

## CONTENTS

Foreword .....	xi
Preface .....	xiii
The conversion of a high order programming language from floating-point arithmetic to range arithmetic .....	1
<i>Oliver Aberth</i>	
Sylvester's form of the resultant and the matrix- triangularization subresultant PRS method .....	5
<i>Alkiviadis G. Akritas</i>	
Computing the Tsirelson space norm .....	12
<i>Johnnie W. Baker, Oberta A. Slotterbeck and Richard Aron</i>	
Floating-point systems for theorem proving .....	22
<i>G. Bohlender, J. Wolff von Gudenberg and W.L. Miranker</i>	
Computer algebra and indefinite integrals .....	33
<i>Manuel Bronstein</i>	
A computer-assisted approach to small-divisors problems arising in Hamiltonian mechanics .....	43
<i>Alessandra Celletti and Luigi Chierchia</i>	
On a computer algebra aided proof in bifurcation theory .....	52
<i>Carmen Chicone and Marc Jacobs</i>	
MACSYMA program to implement averaging using elliptic functions .....	71
<i>Vincent T. Coppola and Richard H. Rand</i>	
Validated anti-derivatives .....	90
<i>George F. Corliss</i>	
A toolbox for nonlinear dynamics .....	97
<i>Shannon Coffey, André Deprit, Étienne Deprit , Liam Healy, and Bruce R. Miller</i>	
Computer assisted proofs of stability of matter .....	116
<i>R. de la Llave</i>	

Accurate strategies for K.A.M. bounds and their implementation .....	127
<i>R. de la Llave and D. Rana</i>	
A software tool for analysis in function spaces .....	147
<i>J.-P. Eckmann, A. Malaspinas and S. Oliffson Kamphorst</i>	
Equation solving by symbolic computation .....	168
<i>Anthony C. Hearn</i>	
Deciding a class of Euclidean geometry theorems with Buchberger's algorithm .....	175
<i>Bernhard Kutzler</i>	
Lie transform tutorial - II .....	190
<i>Kenneth R. Meyer</i>	
Interval tools for computer aided proofs in analysis .....	211
<i>Ramon E. Moore</i>	
Tools for mathematical computation .....	217
<i>L.B. Rall</i>	
Shadowing trajectories of dynamical systems .....	229
<i>Tim Sauer and James A. Yorke</i>	
Transformation to versal normal form .....	235
<i>Dieter S. Schmidt</i>	
Computer assisted lower bounds for atomic energies .....	241
<i>Luis A. Seco</i>	