



## Contents

Numbers in parentheses refer to AMS (MOS) 1970 subject classifications.

FOREWORD . . . . .	ix
PREFACE . . . . .	xi
Generalized Degree and Nonlinear Problems (47H15, 58B05) . . . . .	1
<i>L. Nirenberg</i> Courant Institute of Mathematical Sciences New York University, New York, New York	
A Global Theorem for Nonlinear Eigenvalue Problems and Applications (47H15, 34B15, 35J25) . . . . .	11
<i>Paul H. Rabinowitz</i> University of Wisconsin, Madison, Wisconsin	
Transversality in Nonlinear Eigenvalue Problems . . . . .	37
<i>R. E. L. Turner</i> University of Wisconsin, Madison, Wisconsin	
Multiple Eigenvalue Bifurcation for Holomorphic Mappings (47H15) . . . . .	69
<i>Klaus Kirchgässner</i> Rurh-Universität Bochum Mathematisches Institut Bochum-Querenburg, Germany	
Monotonicity Methods in Hilbert Spaces and Some Applications to Nonlinear Partial Differential Equations (47H05, 35J60) . . . . .	101
<i>Haim Brezis</i> Institut de Mathématique, Faculté des Sciences Paris, France	
Semigroups of Nonlinear Transformations in Banach Spaces (47D05, 47H05) . . . . .	157
<i>Michael G. Crandall</i> University of California, Los Angeles, California	

CONTENTS

<p>Weak and Strong Solutions of Dual Problems (49A25, 49A50) . . . . .</p> <p><i>J. J. Moreau</i></p> <p style="padding-left: 2em;">Université de Montpellier, Montpellier, France</p>	181
<p>Convex Integral Functionals and Duality (28A20, 49A50) . . . . .</p> <p><i>R. Tyrrell Rockafellar</i></p> <p style="padding-left: 2em;">University of Washington, Seattle, Washington</p>	215
<p>Projections on Convex Sets in Hilbert Space and Spectral Theory (52A50, 47H05, 47B40) . . . . .</p> <p style="padding-left: 2em;">Part I. Projections on Convex Sets . . . . .</p> <p style="padding-left: 2em;">Part II. Spectral Theory . . . . .</p> <p><i>Eduardo H. Zarantonello</i></p> <p style="padding-left: 2em;">Mathematics Research Center, University of Wisconsin Madison, Wisconsin</p>	237 239 343
<p>Nonlinear Functional Analysis and Nonlinear Integral Equations of Hammerstein and Urysohn type (45G99, 47H15) . . . . .</p> <p><i>Felix E. Browder</i></p> <p style="padding-left: 2em;">University of Chicago, Chicago, Illinois</p>	425
<p>Asymptotic Behavior of Bounded Solutions of Some Functional Equations (45M05) . . . . .</p> <p><i>J. J. Levin and D. F. Shea</i></p> <p style="padding-left: 2em;">University of Wisconsin, Madison, Wisconsin Purdue University, Lafayette, Indiana</p>	501
<p>Singular Perturbations and Singular Layers in Variational Inequalities (35B25) . . . . .</p> <p><i>J. L. Lions</i></p> <p style="padding-left: 2em;">Faculté des Sciences de Paris, Paris, France</p>	523
<p>Gradient Estimates for Solutions of Nonlinear Elliptic and Parabolic Equations (35B45) . . . . .</p> <p><i>James Serrin</i></p> <p style="padding-left: 2em;">University of Minnesota, Minneapolis, Minnesota</p>	565
<p>Shock Waves and Entropy (76L05) . . . . .</p> <p><i>Peter Lax</i></p> <p style="padding-left: 2em;">Courant Institute of Mathematical Sciences New York University, New York, New York</p>	603

CONTENTS

The Penalty Method and Some Nonlinear Initial  
Value Problems (35A25, 35Q10) . . . . . 635  
*Hiroshi Fujita*  
University of Tokyo, Tokyo, Japan

INDEX . . . . . 667