1841, 2046, 2261, 2544, 2628, 2753, 2810, 2974
- C99 None of the above, but in this section  
2628
- 34Dxx Stability Theory (See also 58F10, 93Dxx.)**
- D05 Asymptotic Properties, Characteristic Exponents  
1604, 1913, 2117, 2138, 2150, 2156, 2199, 2205, 2213
- D10 Perturbations  
2649
- D15 Singular Perturbations  
2213, 2285, 2527, 2772
- D20 Lyapunov Stability  
2150
- D25 Popov-Type Stability  
1713
- D30 Structural Stability and Analogous Concepts (See also 58Fxx.)  
1962, 2101
- D40 Ultimate Boundedness  
2150
- D99 None of the above, but in this section  
1671
- 34Exx Asymptotic Theory**
- E05 Asymptotic Expansions  
2138, 2146, 2157, 2199, 2285, 2289, 2533, 2535, 2536, 2541, 2551, 2672,  
2772
- E15 Singular Perturbations, General Theory  
1551, 1699, 1709, 1766, 1881, 1947, 1981, 2165, 2244, 2315, 2332, 2388,  
2527, 2941, 2974
- E20 Singular Perturbations, Turning Point Theory, WKB-Methods  
1715, 2068, 2103, 2263, 2264, 2265, 2402, 2466
- E99 None of the above, but in this section  
1928, 2082, 2096, 2322, 2483, 2533, 2536, 2541, 2551, 2557, 2579
- 34Gxx Differential Equations in Abstract Spaces (See also 58D25.)**  
2091
- G10 Linear Equations (See also 47Axx, 47Bxx, 47D05.)  
1555, 1568, 1604, 1765, 1869, 1912, 2794
- G20 Nonlinear Equations (See also 47Hxx.)  
2027, 2076, 2099, 2183, 2256, 2282, 2673, 2897

**34H05 Control Problems (See also 49-XX, 93-XX.)**

1729

**34Kxx Functional-Differential and Differential-Difference Equations, with or without Deviating (or Retarded) Arguments****K05 General Theory**

1765, 1782, 2287, 2794

**K20 Stability Theory**

2275, 2684, 2824

**K30 Equations in Abstract Spaces**

2824

**K35 Control Problems**

2624, 2680, 2762

**K99 None of the above, but in this section**

2586, 2652

**35-XX PARTIAL DIFFERENTIAL EQUATIONS**

1989, 2194

**-02 Advanced Exposition (Research Surveys, Monographs, etc.)**

1657, 1761, 2724

**35Axx General Theory****A05 General Existence and Uniqueness Theorems**

1799, 1827, 2099, 2273, 2626

**A07 Local Existence and Uniqueness Theorems (See also 35Hxx, 35Sxx.)**

2589

**A15 Variational Methods**

1584, 1633, 1644, 1703, 1743, 1989, 2100, 2121, 2161, 2179, 2630, 2668

**A22 Transform Methods**

1594, 2713

**A25 Other Special Methods**

1823, 1847, 1957

**A30 Geometric Theory, Characteristics, Transformations**

2657, 2782

**A35 Theoretical Approximation to Solutions**

2297

**A40 Numerical Approximation to Solutions (For numerical analysis, see 65Mxx, 65Nxx, 65P05.)**

1705, 1832, 1924, 1925, 2626

**35Bxx Qualitative Properties of Solutions****B10 Periodic Solutions**

1633, 1742, 1817, 2136, 2158, 2206, 2429, 2575, 2594, 2839, 2878, 2908

- B20 Perturbations
  - 2236, 2392, 2899
- B25 Singular Perturbations
  - 2074, 2110, 2193, 2542, 2585
- B30 Dependence of Solutions on Initial and Boundary Data, Parameters
  - 1844, 1859, 1874, 1896, 1993, 2206, 2424, 2605
- B32 Bifurcation
  - 2136, 2172, 2201, 2261, 2575, 2668, 2689, 2759, 2839, 2878, 2908, 2953
- B35 Stability, Boundedness
  - 1709, 1724, 2457, 2678, 2878, 2885
- B40 Asymptotic Behavior of Solutions
  - 1575, 1684, 1736, 1774, 1828, 1856, 1896, 1986, 1991, 1993, 2046, 2090, 2137, 2184, 2194, 2237, 2281, 2318, 2393, 2493, 2538, 2575, 2875, 2881, 2962
- B45 A Priori Estimates
  - 1596, 1975, 2206, 2258, 2281, 2419, 2976
- B50 Maximum Principles
  - 2307, 2509
- B65 Smoothness of Solutions
  - 2258, 2419, 2432, 2510, 2745
- B99 None of the above, but in this section
  - 1580, 1975, 2142, 2144, 2298, 2330, 2364, 2413, 2491, 2504, 2505, 2666
- 350xx Representations of Solutions**
  - C05 Solutions in Closed Form
    - 2208, 2363, 2617
  - C15 Integral Representations
    - 2207, 2258
  - C20 Asymptotic Expansions
    - 2295, 2482, 2585, 2626
  - C99 None of the above, but in this section
    - 2308
- 350xx Generalized Solutions**
  - D05 Existence of Generalized Solutions
    - 1633, 1673, 2099, 2161, 2282, 2317, 2617
  - D10 Regularity of Generalized Solutions
    - 2076, 2282, 2745
  - D99 None of the above, but in this section
    - 2723

- 35Exx Equations and Systems with Constant Coefficients (See also 35N05.)**  
E15 Initial Value Problems  
1941
- 35Fxx General First Order Equations and Systems**  
F05 Linear Equations and Systems, General  
2657
- F15 Boundary Value Problems for Linear Equations and Systems  
2300, 2351, 2944
- F20 Nonlinear Equations and Systems, General  
2036, 2259, 2390, 2492, 2488, 2511, 2617, 2719, 2875
- F25 Initial Value Problems for Nonlinear Equations and Systems  
1943, 2259, 2390, 2424, 2488, 2511, 2617, 2719, 2907
- F30 Boundary Value Problems for Nonlinear Equations and Systems  
2621, 2723, 2761, 2769, 2826, 2905
- 35Gxx General Higher Order Equations and Systems**  
G20 Nonlinear Equations and Systems, General  
2352, 2711
- G25 Initial Value Problems for Nonlinear Equations and Systems  
2133, 2318, 2606, 2725, 2801
- G30 Boundary Value Problems for Nonlinear Equations and Systems  
2208, 2883, 2938
- 35Jxx Elliptic Equations and Systems (See also 58G05, 58G10.)**  
1938, 1939
- J05 Laplace Equation, Reduced Wave Equation (Helmholtz), Poisson Equation  
2461, 2533, 2536, 2541, 2551
- J10 Schrodinger Operator (See also 47A40.)  
1827, 1875
- J15 Second Order Equations, General  
2065, 2330, 2419, 2433
- J20 Second Order Equations, Variational Methods  
1580, 1673, 1883, 1885, 1948, 2233, 2245, 2270, 2401, 2439, 2473, 2515,  
2532, 2594, 2660, 2764, 2922
- J25 Second Order Equations, Boundary Value Problems  
1657, 1761, 1772, 1789, 1816, 1883, 1885, 1995, 2083, 2092, 2161, 2170,  
2227, 2307, 2439, 2660, 2754, 2759, 2886
- J30 Higher Order Equations, General  
2227
- J40 Higher Order Equations, Boundary Value Problems  
2083



- J50 Systems, Variational Methods  
2653
- J55 Systems, Boundary Value Problems  
1909, 2513, 2886
- J60 Nonlinear Equations and Systems  
1590, 1627, 1633, 1752, 1758, 1772, 1777, 1789, 1816, 1909, 1987, 2065,  
2111, 2117, 2161, 2192, 2233, 2401, 2473, 2513, 2542, 2678, 2788, 2858,  
2861, 2903, 2914, 2922, 2927
- J65 Nonlinear Boundary Value Problems for Linear Equations and Systems; Boundary  
Value Problems for Nonlinear Equations and Systems  
1680, 1948, 1953, 1989, 2121, 2131, 2170, 2179, 2209, 2245, 2270, 2330,  
2350, 2454, 2465, 2522, 2553, 2568, 2585, 2619, 2633, 2636, 2653, 2886,  
2927, 2975
- J67 Boundary Values of Solutions  
2533, 2536, 2541, 2551
- J70 Equations and Systems of Degenerate Type  
1948, 1987, 2245, 2274, 2419, 2691
- J99 None of the above, but in this section  
1693, 1793
- 35Kxx Parabolic Equations and Systems (See also 58G11.)**  
2028
- K05 Heat Equation  
1698, 1743, 2028, 2109, 2249, 2295, 2894
- K10 Second Order Equations, General  
2124, 2189, 2214, 2745, 2747
- K15 Second Order Equations, Initial Value Problems  
1562, 1912, 1942, 2124, 2166, 2187, 2189, 2214, 2277, 2387, 2646, 2673,  
2727, 2770
- K20 Second Order Equations, Boundary Value Problems  
1816, 2124, 2189, 2214, 2236, 2453, 2727, 2770
- K22 Evolution Equations (Any Order in the Spatial Derivatives) (See also 58D25.)  
2040, 2059, 2100, 2109, 2346
- K30 Higher Order Equations, Initial Value Problems  
2673
- K35 Higher Order Equations, Boundary Value Problems  
2794
- K40 Systems, General  
2089

- K45 Systems, Initial Value Problems  
1774, 1869, 2162, 2171, 2457
- K50 Systems, Boundary Value Problems  
1869, 1896, 1993, 2216, 2482
- K55 Nonlinear Equations and Systems  
1594, 1596, 1635, 1647, 1684, 1698, 1709, 1724, 1736, 1739, 1740, 1800,  
1859, 1869, 1872, 1896, 1909, 1942, 1986, 1991, 1992, 1993, 2019, 2046,  
2061, 2062, 2074, 2090, 2091, 2096, 2100, 2110, 2115, 2134, 2162, 2166,  
2171, 2183, 2187, 2194, 2214, 2220, 2223, 2255, 2261, 2277, 2283, 2287,  
2291, 2354, 2364, 2366, 2374, 2417, 2443, 2475, 2495, 2502, 2510, 2525,  
2545, 2555, 2565, 2582, 2623, 2678, 2697, 2727, 2728, 2742, 2745, 2747,  
2770, 2784, 2811, 2828, 2837, 2881, 2885, 2925, 2976
- K60 Nonlinear Boundary Value Problems for Linear Equations and Systems; Boundary  
Value Problems for Nonlinear Equations and Systems  
1684, 1816, 1909, 2028, 2172, 2214, 2237, 2273, 2306, 2422, 2432, 2484,  
2510, 2656, 2811
- K65 Equations and Systems of Degenerate Type  
2099, 2124, 2189, 2214, 2216, 2220, 2221, 2225, 2252, 2282, 2354, 2387,  
2432, 2433, 2443, 2475, 2484, 2489, 2502, 2504, 2538, 2560, 2582, 2623,  
2656, 2727, 2745, 2747, 2851, 2869, 2906
- K70 Ultraparabolic, Pseudoparabolic Problems  
2062, 2099, 2100
- K99 None of the above, but in this section  
2543
- 35Lxx Hyperbolic Equations and Systems (See also 58G16.)**
- L05 Wave Equation  
1575, 1584, 1649, 1742, 1743, 1799, 1817, 2158, 2429, 2942
- L10 Second Order Equations, General  
2859, 2963
- L15 Second Order Equations, Initial Value Problems  
2073, 2256, 2377, 2393, 2493, 2530, 2614, 2667, 2770, 2944
- L20 Second Order Equations, Boundary Value Problems  
2073, 2614
- L35 Higher Order Equations, Boundary Value Problems  
2794
- L40 First Order Systems, General  
1614, 2089, 2398, 2782
- L45 First Order Systems, Initial Value Problems  
2302
- L50 First Order Systems, Boundary Value Problems  
2300, 2351, 2403, 2404, 2558

- L55 Higher Order Hyperbolic Systems  
2095
  
- L60 First Order Nonlinear Equations and Systems  
1556, 1558, 1598, 1615, 1633, 1642, 1742, 1799, 1817, 1838, 1876, 1906,  
1927, 1992, 2137, 2158, 2259, 2273, 2363, 2381, 2390, 2488, 2492, 2511,  
2617, 2621, 2719, 2875, 2976
  
- L65 Conservation Laws (See also 76-XX.)  
1838, 2097, 2139, 2184, 2230, 2251, 2281, 2298, 2302, 2318, 2363, 2413,  
2457, 2491, 2501, 2504, 2505, 2517, 2666, 2700, 2731, 2827, 2831, 2855,  
2868, 2871, 2891, 2892, 2906, 2917, 2958, 2968, 2976
  
- L67 Shocks and Singularities  
2073, 2095, 2097, 2137, 2184, 2230, 2251, 2280, 2281, 2298, 2302, 2363,  
2393, 2413, 2434, 2462, 2491, 2493, 2501, 2504, 2666, 2713, 2715, 2731,  
2770, 2782, 2827, 2831, 2855, 2868, 2891, 2892, 2958, 2968
  
- L70 Second Order Nonlinear Equations and Systems  
2073, 2393, 2458, 2462, 2493, 2598, 2652, 2658, 2715, 2736, 2770, 2821,  
2935, 2944
  
- L75 Higher (>2) Order Nonlinear Equations and Systems  
2457
  
- L80 Equations and Systems of Degenerate Type  
2871
  
- L99 None of the above, but in this section  
2164
  
- 35M05** Equations and Systems of Mixed (Tricomi, etc.) or Composite Type (For degenerate  
types, elliptic, see 35Jxx, parabolic, see 35Kxx, hyperbolic, see 35Lxx, etc.)  
1991, 2194, 2237, 2240, 2273, 2280, 2298, 2364, 2413, 2578, 2606, 2657,  
2666, 2697, 2725, 2730, 2731, 2770, 2782, 2801, 2883, 2916, 2935, 2938,  
2962
  
- 35Nxx** Overdetermined Systems (See also 58G05, 58G07, 58Hxx.)  
N99 None of the above, but in this section  
1657, 1761
  
- 35Pxx** Spectral Theory and Eigenvalue Problems (See also 47Axx, 47Bxx, 47F05.)  
P05 General Spectral Theory  
2051
  
- P10 Completeness of Eigenfunctions, Eigenfunction Expansions  
2051
  
- P15 Estimation of Eigenvalues, Upper and Lower Bounds  
2367
  
- P25 Scattering Theory (See also 47A40.)  
2051

P30 Nonlinear Eigenvalue Problems  
2111, 2134, 2209, 2350, 2515, 2605, 2914

**35Qxx Special Equations and Problems (See also 35J05, 35K05, 35L05.)**

Q10 Navier-Stokes Equation (See also 76D05.)  
1584, 1941, 1981, 2315, 2325, 2332, 2504, 2505, 2509, 2643, 2689, 2735,  
2739, 2790, 2809, 2864, 2881, 2883, 2884, 2885, 2886, 2938

Q20 Particular Equations of Mathematical Physics (Korteweg-de Vries, Burgers,  
etc.)  
2135, 2171, 2183, 2206, 2207, 2208, 2255, 2258, 2308, 2424, 2425, 2451,  
2477, 2489, 2575, 2784, 2914

Q99 None of the above, but in this section  
2430, 2553, 2730, 2884

**35Rxx Miscellaneous Topics (For equations on manifolds, see 58Gxx; for manifolds of  
solutions, see 58Bxx; for stochastic PDEs, see also 60H15.)**

R05 Equations with Discontinuous Coefficients or Data  
1995, 2245, 2713, 2820, 2953

R10 Difference-Partial Differential Equations, Equations with Time Lag  
2897

R15 Equations on Function Spaces (See also 58D25.)  
1604, 2783

R20 Operator Equations, General (See also 34Gxx, 47A50, 47H15.)  
1604, 1743

R25 Improperly Posed Problems  
1565, 2871

R30 Inverse Problems (Undetermined Coefficients, etc.)  
1709, 1846, 1990, 2007, 2135

R35 Free Boundary Problems  
2099, 2100, 2131, 2245, 2249, 2266, 2270, 2274, 2282, 2406, 2407, 2432,  
2489, 2536, 2540, 2541, 2543, 2551, 2561, 2623, 2728, 2742, 2809, 2820,  
2828, 2837, 2839, 2908, 2953

R60 Equations and Systems with Randomness  
2168

R99 None of the above, but in this section  
1569, 1657, 1693, 1761, 1793, 1948

**35Sxx Pseudodifferential Operators (See also 47G05, 58G15.)**

S10 Initial Value Problems  
2589, 2713, 2770

**39-XX FINITE DIFFERENCES AND FUNCTIONAL EQUATIONS**

-02 Advanced Exposition (Research Surveys, Monographs, etc.)  
2724

-04 Explicit Machine Computation and Programs (not the Theory of Computation or Programming)  
2489

**39Axx Finite Differences (See also 65-XX.)**

A10 Difference Equations  
2544, 2573, 2824

A11 Stability of Difference Equations  
2108, 2346, 2507, 2600, 2824

A12 Discrete Version of Topics in Analysis  
2049, 2057, 2489, 2824

A70 Difference Operators (See also 47B39.)  
2049, 2057

A99 None of the above, but in this section  
2536, 2541

**39Bxx Functional Equations (See also 30D05.)**

B05 General  
2827

B20 Equations for One Unknown Function of One Variable, Rank Greater than One  
2296

B30 Equations for Several Unknown Functions of One Variable, Systems  
2731

**40-XX SEQUENCES, SERIES, SUMMABILITY**

**40Axx Convergence and Divergence of Infinite Limiting Processes**

A15 Convergence and Divergence of Continued Fractions (See also 30B70.)  
1711

A25 Approximation to Limiting Values (Summation of Series, etc.) (For the Euler-Maclaurin summation formula, see 65B15.)  
1726

**40Dxx Direct Theorems on Summability**

D10 Tauberian Constants and Oscillation Limits  
1578

**41-XX APPROXIMATIONS AND EXPANSIONS (For all approximation theory in the complex domain, see 30E05 and 30E10; for all trigonometric approximation and interpolation, see 42A10 and 42A15; for numerical approximation, see 65Dxx.)**

-01 Elementary Exposition, Textbooks  
2786

-02 Advanced Exposition (Research Surveys, Monographs, etc.)  
2379, 2950

- 04 Explicit Machine Computation and Programs (not the Theory of Computation or Programming)  
2464
  
- A05 Interpolation (See also 42A15 and 65D05.)  
1621, 1706, 1726, 1744, 1746, 1756, 1895, 1918, 1978, 2024, 2204, 2299, 2313, 2314, 2379, 2485, 2677, 2686, 2876, 2889, 2950
  
- A10 Approximation by Polynomials (For approximation by trigonometric polynomials, see 42A10.)  
1726, 2107, 2269, 2296, 2297, 2379, 2460, 2472, 2950, 2954
  
- A15 Spline Approximation  
1546, 1563, 1582, 1597, 1599, 1620, 1637, 1645, 1666, 1667, 1706, 1744, 1746, 1773, 1781, 1788, 1794, 1832, 1852, 1914, 1918, 1974, 1999, 2049, 2088, 2094, 2114, 2129, 2148, 2178, 2188, 2215, 2217, 2229, 2234, 2235, 2238, 2242, 2299, 2313, 2319, 2320, 2334, 2335, 2359, 2371, 2379, 2389, 2415, 2423, 2437, 2485, 2494, 2671, 2677, 2680, 2686, 2696, 2704, 2743, 2744, 2749, 2756, 2763, 2876, 2896, 2909, 2918, 2926, 2930, 2937, 2950, 2952, 2957, 2967
  
- A17 Inequalities in Approximation (Bernstein, Jackson, Nikol'skii Type Inequalities)  
2145
  
- A20 Approximation by Rational Functions  
1726
  
- A25 Rate of Convergence, Degree of Approximation  
1726, 1762, 1773, 2181, 2319, 2320, 2389, 2415, 2437, 2494, 2696, 2704, 2743, 2749, 2763, 2930, 2967
  
- A28 Simultaneous Approximation  
2576
  
- A30 Approximation by other Special Function Classes  
1656, 1873, 1911, 1994, 2036, 2279, 2341, 2834
  
- A35 Approximation by Operators (In particular, by Integral Operators)  
1726
  
- A40 Saturation  
1773
  
- A45 Approximation by Arbitrary Linear Expressions  
1612, 1621, 1630, 1723
  
- A46 Approximation by Arbitrary Nonlinear Expressions; Widths and Entropy  
1621, 2444
  
- A50 Best Approximation (Cebyshev, etc.)  
1679, 1794, 1916, 2098, 2143
  
- A55 Approximate Quadratures  
1695, 1726, 1773, 1978, 2269, 2314

- A60 Asymptotic Approximations, Asymptotic Expansions (Steepest Descent, etc.)  
(See also 30E15.)  
1726, 2068, 2146, 2156, 2263, 2264, 2265, 2402, 2466, 2731, 2827
- A63 Multidimensional Problems  
1723, 1744, 1773, 1810, 1895, 1916, 1974, 2114, 2129, 2188, 2215, 2227,  
2297, 2319, 2320, 2379, 2389, 2415, 2485, 2494, 2671, 2686, 2696, 2743,  
2749, 2756, 2763, 2834, 2918, 2930, 2937, 2950, 2967
- A65 Abstract Approximation Theory (Approximation in Normed Linear Spaces and Other  
Abstract Spaces)  
1586, 1638, 1706, 1822, 1994, 2379, 2760, 2950

**42-XX FOURIER ANALYSIS**

- 04 Explicit Machine Computation and Programs (not the Theory of Computation or  
Programming)  
1643

**42Axx Fourier Analysis in One Variable**

- A05 Trigonometric Polynomials, Inequalities, Extremal Problems  
1578, 1609, 1631, 1728
- A10 Trigonometric Approximation  
2021
- A15 Trigonometric Interpolation  
1756, 1781, 1960
- A38 Fourier and Fourier-Stieltjes Transforms and Other Transforms of Fourier Type  
1643, 2654
- A65 Completeness of Sets of Functions  
2021
- A70 Trigonometric Moment Problems  
2130
- A75 Classical Almost Periodic Functions, Mean Periodic Functions (See also 43A60.)  
2642
- A82 Positive Definite Functions  
1603
- A85 Convolution, Factorization  
2149

**42Bxx Fourier Analysis in Several Variables**

- B99 None of the above, but in this section  
2834

**42Cxx Non-Trigonometric Fourier Analysis**

- C05 Orthogonal Functions and Polynomials, General Theory (See also 33A65.)  
1712, 1726, 1760, 1784

- C10 Fourier Series in Special Orthogonal Functions (Legendre Polynomials, Walsh Functions, etc.)  
1726
- C15 Series of General Orthogonal Functions, Generalized Fourier Expansions, Nonorthogonal Expansions  
2149
- C25 Uniqueness and Localization for Orthogonal Series  
1726
- C30 Completeness of Sets of Functions  
2149
- 44-XX INTEGRAL TRANSFORMS, OPERATIONAL CALCULUS (For fractional derivatives and integrals, see 26A33. For numerical methods, see 65R10.)
  - A10 Laplace Transform  
2114, 2149, 2824
  - A30 Multiple Transforms  
2297
  - A50 Discrete Operational Calculus  
2824
- 45-XX INTEGRAL EQUATIONS
  - 02 Advanced Exposition (Research Surveys, Monographs, etc.)  
1793
  - 45A05 Linear Integral Equations  
1562, 1863, 2642, 2771
  - 45B05 Fredholm Integral Equations  
1670
  - 45C05 Eigenvalue Problems (See also 34B25, 35Pxx, 47P05.)  
1696, 2012, 2054, 2127, 2367
  - 45D05 Volterra Integral Equations (See also 34A10.)  
1556, 1558, 1684, 1716, 1826, 1831, 1881, 1979, 2028, 2069, 2070, 2081, 2095, 2152, 2224, 2251, 2440, 2442, 2501, 2566, 2654, 2771
  - 45Exx Singular Integral Equations (See also 30E20, 30E25, 44A15, 44A35.)
    - E05 Integral Equations with Kernels of Cauchy Type (See also 35J15.)  
2573
    - E10 Integral Equations of the Convolution Type (Abel, Picard, Toeplitz and Wiener-Hopf Type) (See also 47B35.)  
1787, 1813, 1904, 1921, 1933, 2642, 2667, 2944
  - 45Fxx Systems of Linear Integral Equations
    - F05 Systems of Nonsingular Linear Integral Equations  
2275



- 45Gxx Nonlinear Integral Equations (See also 47hxx.)**  
G05 Singular Nonlinear Integral Equations  
2012, 2041, 2054, 2127, 2293, 2324, 2450, 2475, 2582, 2687, 2856
- G10 Other Nonlinear Integral Equations  
1556, 1558, 1684, 1716, 1813, 1815, 2041, 2070, 2081, 2087, 2095, 2128,  
2152, 2224, 2251, 2258, 2440, 2442, 2501, 2566
- 45J05 Integro-Ordinary Differential Equations**  
1558, 1694, 1764, 2039, 2069, 2081, 2167, 2213, 2642
- 45K05 Integro-Partial Differential Equations**  
1684, 1876, 1906, 1979, 2028, 2070, 2081, 2095, 2183, 2251, 2255, 2287,  
2346, 2377, 2440, 2462, 2501, 2530, 2555, 2589, 2598, 2658, 2667, 2713,  
2770, 2821, 2944, 2976
- 45Lxx Approximation of Solutions**  
L05 Theoretical Approximation of Solutions  
1630, 1723, 1767, 1815, 2087, 2128
- L10 Numerical Approximation of Solutions (For numerical analysis, see 65R20.)  
1787, 1904, 1921, 2087, 2128, 2213, 2268
- 45Nxx Qualitative Behavior**  
M05 Asymptotics  
1684, 1694, 1764, 1979, 2069, 2070, 2081, 2152, 2167, 2224, 2442, 2654
- M10 Stability Theory  
1764, 2069, 2081, 2095, 2167, 2251, 2275, 2440, 2501
- M99 None of the above, but in this section  
1694, 1716, 1876, 1906, 2095, 2251, 2501
- 45N05 Abstract Integral Equations, Integral Equations in Abstract Spaces**  
1556, 1684, 1716, 1764, 1765, 1979, 2167, 2440
- 46-XX FUNCTIONAL ANALYSIS (For manifolds modeled on topological linear spaces, see 57N20, 58Bxx.)**  
**46Bxx Normed Linear Spaces and Banach Spaces (For function spaces, see 46Exx.)**  
B10 Duality and Reflexivity  
1650, 1707
- 46Cxx Inner Product Spaces, Hilbert Spaces (For function spaces, see 46Exx.)**  
C10 Other Properties of such Spaces  
1710
- 46Exx Linear Function Spaces and Their Duals (See also 30H05; for function algebras, see 46J10.)**  
E30 Spaces of Measurable Functions ( $L^p$ -Spaces, Orlicz Spaces, Kothe Function Spaces, Lorentz Spaces, Rearrangement Invariant Spaces, etc.)  
2126
- E35 Sobolev Spaces and Other Spaces of "Smooth" Functions, Imbedding Theorems, Trace Theorems  
1992, 2126, 2228, 2833

E39 Sobolev (and Similar Kinds of) Spaces of Functions of Discrete Variables  
2109

**46Fxx Distributions, Generalized Functions, Distribution Spaces (For distribution theory on nonlinear spaces, see 58Cxx.)**

F99 None of the above, but in this section  
1578

**46Gxx Measures, Integration, Derivative (For integration on infinite-dimensional spaces, see 28C20; for nonlinear functional analysis, see 58-XX, especially 58Cxx.)**

G05 Derivatives  
1687, 2786

**46N05 Miscellaneous Applications of Functional Analysis**

1571

#### **47-XX OPERATOR THEORY**

**47Axx Single Linear Operators: General Theory**

A05 General (Adjoint, Conjugate, Product, Inverse, Domain, Range, etc.)  
1581, 1582, 1743, 2055

A10 Spectrum, Resolvent  
2202, 2316

A40 Scattering Theory (See also 34B25, 35P25, 47Dxx.)  
2051

A55 Perturbation Theory  
2202

A60 Functional Calculus  
2286, 2316

**47Bxx Single Linear Operators: Special Classes of Operators**

B15 Hermitian and Normal Operators (Spectral Measures, Functional Calculus, etc.)  
2132

B25 Symmetric and Selfadjoint Operators (Unbounded)  
2316

B37 Operators on Special Spaces (Weighted Shifts, Operators on Sequence Spaces, etc.)  
2049, 2057, 2155, 2159, 2311

B39 Difference Operators (See also 39A70.)  
2049, 2057

B44 Accretive Operators, Dissipative Operators, etc.  
1875, 2089, 2316

**47Dxx Algebraic Systems of Linear Operators (See also 46Lxx.)**

D05 Semigroups of Operators (For nonlinear operators, see 47H20; see also 20M20.)  
1912, 2089, 2202, 2287, 2316, 2377, 2530, 2940

- D10 Groups of Operators  
2316
- D20 Convex Sets and Cones of Operators  
1822
- 47E05 Ordinary Differential Operators (See also 34B25, 58Fxx.)  
1688, 2303
- 47F05 Partial Differential Operators (See also 35Pxx, 58Gxx.)  
1869, 2069, 2081, 2099, 2657
- 47G05 Integral, Integro-Differential, and Pseudodifferential Operators (See also 35Sxx,  
45P05, 58Gxx.)  
1684, 1765, 1813
- 47Hxx Nonlinear Operators (For global and geometric aspects, see 58-xx, especially  
58Cxx.)
- H05 Monotone Operators  
1556, 1558, 1571, 1668, 1672, 1684, 1716, 1765, 1789, 1812, 1845, 1856,  
1862, 2018, 2081, 2083, 2177, 2303, 2440, 2566, 2734
- H06 Accretive Operators, Dissipative Operators, etc.  
2198, 2291, 2352, 2711
- H07 Monotone and Positive Operators on Ordered Banach Spaces or Other Ordered  
Topological Vector Spaces  
2076, 2454, 2522, 2724
- H09 Nonexpansive Mappings, Ultimately Compact Mappings, K-Set Contractions, etc.  
2198, 2724
- H10 Fixed-Point Theorems (See also 34C29, 54H25, 55M20, 58C30.)  
1658, 1684, 1716, 1765, 1873, 1876, 1906, 2011, 2044, 2063, 2064, 2095,  
2251, 2454, 2501, 2583
- H15 Equations Involving Nonlinear Operators (See also 58E07 for abstract  
bifurcation theory.)  
1571, 1604, 1633, 1639, 1661, 1673, 1682, 1684, 1703, 1716, 1765, 1792,  
1817, 1828, 1856, 1862, 1869, 1876, 1906, 1910, 1927, 1942, 1992, 2011,  
2012, 2044, 2054, 2069, 2081, 2091, 2095, 2121, 2127, 2175, 2179, 2233,  
2251, 2261, 2440, 2465, 2501, 2542, 2568, 2619, 2633, 2653, 2660, 2724,  
2759, 2802, 2975
- H17 Methods for Solving Equations Involving Nonlinear Operators (For numerical  
analysis, see 65J15.)  
2027, 2083, 2092, 2125, 2135, 2251, 2501
- H20 Semigroups of Nonlinear Operators (See also 58D07.)  
2076, 2183, 2198, 2352, 2673, 2711, 2783
- H99 None of the above, but in this section  
1553, 1590, 1765, 1768, 1866, 1943, 2011, 2044, 2458

**49-XX CALCULUS OF VARIATIONS AND OPTIMAL CONTROL; OPTIMIZATION (See also 34H05, 65Kxx, 90Cxx, 93-XX.)**

- 00 Difficult to Classify at the Second Level  
1884, 2367, 2541, 2708
- 02 Advanced Exposition (Research Surveys, Monographs, etc.)  
1793

**49Axx Existence Theory for Optimal Solutions**

- A10 Problems Involving Ordinary Differential Equations, Optimal Control  
1809, 2030, 2050, 2232, 2317
- A21 Free Problems in Two or More Independent Variables  
2503
- A22 Problems Involving Partial Differential Equations, Optimal Control  
1642, 1789, 1816
- A27 Problems in Abstract Spaces  
1555, 1592, 1642, 1650, 1692, 2708, 2794
- A29 Variational Inequalities  
2092, 2291, 2367, 2734
- A34 Problems Involving Functional Relations Other than Differential Equations  
2573
- A40 Minimax Problems  
1769, 2018
- A45 Game Theory; Pursuit and Evasion (See also 90Dxx.)  
2511
- A50 Topology of Solutions, Weak and Strong Minima, Semicontinuity, Convexity, Orienter Fields  
1877, 2368

**49Bxx Necessary Conditions and Sufficient Conditions for Optimality**

- B10 Problems Involving Ordinary Differential Equations, Optimal Control  
1662, 1675, 2232, 2596, 2710
- B21 Free Problems in Two or More Independent Variables  
1644
- B22 Problems Involving Partial Differential Equations, Optimal Control  
1642, 1644
- B27 Problems in Abstract Spaces  
1555, 1642, 1650, 1900, 2006, 2011, 2044, 2063, 2064, 2596, 2708
- B36 Optimal Solutions Belonging to Restricted Classes  
2024
- B40 Minimax Problems  
1743, 2511

- B50 Sensitivity of Optimal Solutions in the Presence of Perturbations  
1920, 2024
- B99 None of the above, but in this section  
1579, 2011, 2044
- 49Cxx Caratheodory, Hamilton-Jacobi Theories, Including Dynamic Programming (See also 90C39.)**
- C20 Dynamic Programming Method  
2621, 2685
- C99 None of the above, but in this section  
1884, 1889, 2761, 2769, 2826, 2907
- 49Dxx Methods of Successive Approximations (For discrete problems, see 90Cxx; see also 65Kxx.)**
- D10 Methods of Steepest Descent Type  
2852
- D25 Finite Difference Methods  
2791, 2806
- D37 Nonlinear Programming  
2699
- D40 Methods of Quadratic Programming Type  
2340
- D45 Methods of Convex Programming Type  
1703
- D99 None of the above, but in this section  
1965, 1966, 1971, 1972
- 49Exx Controllability and Geometry of Control Problems**
- E05 General Dependence on Controls  
2942
- E10 Orienter Fields (Contingency Equations)  
1729
- E15 Attainable Sets, Controllability  
2635, 2664
- 49Fxx Manifolds (See also 58Exx.)**
- F05 Exterior Differential Forms, Invariant Integrals (Cartan Theory) (See mainly 58A15.)  
2974
- F15 Morse Theory in Hilbert and other Spaces (See also 57R27, 58Exx.)  
1707
- F20 Geometric Measure and Integration Theory, Integral and Normal Currents, Flat Chains and Cochains, Varifolds (See also 28A75, 32C30, 58A25, 58C35.)  
2556

F22 Existence and Structure of Solutions to Variational Problems in Geometric Measure-Theoretic Setting  
2024

F99 None of the above, but in this section  
1639, 1661

**49Gxx Variational Methods for Eigenvalues (See also 47A70.)**

G05 Variational Approach to Eigenvalues  
1590, 2367

G20 Linear Operators in Hilbert Spaces  
1624, 1725

G99 None of the above, but in this section  
1633, 1742, 2158

**49H05 Variational Principles of Physics (See also 70-XX, 81-XX.)**

1703, 1948, 2192, 2570

**51-XX GEOMETRY (For algebraic geometry, see 14-XX.)**

-01 Elementary Exposition, Textbooks  
1674, 2632, 2651, 2842, 2900

**51Kxx Distance Geometry**

1768

**51Mxx Real and Complex Geometry**

M05 Euclidean Geometries  
1880

M15 Geometric Constructions  
2813

M20 Polyhedra and Polytopes; Regular Figures, Division of Spaces (See also 51F15.)  
2071

M25 Length, Area and Volume (See also 26B15.)  
1674

**51Nxx Analytic and Descriptive Geometry**

N10 Affine Analytic Geometry  
2900

N20 Euclidean Analytic Geometry  
2467, 2632

**52-XX CONVEX SETS AND RELATED GEOMETRIC TOPICS**

A10 Convex Sets in 2 Dimensions  
2647

A25 Polyhedra and Polytopes  
2467

A40 Inequalities and Extremum Problems  
2071

A99 Miscellaneous Topics  
2035

**53-XX DIFFERENTIAL GEOMETRY** (For differential topology, see 57Rxx. For foundational questions of differentiable manifolds, see 58Axx.)

**53Axx Classical Differential Geometry**

A17 Kinematics  
2813

A55 Differential Invariants (Local Theory), Geometric Objects  
2175

**53Cxx Global Differential Geometry** (See also 51H25, 58-XX; for related bundle theory, see 55Rxx, 57Rxx.)

C15 Almost Complex, Contact, Symplectic, Almost Product Structures, etc.  
2974

C20 Riemannian Manifolds, Including Pinching (See also 31C12, 58B20.)  
1692

**54-XX GENERAL TOPOLOGY** (For the topology of manifolds of all dimensions, see 57Nxx.)

**54Cxx Maps and General Types of Spaces Defined by Maps**

C05 Continuous Maps  
1994, 2043

C20 Extension  
1593

C60 Set-Valued Maps (See also 26E25, 28B20.)  
1822, 2035

**54Hxx Connections with Other Structures, Applications**

H20 Topological Dynamics (See also 28Dxx, 34C35, 58Fxx.)  
2512, 2569

H25 Fixed-Point and Coincidence Theorems (See also 47H10, 55M20.)  
1988

**55-XX ALGEBRAIC TOPOLOGY**

**55Axx Classical Topics** (For the topology of Euclidean spaces and manifolds, see 57N05, 57N10, 57N15.)

M20 Fixed Points and Coincidences (See also 54H25.)  
1988

M30 Ljusternik-Schnirelman Category of a Space  
1905

M99 None of the above, but in this section  
1661, 1769

**55Nxx Homology and Cohomology Theories (See also 57Txx.)**

N25 Homology with Local Coefficients, Equivariant Cohomology  
2301, 2717

**55Qxx Homotopy Groups**

Q05 Homotopy Groups, General; Sets of Homotopy Classes  
1661

**55Sxx Operations and Obstructions**

S30 Massey Products  
1988

**57-XX MANIFOLDS AND CELL COMPLEXES (For complex manifolds, see 32C10.)****57Mxx Low-Dimensional Topology (old 55Axx)**

M25 Knots and Links in  $S^3$  (For higher dimensions, see 57Q45.)  
2615, 2709

**57Rxx Differential Topology (For foundational questions of differentiable manifolds, see 58Axx; for infinite-dimensional manifolds, see 58Bxx.)**

R35 Differentiable Mappings  
1886

R50 Diffeomorphisms  
1886

R70 Critical Points and Critical Submanifolds  
2717

**57Sxx Topological Transformation Groups (See also 20F34, 22-XX, 54H15, 58D05.)**

S10 Compact Groups of Homeomorphisms  
2717

S17 Finite Transformation Groups  
2668

S20 Noncompact Lie Groups of Transformations  
2135

S99 None of the above, but in this section  
1769

**58-XX GLOBAL ANALYSIS, ANALYSIS ON MANIFOLDS (See also 32Cxx, 32Fxx, 46-XX, 47Hxx, 53Cxx; for geometric integration theory, see 49F20, 49F22.)****58Axx General Theory of Differentiable Manifolds**

A05 Differentiable Manifolds, Foundations  
2169, 2176

**58Bxx Infinite-Dimensional Manifolds**

B20 Riemannian, Finsler, and Other Geometric Structures (See also 53C20, 53C60.)  
1692



**58Cxx Calculus on Manifolds; Nonlinear Operators (See also 47Hxx.)**

C15 Implicit Function Theorems; Global Newton Methods  
2462

C30 Fixed Point Theorems (See also 47H10.)  
2465, 2569, 2583, 2619

C40 Spectral Theory; Eigenvalue Problems  
2465, 2595, 2619

**58Dxx Spaces and Manifolds of Mappings (Including Nonlinear Versions of 46Exx)**

D30 Applications (In Quantum Mechanics (Feynman Integrals), Relativity, Fluid Dynamics, etc.)  
2266

**58Exx Variational Problems in Infinite-Dimensional Spaces**

E05 Abstract Critical Point Theory (Morse Theory, Ljusternik-Schnirelman Theory, etc.)  
1633, 1758, 1905, 1927, 2023, 2161, 2301, 2446, 2458, 2465, 2508, 2532, 2534, 2567, 2570, 2577, 2594, 2610, 2619, 2668, 2901, 2912, 2975

E07 Abstract Bifurcation Theory  
2350, 2662, 2759

E10 Applications to the Theory of Geodesics (Problems in One Independent Variable)  
2655

E12 Applications to Minimal Surfaces (Problems in Two Independent Variables)  
2636

E15 Application to Extremal Problems in Several Variables  
1668, 1714,

E25 Applications to Control Theory (Optimal and Non-Optimal)  
2664

E30 Variational Principles  
2522, 2593, 2594, 2637

E99 None of the above, but in this section  
1639, 2630

**58Fxx Ordinary Differential Equations on Manifolds; Dynamical Systems (For abstract and topological dynamics, see 28D10, 34C35, 34C40, 54H20.)**

F05 Hamiltonian and Lagrangian Systems  
1714, 1769, 1927, 2023, 2050, 2154, 2266, 2446, 2570, 2577

F10 Stability Theory  
2516

F11 Ergodic Theory; Invariant Measures (See also 28Dxx.)  
2736

F12 Structure of Attractors (and Repellers)  
2516, 2753, 2810

- F14 Bifurcation Theory and Singularities  
2019, 2519
- F21 Limit Cycles, etc.  
2101
- F22 Periodic Solutions  
2019, 2516, 2519, 2567, 2569, 2570, 2615, 2655, 2709, 2901, 2912
- F25 Flows  
2717, 2753
- F30 Perturbations  
2753
- F35 Invariance Properties  
2753, 2810
- F99 None of the above, but in this section  
1844, 2512
- 58Gxx Partial Differential Equations on Manifolds; Differential Operators (See also 35-  
XX.)
- G35 Invariance Properties  
2266
- 60-XX PROBABILITY THEORY AND STOCHASTIC PROCESSES (For additional applications, see 40Kxx, 62-  
XX, 90-XX, 92-XX, 93-XX, 94-XX. For numerical results, see 65U05.)
  - 00 Difficult to Classify at the Second Level  
2506
- 60Axx Foundations of Probability Theory
  - A05 Axioms; Other General Questions  
2248
  - A10 Probabilistic Measure Theory (For ergodic theory, see 28Dxx and 60Fxx.)  
2939
  - A99 None of the above, but in this section  
1834, 2804
- 60Bxx Probability Theory on Algebraic and Topological Structures
  - B05 Probability Measures on Topological Spaces  
1632, 1641
- 60C05 Combinatorial Probability  
1629, 1660, 1663, 1865, 2805, 2973
- 60D05 Geometric Probability; Stochastic Geometry; Random Sets (See also 52A22.)  
1770, 1787
- 60Exx Distribution Theory (See also 62Exx, 62Hxx.)
  - E05 Distributions: General Theory  
1806, 1807, 1903, 2105, 2106, 2420, 2506, 2817

E15 Inequalities (Chebysev, Kolmogorov, etc.)  
2648, 2929, 2931

**60Fxx Limit Theorems (See also 280xx, 60B12.)**

F05 Central Limit and Other Weak Theorems  
1600, 1629, 1632, 1641, 1655, 1690, 1770, 1775, 1865, 1946, 2056, 2805,  
2929, 2973

F10 Large Deviations  
1646, 2931

F15 Strong Theorems (See also 28A65.)  
1632, 1641, 1646, 1915, 2661

F17 Functional Limit Theorems; Invariance Theorems  
2848

F99 None of the above, but in this section  
2181

**60Gxx Stochastic Processes**

G15 Gaussian Processes  
1603, 1632, 1641

G25 Prediction Theory (See also 62M20.)  
1710, 1821

G35 Applications (Signal Detection, Filtering, etc.) (See also 62M20, 94Axx.)  
1618, 2119, 2120, 2254, 2722, 2766

G40 Stopping Times; Optimal Stopping Problems; Gambling Theory (See also 62L15.)  
2795

G50 Sums of Independent Random Variables  
1646

G55 Point Processes  
2496, 2638

G57 Random Measures  
2603

G99 None of the above, but in this section  
1770, 2056

**60Hxx Stochastic Analysis (See also 58G32.)**

H05 Stochastic Integrals  
1578, 2226, 2479

H10 Stochastic Ordinary Differential Equations (See also 34F05.)  
2479, 2791, 2806

H15 Stochastic Partial Differential Equations (See also 35R60.)  
2168

H20 Stochastic Integral Equations  
1826, 1831

**60Jxx Markov Processes**

J05 Markov Processes with Discrete Parameter  
2765

J10 Markov Chains with Discrete Parameter  
2939

J20 Applications of Discrete Markov Processes (Social Mobility, Learning Theory,  
Industrial Processes, etc.)  
2487

J25 Markov Processes with Continuous Parameter  
2931

J27 Markov Chains with Continuous Parameter  
2661

J30 Processes with Independent Increments  
1577

J55 Local Time and Additive Functionals  
1577

J65 Brownian Motion (See also 58G32.)  
1787

J70 Applications of Diffusion Theory (Population Genetics, Absorption Problems,  
etc.)  
1562

**60Kxx Special Processes**

K05 Renewal Theory  
2469, 2661, 2765, 2785, 2849, 2961

K10 Applications (Reliability, Demand Theory, etc.)  
2659, 2685, 2822

K15 Markov Renewal Processes, Semi-Markov Processes  
2850, 2961

K25 Queuing Theory (See also 68C15, 90B22.)  
2939

K99 None of the above, but in this section  
1618

**62-XX STATISTICS (For numerical methods, see 65U05.)**  
2880

-02 Advanced Exposition (Research Surveys, Monographs, etc.)  
1857, 1954, 1969, 2369, 2397

- 03 Historical (Must also be assigned at least one classification number from Section 01.)  
2471, 2608
  - 04 Explicit Machine Computation and Programs (not the Theory of Computation or Programming)  
2010, 2328, 2463
  - 06 Proceedings, Conferences, etc.  
2284, 2358
  - 07 Data Analysis  
2228, 2288, 2358, 2372, 2375, 2382, 2609, 2694, 2718
- 62Axx Foundations**
- A10 The Likelihood Approach  
2326, 2362, 2376, 2395, 2427, 2539, 2609
  - A15 The Bayesian Approach  
1583, 1915, 1954, 1969, 2004, 2160, 2284, 2375, 2395, 2408, 2410, 2463, 2471, 2609, 2738, 2804, 2865, 2959
  - A20 The Classical Approach  
2160, 2408, 2463, 2471, 2836
  - A99 None of the above, but in this section  
2397, 2608
- 62Bxx Sufficiency**
- B10 Statistical Information Theory  
2506
  - B15 Comparison of Experiments  
2607
  - B99 None of the above, but in this section  
2463
- 62Cxx Decision Theory (See also 90A05; for game theory, see 90Dxx.)**
- C05 General Considerations  
1586, 1890, 2248
  - C10 Bayesian Problems; Characterization of Bayes Procedures  
1618, 1749, 1753
  - C99 None of the above, but in this section  
1613, 1734, 1835
- 62D05 Sampling Theory, Sample Surveys**
- 1834, 2253, 2267, 2358, 2372, 2375, 2378, 2629, 2758, 2836, 2841, 2867, 2870, 2877
- 62Exx Distribution Theory (See also 60Exx.)**
- E10 Characterization and Structure Theory  
1903

- E15 Exact Distribution Theory  
1790, 1843
- E20 Asymptotic Distribution Theory  
1611, 1655, 1659, 1689, 1704, 1775, 1903, 1946, 2056, 2228, 2421, 2752,  
2792, 2793, 2825, 2848
- E25 Monte Carlo Studies  
1585, 1790, 1843, 2375, 2378
- E30 Formal Computational Methods (Polykays, etc.)  
2056

**62Fxx Parametric Inference**

- F03 Hypothesis Testing  
1611, 1659, 1734, 1843, 1899, 1903, 1969, 2212, 2506, 2574, 2792, 2793
- F04 Small Sample Properties of Tests  
2463
- F05 Asymptotic Properties of Tests  
2369, 2463
- F10 Point Estimation  
1585, 1611, 1954, 1969, 2037, 2102, 2219, 2326, 2369, 2376, 2420, 2427,  
2539, 2674, 2695, 2819, 2847, 2866
- F11 Small Sample Properties of Estimators  
2305, 2321, 2428, 2455
- F12 Asymptotic Properties of Estimators  
2102, 2219, 2253, 2305, 2321, 2369, 2428, 2455, 2616, 2792, 2793
- F15 Bayesian Inference  
1573, 1795, 1837, 1840, 1954, 1956, 2037, 2344, 2358, 2362, 2375, 2394,  
2409, 2416, 2420, 2474, 2478, 2682, 2683, 2695, 2721, 2956
- F25 Tolerance and Confidence Regions  
1704, 2037, 2803, 2836
- F35 Robustness and Adaptive Procedures  
1954, 2102, 2123, 2219, 2328, 2420, 2523, 2718, 2751, 2766
- F99 Index of the above, but in this section  
2397, 2468, 2972

**62Gxx Nonparametric Inference**

- 1997, 1998, 2002
- G05 Estimation  
1605, 1613, 1689, 1946, 2219, 2228, 2336, 2339, 2342, 2365, 2369, 2382,  
2437, 2523, 2779, 2785, 2819, 2847, 2880, 2898
- G10 Hypothesis Testing  
1655, 1701, 1745, 2004, 2181, 2463

- G15 Tolerance and Confidence Regions  
2629, 2675
- G20 Asymptotic Efficiency  
1655, 1946
- G30 Order Statistics  
2674, 2817, 2822
- G99 None of the above, but in this section  
1618, 1660, 1663, 2084, 2085, 2086, 2246, 2795
- 62Ixx Multivariate Analysis (See also 60Exx.)**
- H05 Characterization and Structure Theory  
2015
- H10 Distribution of Statistics  
2825, 2841
- H12 Estimation  
2326, 2328, 2339, 2342, 2344, 2362, 2372, 2427
- H15 Hypothesis Testing  
1834, 2365
- H17 Contingency  
2468
- H25 Factor Analysis and Principal Components  
1836, 2722
- H30 Classification and Discrimination; Cluster Analysis (See also 68Gxx.)  
2203, 2239, 2369, 2902
- H99 None of the above, but in this section  
1573, 2358, 2468, 2648
- 62Jxx Regression and Correlation**
- J02 General Nonlinear Regression  
2211, 2323, 2420, 2531, 2549, 2601, 2625, 2645, 2669, 2675, 2819, 2847
- J05 Linear Regression  
1710, 1837, 1853, 2211, 2305, 2321, 2323, 2328, 2362, 2421, 2426, 2428,  
2436, 2455, 2474, 2675, 2682, 2683, 2729, 2751, 2866, 2877
- J07 Ridge Regression; James-Stein Estimators  
2365, 2779
- J10 Analysis of Variance and Covariance  
2426
- J99 None of the above, but in this section  
2327, 2426, 2436, 2437, 2751

**62Kxx Experimental Design (See also 058xx.)**

2639

**K05 Optimal Designs**

1733, 2112, 2218, 2331, 2333, 2563, 2639, 2692

**K10 Block Designs**

2020, 2304, 2639, 2650, 2698, 2729

**K15 Factorial Designs**

2112, 2639, 2721, 2729, 2746, 2774, 2796, 2797, 2799, 2865, 2956, 2959

**K99 None of the above, but in this section**

1797, 2077, 2211, 2218, 2246, 2323, 2478, 2607, 2729

**62Lxx Sequential Methods****L05 Sequential Design**

2563, 2692, 2853, 2890

**L12 Sequential Estimation**

1749, 1753, 1795, 1956, 2376, 2427

**L15 Optimal Stopping (See also 60G40.)**

1795, 1956

**L20 Stochastic Approximation**

2376, 2427, 2822, 2890

**L99 None of the above, but in this section**

2153

**62Mxx Inference from Stochastic Processes****M05 Markov Processes: Estimation**

2168, 2337

**M09 Non-Markovian Processes: Estimation**

2789, 2848, 2849

**M10 Time Series, Auto-Correlation, Regression, etc. (See also 90A20.)**

1561, 1585, 1722, 1790, 1821, 1837, 1853, 2025, 2118, 2203, 2210, 2239, 2339, 2347, 2394, 2526, 2528, 2539, 2592, 2612, 2676, 2718, 2722, 2752, 2853, 2891, 2892

**M15 Spectral Analysis of Time Series**

1843, 1903, 2588, 2638

**M20 Prediction (See also 60G25.); Filtering (See also 60G35, 93E10, 93E11.)**

1821, 2254, 2337, 2766

**M99 None of the above, but in this section**

2496, 2785



**62bxx Engineering Statistics**

N05 Reliability and Life Testing (See also 90B25.)  
1583, 1652, 1956, 2093, 2122, 2123, 2294, 2312, 2370, 2607, 2616, 2659,  
2695, 2726, 2732, 2803

N10 Quality Control (See also 90Bxx.)  
2865, 2959

N99 None of the above, but in this section  
1837

**62Pxx Applications (See also 82-XX, 90-XX, 92-XX.)**

P05 Actuarial Mathematics  
1864, 2025, 2795, 2822

P10 Biometrics  
1704, 1899, 2416, 2420, 2468, 2779, 2898

P20 Econometrics (See also 90Axx.)  
1837, 2358

P99 None of the above, but in this section  
1787, 1843, 2212, 2305, 2321, 2428, 2455, 2669

**62Q05 Statistical Tables**

1843, 1903, 2750

**65-XX NUMERICAL ANALYSIS**

-02 Advanced Exposition (Research Surveys, Monographs, etc.)  
1693, 1793, 2033, 2543

-04 Explicit Machine Computation and Programs (not the Theory of Computation or  
Programming)  
2400, 2481, 2497, 2590, 2644

**65Bxx Acceleration of Convergence**

B05 Extrapolation to the Limit, Deferred Corrections  
2042, 2104, 2173

B10 Summation of Series  
2931

B99 None of the above, but in this section  
1750, 2923

**65Cxx Numerical Simulation (For theoretical aspects, see 68Jxx.)**

C05 Monte Carlo Methods  
2153, 2638, 2765, 2789, 2848, 2849, 2850, 2939, 2972

C10 Random Number Generation  
2554, 2562, 2931

C20 Models, Numerical Methods  
2216, 2353, 2852, 2968

- 65Dxx Numerical Approximation (Primarily algorithms; for theory, see 41-XX.)**
- D05 Interpolation  
1620, 1706, 1744, 1870, 2173, 2234, 2262, 2514, 2620, 2641, 2701, 2702,  
2703, 2707, 2829, 2937
  - D07 Splines  
2151, 2262, 2620, 2744, 2909, 2926
  - D10 Smoothing, Curve Fitting  
1786, 2024, 2025, 2129, 2148, 2151, 2227, 2228, 2369, 2464, 2472, 2952,  
2957
  - D15 Algorithms for Functional Approximation  
1625, 1810, 2107
  - D20 Computation of Special Functions, Construction of Tables  
1711, 1717, 2104
  - D25 Numerical Differentiation  
1787, 2145, 2920
  - D30 Numerical Integration  
1643, 1695, 1726, 1727, 1787, 1976, 2087, 2190, 2269, 2815, 2913
  - D32 Quadrature and Cubature Formulas  
2670
  - D99 None of the above, but in this section  
1871, 2755
- 65E05 Numerical Methods in Complex Analysis (Potential Theory, etc.) (For numerical methods in conformal mapping, see 30C30.)**  
2460, 2514, 2714
- 65Fxx Numerical Linear Algebra**
- F05 Direct Methods for Linear Systems and Matrix Inversion  
1593, 1620, 1625, 2000
  - F10 Iterative Methods for Linear Systems (See also 65N20.)  
1651, 1754, 1860, 1963, 2107, 2141, 2260, 2271, 2290, 2328, 2340, 2490,  
2716, 2937, 2949
  - F15 Eigenvalues, Eigenvectors  
1713, 1726, 1727, 1754, 1955, 2271, 2969
  - F20 Overdetermined Systems, Pseudoinverses  
2141
  - F25 Orthogonalization  
1727, 2000

- F35 Matrix Norms, Conditioning, Scaling (See also 15A12, 15A60.)  
1726, 1759, 2231, 2449, 2476, 2838, 2862
- 65Gxx Error Analysis**
- G05 Roundoff Error  
1754, 1976, 2400, 2920
- G10 Interval and Finite Arithmetic  
1976, 2087, 2098, 2128, 2190, 2196, 2268, 2271, 2286, 2367, 2452, 2497,  
2583, 2590, 2815, 2816, 2832, 2888, 2913
- G99 None of the above, but in this section  
1944, 2843, 2846, 2879, 2904, 2946
- 65Hxx Nonlinear Algebraic or Transcendental Equations**
- H05 Single Equations  
2271, 2688
- H10 Systems of Equations  
1870, 1886, 1944, 1951, 1976, 1983, 1984, 2022, 2125, 2271, 2400, 2452,  
2481, 2777
- H15 Eigenvalues, Eigenvectors  
2271, 2452
- 65Jxx Numerical Analysis in Abstract Spaces**
- J05 General  
1750, 1754, 1856, 1862, 1871, 1937, 2072, 2080, 2286
- J10 Equations with Linear Operators  
2196, 2564, 2583, 2816, 2923
- J15 Equations with Nonlinear Operators  
2125, 2196, 2783, 2843, 2846, 2879, 2904, 2946
- 65Kxx Mathematical Programming, Optimization and Variational Techniques (See also 490xx,  
90Cxx, 93-XX.)**
- K05 Mathematical Programming  
1564, 1591, 1610, 1617, 1706, 1738, 1754, 1780, 1785, 1839, 1870, 1891,  
1973, 2010, 2013, 2170, 2550, 2699, 2737
- K10 Optimization and Variational Techniques  
1976, 2129, 2228, 2268, 2367, 2400, 2452, 2690, 2708, 2768, 2791, 2806,  
2832, 2852, 2888, 2965
- 65Lxx Ordinary Differential Equations**
- L05 Initial Value Problems  
1547, 1576, 1699, 1750, 1848, 1976, 2026, 2353, 2452, 2497, 2590, 2777
- L07 Stability  
2448, 2497, 2564, 2586
- L10 Boundary Value Problems  
1547, 1625, 1654, 1750, 1762, 1825, 1919, 2140, 2341, 2448, 2483, 2564,  
2599, 2941

L15 Eigenvalue Problems  
1727, 1937, 1955, 2072, 2080, 2367

L99 None of the above, but in this section  
1925

**65bxx Partial Differential Equations, Initial Value Problems**

M05 Derivation of Finite Difference Approximations  
1832, 1922, 1924, 1925, 1985, 2000, 2073, 2186, 2604, 2823, 2829, 2934

M10 Stability and Convergence of Difference Methods  
1832, 1922, 1924, 1925, 1943, 1985, 2255, 2272, 2292, 2431, 2462, 2511,  
2517, 2823, 2831, 2855, 2868, 2958, 2971

M15 Error Bounds  
1832, 1932, 1934, 1952, 1958, 1982, 1985, 1996, 2053, 2073, 2431, 2480,  
2511, 2606, 2725, 2801, 2905, 2951

M20 Method of Lines  
2032

M25 Method of Characteristics  
2073, 2968

M30 Improperly Posed Problems  
1565, 1898, 1902

M99 None of the above, but in this section  
1750, 2170, 2292, 2403, 2404, 2646

**65Nbx Partial Differential Equations, Boundary Value Problems**

1929, 1980

N05 Derivation of Finite Difference Approximations  
1771, 2042, 2216, 2240, 2361, 2482, 2513, 2584, 2915, 2934

N10 Convergence of Difference Methods  
2042, 2240, 2272, 2513

N15 Error Bounds  
1762, 1919, 1932, 1934, 1936, 1952, 1982, 1996, 2003, 2380, 2482

N20 Solution of Difference Equations (See also 65F10.)  
1627, 1730, 1820, 2042, 2340, 2490, 2948, 2949

N25 Eigenvalue Problems  
2367, 2546, 2613, 2915

N30 Finite Elements, Rayleigh-Ritz and Galerkin Methods, Finite Methods  
1703, 1705, 1752, 1762, 1832, 1898, 1919, 1932, 1934, 1936, 1952, 1958,  
1982, 1996, 2003, 2032, 2047, 2053, 2129, 2172, 2191, 2274, 2325, 2380,  
2384, 2385, 2690, 2743, 2763, 2812, 2852, 2860, 2863, 2915, 2965, 2969,  
2971

N35 Collocation and Related Methods  
2116, 2172, 2297, 2356, 2461, 2546, 2613

N40 Methods of Lines  
2297

N99 None of the above, but in this section  
1693, 1796, 2078, 2079, 2131, 2309, 2626, 2754, 2830, 2960

65P05 Partial Differential Equations, Miscellaneous Problems  
1793, 1940, 2061, 2240, 2627, 2741, 2767

65Q05 Difference and Functional Equations, Recurrence Relations  
2346

65Rxx Integral Equations, Integral Transforms (See also 45Lxx.)  
R20 Integral Equations  
1670, 1750, 1787, 1793, 1858, 1881, 1904, 1921, 1933, 2087, 2128, 2213,  
2268, 2583, 2816, 2830

65T05 Harmonic Analysis and Synthesis  
1968, 2029

65U05 Numerical Methods in Probability and Statistics  
2496, 2528, 2592, 2819, 2847

65V05 Automated Algorithms (See also 68C05.)  
1976, 2268, 2452, 2481, 2497

68-XX COMPUTER SCIENCE (Including AUTOMATA) (For papers involving machine computations and programs in a specific mathematical area, see section -04 in that area.)

-00 Difficult to Classify at the Second Level  
1697, 1857, 1930, 2066

-01 Elementary Exposition, Textbooks  
1588

-02 Advanced Exposition (Research Surveys, Monographs, etc.)  
1959, 1961, 2644

-04 Explicit Machine Computation and Programs (not the Theory of Computation or Programming)  
1976, 2400

68Bxx Software  
B05 General Theory of Programming  
1588, 1623, 1857, 2008, 2033

B99 None of the above, but in this section  
2571, 2688

68Cxx Metatheory (Excluding Automata)  
C05 Algorithms (See also 03-XX, 65V05.)  
1588, 1732, 1779, 1892, 1901, 1907, 1908, 1926, 1976, 2008, 2170

- C15 Queueing, Scheduling (See also 60K25.)  
2045
- C20 Symbolic Computation  
1697, 1976, 2400, 2452
- C25 Computational Complexity and Efficiency of Algorithms  
1802, 1926, 1944
- 68Fxx Linguistics**
  - F05 Formal Languages, Grammars  
1857
- 68Gxx Artificial Intelligence (See also 62H30, 68D27.)**
  - G05 Learning and Adaptive Systems  
1930, 2066
  - G10 Pattern Recognition, Speech Recognition  
1930, 2066, 2902
- 68H05 Information Retrieval**  
1554, 1608, 1619, 1626, 1648, 1802, 1935, 1970, 2058
- 68Jxx Simulation (See also 65Cxx.)**  
1930, 2008, 2066
  - J05 Simulation (Analog, Hybrid, etc.)  
2487, 2603, 2638, 2789, 2939
  - J10 Modeling  
2554, 2562
  - J99 None of the above, but in this section  
2469, 2571
- 70-XX MECHANICS OF PARTICLES AND SYSTEMS (For relativistic mechanics, see 83A05 and 83C10; for statistical mechanics, see 82-XX.)**  
1575
  - 70Bxx Kinematics (See also 53A17.)**
    - B15 Mechanisms and Linkages  
2842
  - 70Fxx Dynamics of a System of Particles, Including Celestial Mechanics**
    - F10 n-Body Problem  
2534
    - F15 Celestial Mechanics  
2534
  - 70Gxx General Representations of Dynamical Systems (See also 58F05.)**
    - G25 Configuration Space  
2534

**70Hxx Hamiltonian and Lagrangian Mechanics (See also 58F05.)**

- H05 Hamilton's Equations  
2050, 2567, 2570, 2901, 2912
- H15 Canonical Transformations  
2569
- H25 Hamilton's Principle  
2050, 2567, 2901, 2912
- H30 Other Variational Principles  
2030, 2569, 2570
- H35 Lagrange's Equation of Motion  
2577

**70Jxx Linear Vibration Theory**

- J10 Normal Modes of Vibrations  
2655

**70Kxx Nonlinear Oscillations**

- K99 None of the above, but in this section.  
2030, 2050, 2508, 2610, 2901, 2912

**70L05 Random Vibrations (See also 93Exx.)**

- 2882

**73-XX MECHANICS OF SOLIDS**

**73Bxx Continuum Mechanics (For fluids, see 76Axx.)**

- B20 Simple Materials  
2652
- B99 None of the above, but in this section  
2364, 2399

**73Cxx Elasticity (For the biharmonic equation, see 31A30, 31B30; for acoustics, see 76Q05.)**

- 1550, 1579, 1640, 1793
- C05 Stress Functions  
2270
- C25 Thermal Stress Problems  
2451
- C30 Anisotropic Bodies  
2580
- C35 Mixed Boundary Value Problems (See also 45F05.)  
2449
- C50 Nonlinear Elasticity  
2060, 2097, 2715, 2788, 2935

- C99 None of the above, but in this section  
1852, 2587, 2618
- 73Dxx Wave Propagation in and Vibrations of Solids**
- D05 Impact and Explosion Problems (See also 76L05.)  
2440, 2827, 2968
- D10 Integral Transforms  
2713
- D15 Dilatational and Shear Waves  
2247
- D30 Linear Vibrations (See also 70Jxx.)  
2425
- D35 Nonlinear Vibrations (See also 70Kxx.)  
2073
- D99 None of the above, but in this section  
2731
- 73Exx Plasticity**
- 1550, 1579, 1640, 1793
- E20 Limit Analysis  
2075
- E99 None of the above, but in this section  
1948, 2270
- 73Fxx Viscoelasticity**
- F05 Creep and Relaxation Functions  
2690
- F15 Time-Dependent Boundary Value Problems  
2095, 2251, 2422, 2501, 2598, 2652, 2658, 2667, 2821, 2976
- F99 None of the above, but in this section  
2095, 2281, 2440, 2462, 2713, 2782
- 73Gxx Finite Deformations**
- G05 Finite Elasticity  
2060, 2559
- G10 Strain Energy Functions  
2755
- G99 None of the above, but in this section  
2399
- 73Hxx Stability (Linear and Nonlinear)**
- H05 Buckling  
2222



- H10 Dynamic Stability  
2095, 2251, 2501, 2962
- 73Kxx Structural Mechanics**
  - K20 Composite Structures  
2017, 2566
  - K25 Finite Element Methods  
2075, 2384, 2385, 2915, 2969, 2971
- 73Lxx Theory of Shells**  
1628
- L10 Anisotropic Shells  
2580
- 73Mxx Fractural Mechanics**
  - M05 Brittle Fracture, Cracks  
1940, 2017
- 73Nxx Geophysical Solid Mechanics (See also 86-XX.)**
  - N99 None of the above, but in this section  
2529
- 73R05 Electromagnetic Elasticity**  
2903
- 73Sxx Micromechanics of Solids**
  - S99 Other Micromechanics  
2591
- 76-XX FLUID MECHANICS (For general continuum mechanics, see 73Bxx, or other parts of 73-XX.)**  
1551, 1565, 1685, 1777, 1793
  - 02 Advanced Exposition (Research Surveys, Monographs, etc.)  
2391, 2663
  - 04 Explicit Machine Computation and Programs (not the Theory of Computation or Programming)  
2968
  - 05 Experimental Papers  
2807
- 76Axx Foundations, Constitutive Equations, Rheology (See also 35L65.)**
  - A05 Non-Newtonian Fluids  
2411, 2547, 2548, 2662, 2690, 2700, 2812, 2852, 2860, 2863
  - A10 Viscoelastic Fluids  
2183, 2213, 2255, 2287, 2377, 2445, 2530, 2578, 2589, 2627, 2657, 2667,  
2713, 2730, 2755, 2770, 2782, 2812, 2852, 2860, 2863, 2887, 2895, 2911,  
2916, 2943, 2944, 2960, 2971
  - A99 None of the above, but in this section  
2529

**76Bxx Incompressible Inviscid Fluids, Potential Theory****B05 Airfoil Theory**

2293, 2391, 2573

**B10 Jets and Cavities, Free-Streamline Theory, Water-Entry Problems, Hydrofoil Theory**

2324, 2356, 2418, 2524, 2602, 2631, 2705, 2712, 2893, 2919, 2921, 2928, 2932, 2936

**B15 Water Waves, Gravity Waves; Dispersion and Diffraction, Nonlinear Interaction**

2041, 2135, 2195, 2206, 2208, 2243, 2258, 2266, 2355, 2392, 2396, 2412, 2414, 2477, 2486, 2499, 2561, 2575, 2687, 2800, 2830, 2839, 2856, 2871, 2872, 2873, 2878, 2908, 2933, 2970

**B20 Ship Waves**

2679, 2706, 2964

**B25 Solitary and Cnoidal Waves**

2041, 2135, 2206, 2355, 2401, 2405, 2414, 2470, 2473, 2486, 2561, 2861, 2922

**76Cxx Incompressible Inviscid Fluids, Vorticity Flows****C05 Vorticity Flows**

2406, 2407, 2480, 2634, 2820, 2922, 2953

**C10 Internal Waves**

2401, 2800, 2861, 2922

**C99 None of the above, but in this section**

2192, 2473, 2884

**76Dxx Incompressible Viscous Fluids****D05 Navier-Stokes Equations (See also 35Q10.)**

2361, 2432, 2509, 2584, 2643, 2649, 2735, 2739, 2741, 2790, 2808, 2809, 2864, 2881, 2883, 2884, 2885, 2886, 2938, 2948, 2971

**D10 Boundary-Layer Theory**

2391, 2663, 2882

**D15 Boundary-Layer Separation and Reattachment**

2391

**D30 Singular Perturbation Problems**

2693

**D99 None of the above, but in this section**

2435, 2449, 2565

**76Exx Hydrodynamic Stability**

2807

**E05 Stability of Parallel Flows**

2503, 2622, 2689, 2787, 2899, 2911

- E15 Convective Instability  
2681, 2775, 2814
- E20 Instability of Geophysical and Astrophysical Flows  
2681, 2775, 2814
- E25 Magnetohydrodynamic and Electrohydrodynamic Instabilities  
2348, 2349
- E30 Nonlinear Effects  
2230, 2411, 2520
- E99 None of the above, but in this section  
2450, 2634, 2740
- 76Fxx Turbulence (See also 58F13, 58F27, 60Gxx, 60Jxx.)
  - F05 Homogeneous Isotropic Turbulence  
2366
  - F99 None of the above, but in this section  
2325
- 76H05 Transonic Flows, Limit Lines  
2230, 2240
- 76L05 Shock Waves and Blast Waves (See also 73D05.)  
2363, 2434, 2505, 2968
- 76Nxx Compressible Fluids and Gas Dynamics, General
  - N10 Compressible Fluids, General  
2237, 2300, 2351, 2430, 2500, 2504, 2505, 2883, 2917, 2938, 2968
  - N15 Gas Dynamics, General  
2251, 2302, 2381, 2501, 2697
  - N99 None of the above, but in this section  
2298, 2413, 2520, 2666, 2831, 2855, 2868, 2891, 2892, 2958
- 76Rxx Diffusion and Convection (See also 60J60.)
  - R05 Forced Convection  
2295, 2297, 2553
  - R99 None of the above, but in this section  
2236, 2565
- 76S05 Flows in Porous Media; Filtration; Seepage  
1883, 1953, 2245, 2274, 2363, 2373, 2518, 2537, 2538, 2553, 2851
- 76T05 Two-Phase and Multiphase Flows  
2280, 2298, 2343, 2413, 2438, 2503, 2521, 2553, 2622, 2666, 2681, 2740,  
2775, 2787, 2814
- 76U05 Rotating Fluids  
2622, 2663, 2740

**76V05 Multiphase and Stratified Fluids**  
2032, 2182, 2681, 2689, 2775, 2787, 2814, 2899

**76W05 Magnetohydrodynamics and Electrohydrodynamics**  
2348, 2349

**76X05 Ionized Gas Flow in Electromagnetic Fields; Plasmic Flow**  
2784

**76Zxx Biological Fluid Mechanics**  
Z05 Physiological Flows  
2456

**78-XX OPTICS, ELECTROMAGNETIC THEORY (For quantum optics, see 81K05.)**  
1793, 1917

A05 Geometric Optics  
2492, 2500

A25 Electromagnetic Theory, General  
2595, 2614

A30 Electro- and Magnetostatics  
2585

A35 Motion of Charged Particles  
1737, 1747, 2772

A40 Waves and Radiation  
2966

A45 Diffraction, Scattering (See also 34E20 for WKB methods.)  
2051

A50 Antennas, Wave-Guides  
2942

**80-XX CLASSICAL THERMODYNAMICS, HEAT TRANSFER (For thermodynamics of solids, see 73B30.)**  
1793, 1887, 2338

A05 Foundations  
2556

A10 Classical Thermodynamics  
2280, 2298, 2413, 2666

A15 Thermodynamics of Mixtures  
2894

A20 Heat and Mass Transfer  
2074, 2116, 2136, 2201, 2295, 2322, 2341, 2353, 2440, 2537, 2566, 2579,  
2693,

A25 Combustion, Interior Ballistics  
1803, 1814, 1818, 1819, 1888, 2040, 2059, 2236, 2322, 2450, 2535, 2672

A30 Chemical Kinetics  
2038, 2096, 2172, 2261, 2289, 2322, 2341, 2353, 2579

A99 Miscellaneous Topics  
1859

**81-XX QUANTUM MECHANICS**

**81Bxx Automatics, Foundations, Philosophy**

B05 General  
2581, 2818

**81Cxx General Mathematical Topics and Methods in Quantum Mechanics**

C05 Closed and Approximate Solutions to the Schrodinger, Dirac, Klein-Gordon and  
Other Quantum Mechanical Equations  
2202

**81Dxx General Quantum Mechanics**

D20 Broken Symmetries  
2914

**81Fxx Scattering Theories**

F05 2-Body Potential Scattering Theory (See also 34E20 for WKB methods.)  
2402

F20 Particle Scattering Theories  
2051

F99 None of the above, but in this section  
2051

**81Gxx Particle Physics (this covers all kinds of particles and interactions)**

G05 Strong Interaction  
2914

G20 Applications of Group Theory to Elementary Particles  
2317

G25 Other Elementary Particle Theory  
2317, 2581, 2818

G99 None of the above, but in this section  
2067

**81H05 Quantum Mechanics of Many-Body Systems**

2914

**81M05 Relativistic Theory**

2581, 2818

**81N05 Mathematically Heuristic Quantum Mechanics**

2317

**82-XX STATISTICAL PHYSICS, STRUCTURE OF MATTER**

1640

A15 Mathematical Quantum Statistical Mechanics  
2005, 2031

A25 Phase Transitions  
2591

A60 Crystals  
2591

**83-XX RELATIVITY**

**83Cxx General Relativity**

C45 Quantization of the Gravitational Field  
2581, 2818

**83Exx Unified Field Theories**

E05 Geometrodynamics  
2581, 2818

**85-XX ASTRONOMY AND ASTROPHYSICS (For celestial mechanics, see 70F15.)**

1793

A15 Stellar Structure  
1627

**86-XX GEOPHYSICS (See also 73Nxx, 76U05, 76V05.)**

1787, 1793

A05 Hydrology, Hydrography, Oceanography (See also 76B15, 76B20, 76B25, 76C15,  
76E20, 76Q05, 76Rxx, 76U05.)  
2434

**90-XX ECONOMICS, OPERATIONS RESEARCH, PROGRAMMING, GAMES**

-02 Advanced Exposition (Research Surveys, Monographs, etc.)  
2459

-03 Historical  
1842

-04 Explicit Machine Computation and Programs (not the Theory of Computation or  
Programming)  
2554, 2562, 2571

**90Axx Mathematical Economics (For econometrics, see 62P20.)**

A10 Utility Theory  
2248

A15 Static Economic Models  
1672, 1812, 1965, 1966, 1971, 1972

A16 Dynamic Economic Models  
2544

A20 Economic Time Series Analysis (See also 62M10.)  
2394, 2539

**90Bxx Operations Research and Management Science**

B10 Flows in Networks, Deterministic  
1634, 1720, 1721

B25 Reliability and Maintenance (See also 60K20, 62N05.)  
2093, 2122, 2294, 2312, 2659, 2726, 2732

B99 None of the above, but in this section  
1719, 1738

**90Cxx Mathematical Programming (For papers emphasizing calculus of variations or involving abstract spaces, see 49Dxx. For numerical methods, see 65K05.)**

C05 Linear Programming  
1622, 1702, 1735, 1889, 2034, 2147, 2185, 2231, 2260, 2498, 2611, 2720,  
2734, 2778, 2780, 2838, 2910, 2924, 2945, 2947

C06 Large Scale Linear Programming  
2174, 2498

C10 Integer Programming  
1552, 1653, 1748

C15 Stochastic Programming  
1834, 1835, 1893

C20 Quadratic Programming  
1691, 1785, 1889, 1893, 2147, 2180, 2257, 2260, 2276, 2383, 2386, 2498,  
2552, 2597, 2611, 2733, 2776, 2910, 2945

C25 Convex Programming  
1553, 1564, 1591, 1778, 1791, 1834, 1835, 1862, 2075, 2147, 2174, 2180,  
2476, 2550, 2572, 2665, 2708, 2720, 2733, 2776, 2844, 2845, 2857, 2862,  
2924, 2947

C30 Nonlinear Programming  
1553, 1672, 1675, 1677, 1707, 1798, 1812, 1839, 1842, 1877, 1891, 1897,  
1920, 1945, 1949, 1950, 1967, 1973, 2000, 2010, 2013, 2014, 2035, 2048,  
2169, 2176, 2241, 2257, 2329, 2459, 2572, 2665, 2720, 2780, 2781, 2798,  
2844, 2845, 2854, 2857

C31 Sensitivity, Parametric Programming, Multi-Objective Programming  
2197

C33 Linear and Nonlinear Complementarity Problems  
2131, 2177, 2552, 2597, 2734, 2737, 2854

C50 Applications of Mathematical Programming  
1738, 1785, 1893, 2075, 2778

C99 None of the above, but in this section  
1702, 1757, 1776, 1867, 1964, 1965, 1966, 1971, 1972, 1983, 1984

**90Dxx Game Theory (See also 49A45, 68D27.)**

D05 2-Person Games  
2047, 2492, 2708

- D10 n-Person Games, Noncooperative  
1849
- D12 n-Person Games, Cooperative, Solution Concepts  
1595, 1804, 1805, 1808, 1811
- D25 Differential Games  
2492, 2621
- D35 Decision Theory (See also 62Cxx, 90A05.)  
2248
- D40 Game Theory Models (See also 65Cxx, 68Cxx, 68Jxx.)  
1811
- D45 Applications of Game Theory  
1805, 1808, 1811

**92-XX BIOLOGY AND BEHAVIORAL SCIENCES**

- 00 Difficult to Classify at the Second Level  
1709, 1962
- 02 Advanced Exposition (Research Surveys, Monographs, etc.)  
1548
- 04 Explicit Machine Computation and Programs (not the Theory of Computation or Programming)  
1664
- A05 General Biology (See also 73-XX, 76-XX, in particular 73Pxx, 76Zxx.)  
1709, 1724
- A09 Physiology, Biochemistry (See also 76-XX, in particular 76Z10, and 80A30.)  
2110
- A10 Genetics  
1562, 2115, 2898
- A15 Population Dynamics, Epidemiology  
1664, 1709, 1913, 2101, 2115, 2200, 2510, 2767, 2869
- A17 Ecology  
2101, 2142, 2144, 2557
- A40 Chemistry (See also 80A30, 92A05, 92A09.)  
2096

**93-XX SYSTEMS THEORY; CONTROL (For optimal control, see 49-XX.)**

- 93Bxx Controllability, Observability, and System Structure**  
1700
- B05 Controllability  
2310, 2360, 2614



- B10 Canonical Structure  
1614, 2021, 2640
- B15 Realizability of Systems from Input-Output Data  
2835
- B30 System Identification  
2118, 2347, 2771
- B40 Computational Methods  
2771
- 93Cxx Control Systems, Guided Systems**  
1700
- C10 Nonlinear  
2310, 2360, 2635, 2640, 2664, 2710
- C15 Systems Governed by Ordinary Differential Equations  
2232, 2684
- C20 Systems Governed by Partial Differential Equations  
1575, 2310, 2360, 2614, 2624, 2966
- C25 Systems in Abstract Spaces  
2310, 2360, 2624, 2684, 2762, 2794
- C40 Adaptive  
2771
- C60 Continuous-Time  
2835
- 93Dxx Stability**  
1700
- D05 Ljapunov Stability  
1575, 1714
- D15 Stabilization of Systems by Feedback  
1575, 1614, 2624, 2680, 2684
- 93Exx Stochastic Systems and Control**
- E03 Stochastic Systems, General  
2588
- E10 Estimation and Detection  
2119, 2120, 2168, 2226
- E11 Filtering  
2226, 2254
- E20 Optimal Stochastic Control  
2350, 2685

**94-XX INFORMATION AND COMMUNICATION, CIRCUITS**

-04 Explicit Machine Computation and Programs (not the Theory of Computation or Programming)  
1686, 1731, 1755, 1868

**94Axx Communication, Information**

A15 Information Theory, General (See also 62B10.)  
1605

**94Bxx Algebraic Theory of Error-Correcting Codes**

B99 None of the above, but in this section  
2246

**94Cxx Circuits, Networks**

1636

C10 Switching Theory, Applications of Boolean Algebra  
1636

C15 Applications of Graph Theory (See also 05Cxx, 68D90, 68E10.)  
1636

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R. E. Langer, Editor

Proceedings of a Symposium

Conducted from April 20 to 22, 1959

University of Wisconsin Press, Madison, 1960 x + 324 \$17.00

## 3. Figures of Equilibrium of Celestial Bodies

Z. Kopal, Author

University of Wisconsin Press, Madison, 1960 v + 135 \$17.50

## 4. Frontiers of Numerical Mathematics

R. E. Langer, Editor

Proceedings of a Symposium

Conducted from October 30 to 31, 1959

University of Wisconsin Press, Madison, 1960 xi + 132 \$ 6.50

## 5. Partial Differential Equations and Continuum Mechanics

R. E. Langer, Editor

Proceedings of an International Conference

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## 6. Electromagnetic Waves

R. E. Langer, Editor

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University of Wisconsin Press, Madison, 1962 xii + 396 \$17.50

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L. M. Milne-Thomson, Author

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University of Wisconsin Press, Madison, 1963 xiii + 321 \$17.00

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 Proceedings of an Advanced Seminar  
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 Proceedings of a Symposium  
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 Proceedings of an Advanced Seminar  
 Conducted from April 22 to 24, 1963  
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- H. Schneider, Editor  
 Proceedings of an Advanced Seminar  
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- C. H. Wilcox, Editor  
 Proceedings of a Symposium  
 Conducted from May 4 to 6, 1964  
 John Wiley and Sons, New York, 1964 x + 247 \$ 8.50  
 Out of Print
14. Error in Digital Computation - Volume I
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 Proceedings of an Advanced Seminar  
 Conducted from October 5 to 7, 1964  
 John Wiley and Sons, New York, 1965 ix + 324 \$ 6.75  
 Out of Print
15. Error in Digital Computation - Volume II
- L. B. Rall, Editor  
 Proceedings of a Symposium  
 Conducted from April 26 to 28, 1965  
 John Wiley and Sons, New York, 1965 x + 288 \$ 9.75

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 C. H. Wilcox, Editor  
 Proceedings of an Advanced Seminar  
 Conducted from October 4 to 6, 1965  
 John Wiley and Sons, New York, 1965 x + 428 \$11.00
17. Numerical Solutions of Nonlinear Differential Equations  
 Donald Greenspan, Editor  
 Proceedings of an Advanced Symposium  
 Conducted from May 9 to 11, 1966  
 John Wiley and Sons, New York, 1966 x + 347 \$13.25
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 Bernard Harris, Editor  
 Proceedings of an Advanced Seminar  
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 John Wiley and Sons, New York, 1966 x + 319 \$ 7.95  
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19. Markov Processes and Potential Theory  
 Joshua Chover, Editor  
 Proceedings of an Advanced Symposium  
 Conducted from May 1 to 3, 1967  
 Available from Krieger Publishing Co., P. O. Box 542,  
 Huntington, NY 11743, 1967 x + 235 \$11.00
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 Herman F. Karreman, Editor  
 Proceedings of an Advanced Seminar  
 Conducted from October 2 to 4, 1967  
 John Wiley and Sons, New York, 1967 xii + 217 \$13.25
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 Henry B. Mann, Editor  
 Proceedings of a Symposium  
 Conducted from May 6 to 8, 1968  
 John Wiley and Sons, New York, 1968 ix + 231 \$11.50
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 Proceedings of an Advanced Seminar  
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 Proceedings of a Symposium  
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 Academic Press, New York, 1970 xii + 490 \$18.50
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 Proceedings of an Advanced Seminar  
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 Proceedings of a Symposium  
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 Proceedings of an Advanced Seminar  
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 Proceedings of a Symposium  
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 Academic Press, New York, 1972 ix + 445 \$19.50
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 Proceedings of an Advanced Seminar  
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Proceedings of an Advanced Seminar  
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Proceedings of a Symposium  
Conducted from April 1 to 3, 1974  
Academic Press, New York, 1974 ix + 420 \$17.00
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Academic Press, New York, 1975 ix + 581 \$24.50
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Proceedings of a Symposium  
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Proceedings of an Advanced Seminar  
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Conducted from March 28 to 30, 1977

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 Proceedings of a Symposium  
 Conducted from May 13 to 15, 1981  
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 Proceedings of an Advanced Seminar  
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 Proceedings of a Symposium  
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 Academic Press, Florida, forthcoming