

CONTENTS

Preface	v
Introduction	ix
<i>D. Levi & P. Winternitz</i>	
On the Time Evolution Equations of Spin Systems and Their Continuum Limit	1
<i>E. Barouch, A. S. Fokas & V. Papageorgiou</i>	
Conservation Laws for Integrable Systems	7
<i>A. S. Fokas & P. M. Santini</i>	
Computer Algorithms for the Detection of Completely Integrable Quantum Spin Chains	22
<i>B. Fuchssteiner & U. Falck</i>	
Hamiltonian Structure and Stability Analysis	51
<i>D. D. Holm</i>	
An Introduction to the Equivalence Problem of Elie Cartan Illustrated by Examples	99
<i>N. Kamran</i>	
Integrable Systems and Water Waves. An Example of Symmetry Analysis Applied to a Physical Problem	121
<i>D. Levi</i>	
The Geometry of Soliton Equations	146
<i>F. Magri, C. Morosi & G. Tondo</i>	
Mechanisms for Variable Separation in Partial Differential Equations and their Relationship to Group Theory	188
<i>W. Miller Jr.</i>	

Recursion Operators and Hamiltonian Systems <i>P. J. Olver</i>	222
Positive Periodic Solutions of a Nonlinear Parabolic Eigenvalue Problem <i>L. A. Ortega & J. F. Caycedo</i>	250
Physical Applications of Reciprocal Transformations <i>C. Rogers</i>	260
An Unusual Realization of a Symmetry Group Acting on a Nonlinear Differential Equation <i>Y. Saint-Aubin</i>	289
Multidimensional Equations in Differential Geometry <i>K. Tenenblat</i>	314
Supersymmetries in Quantum Mechanics—An Overview <i>L. Vinet</i>	334
Symmetries and Berry Connections <i>L. Vinet</i>	341
Kac-Moody-Virasoro Symmetries of Integrable Nonlinear Partial Differential Equations <i>P. Winternitz</i>	358
Nonlinearity in Aberration Optics <i>K. B. Wolf</i>	376
The Generalized Hammerstein Integral Operators on Hilbert Spaces <i>M. Zuluaga</i>	430
Subject Index	451

