

Contents

<i>Contributors</i>	<i>ix</i>
<i>Preface</i>	<i>xiii</i>

Lectures

Volterra Series and the Alternative Method of Cesari <i>Thomas T. Bowman</i>	1
Periodic Solutions of Nonlinear Vibrating Strings <i>Haim Brezis</i>	11
Nonlinear Boundary Value Problems for Hyperbolic Systems <i>Lamberto Cesari</i>	31
Non-Linear Ion Dynamics, and the Application to Neurophysiology <i>H. S. Green and T. Trifet</i>	59
Qualitative and Quantitative Particle Modeling with Applications to Wave Generation, Vibration, and Biomathematics <i>Donald Greenspan</i>	71
Asymptotic Behavior of Gradient-Like Systems <i>Jack K. Hale and Paul Massatt</i>	85
On Bifurcation and Stability of Positive Solutions of Nonlinear Elliptic Eigenvalue Problems <i>Peter Hess</i>	103
A Note on the Stability in Retarded Delay Equations for all Delays <i>Ettore F. Infante</i>	121
System Identification from Noisy Data <i>R. E. Kalman</i>	135
Random Forcing in Nonlinear Oscillations <i>R. Kannan</i>	165
Wave-Solutions of Reversible Systems and Applications <i>Klaus Kirchgässner</i>	181

Stable Subcritical Buckled States of a Cylindrical Panel <i>George H. Knightly and D. Sather</i>	201
Well-Posedness and Stabilizability Problems for Boundary Feedback Partial Differential Equations <i>I. Lasiecka and R. Triggiani</i>	217
Some Remarks on Periodic Solutions of Parabolic Differential Equations <i>Alan C. Lazer</i>	227
On Limitations to the Solution Set of Some Nonlinear Problems <i>Alan C. Lazer and P. J. McKenna</i>	247
Nonresonance Conditions of Nonuniform Type in Nonlinear Boundary Value Problems <i>Jean Mawhin</i>	255
Asymptotic Analysis of Some Functional Differential Equations <i>Roger D. Nussbaum</i>	277
Triggered Systems and the Extension Problem for Gradient Systems <i>V. M. Popov</i>	303
Optimal Approximate Filter for a Diffusion Type Process <i>Z. R. Pop-Stojanovic and Murali Rao</i>	319
Some Homotopy Theorems Concerning Leray-Schauder Maps <i>E. H. Rothe</i>	327
Prolongation Algebras and Gauge Theories for Isospectral Problems <i>D. H. Sattinger</i>	349
Two Stefan Problems for a Degenerate Parabolic System <i>R. E. Showalter</i>	367
Perturbations of Degenerate Singularities <i>Carl P. Simon and Charles J. Titus</i>	375
Gas-Solid Reactions <i>Ivar Stakgold</i>	403
Transformations, Iterations, and Mixing Flows <i>Stanislaw Ulam</i>	419
Families of Periodic Solutions for Autonomous Systems <i>A. L. Vanderbauwhede</i>	427
Forgotten Parameters and Catastrophic Behavior in a Stochastic Buckling Problem <i>H. F. Weinberger and S. Rosenblat</i>	447

Contributed Papers

Periodic Orbits and Topological Entropy of One-Dimensional Discrete Dynamical Systems <i>Louis Block</i>	499
Numerical Methods for Nonlinear Boundary Value Problems at Resonance <i>Charles Burnap and P. J. McKenna</i>	505
Application of the Adjoint Theory for NFDEs to the Well-Posedness Problem for Certain Distributed Systems <i>John A. Burns, Terry L. Herdman, and Harlan W. Stech</i>	513
Existence of Solutions for a System of Equations of Nonlinear Elastic Materials <i>Oyuke Benjamin Calleb</i>	515
Patterson Measure and Anosov Flow <i>S. Chen</i>	521
Asymptotic Properties of Solutions of Generalized Emden-Fowler Equations <i>John R. Graef, Myron K. Grammatikopoulos, and Paul W. Spikes</i>	529
An Initial Value, Finite Element Method <i>John Gregory, Marvin Zeman, and Charles Gibson</i>	535
On Causality, Inverses, and Feedback <i>Jacob Hammer</i>	539
The Generator of a C^r Flow <i>David Hart</i>	547
The Induced Subflow Pertaining to the Internal Model Principle <i>J. S. A. Hepburn and W. M. Wonham</i>	555
On the Problem of Embedding Discrete Flows in Continuous Flows <i>Gary D. Jones</i>	565
Solutions of Lyapunov- and Riccati-Type Matrix Equations Arising in Optimal Control Theory and Systems Theory <i>John Jones, Jr.</i>	569
Some Features of the MacArthur-Wilson Island Population Model <i>James Keesling</i>	575

Continuous Flows Satisfying Stability and Recurrence Criteria <i>Ronald A. Knight</i>	581
Modulation Instability and Weak Turbulence <i>W. F. Langford</i>	589
Semidiscrete Approximation of a Time-Optimal Control Problem for Parabolic Equations <i>Irena Lasiecka</i>	595
Exponential Dichotomy for a Second Order Linear Hyperbolic System with One State Variable <i>Orlando Lopes and Hermano Ribeiro</i>	601
On the Regulator Problem and the Operatorial Riccati Equation in Hilbert Spaces <i>J.-Cl. Louis and D. Wexler</i>	605
Bang-Bang Control and Local Semi-Dynamical Systems on CW Complexes <i>David Meeker</i>	613
Characterizing the Range of a Nonlinear Operator <i>Kent Nagle and Kenneth Pothoven</i>	621
Approximation of Generalized Solutions of an Abstract Functional Differential Equation <i>Mary E. Parrott</i>	627
On the Morse Index for Infinite Dimensional Semiflows <i>Krzysztof P. Rybakowski</i>	633
An Existence Theorem for Abstract Nonlinear Hyperbolic Boundary Value Problems at Resonance <i>Michael W. Smiley</i>	639
A Characterization of Asymptotic Controllability <i>Eduardo D. Sontag</i>	645
Maximality and Upper Semicontinuity <i>M. B. Suryanarayana</i>	649
Generalized-Function and Analytic Solutions of Functional Differential Equations <i>Joseph Wiener</i>	655
Participants	663

