

## LIST OF CONTENTS

### PART I PRINCIPAL LECTURES

R. BURRIDGE, G.C. PAPANICOLAOU, P. SHENG and B. WHITE Pulse Reflection by a Random Medium	3
I. MULLER Shape Memory Alloys—Phenomenology and Simulation	22
Relativistic Extended Thermodynamics	36
O.A. OLEINIK Spectra of Singularly Perturbed Operators	53
P.J. OLVER Conservation Laws in Continuum Mechanics	96
L.E. PAYNE On Geometric and Modeling Perturbations in Partial Differential Equations	108
L. TARTAR The Appearance of Oscillations in Optimization Problems	129

### PART II SINGLE INVITED LECTURES

C. ATKINSON, P.S. HAMMOND, M. SHEPPARD and I.J. SOBEY Some Mathematical Problems Arising From the Oil Service Industry	153
D.J. BERGMAN Randomly Diluted Inhomogeneous Elastic Networks near the Percolation Threshold	166
S.C. COWIN Adaptive Anisotropy: An Example in Living Bone	174
I. FONSECA Stability of Elastic Crystals	187
G.A. FRANCFORT and F. MURAT Optimal Bounds for Conduction in Two-Dimensional, Two-Phase, Anisotropic Media	197
J.T. JENKINS Rapid Flows of Granular Materials	213
R. KOHN and G. STRANG The Constrained Least Gradient Problem	226

## List of contents

viii

E.H. LEE and A. AGAH-TEHRANI The Fusion of Physical and Continuum-Mechanical Concepts in the Formulation of Constitutive Relations for Elastic-Plastic Materials	244
D. LEGUILLON and E. SANCHEZ-PALENCIA Singularities in Elliptic Non-Smooth Problems. Applications to Elasticity	260
G.A. MAUGIN Solitons in Elastic Solids Exhibiting Phase Transitions	272
M. NIEZGODKA and J.SPREKELS On the Dynamics of Structural Phase Transitions in Shape Memory Alloy	284
J.R. RODRIGUES On the Homogenization of Some Free Boundary Problems	303
J. RUBINSTEIN The Point Interaction Approximation, Viscous Flow Through Porous Media, and Related Topics	316
M. SLEMROD The Vanishing Viscosity-Capillarity Approach to The Riemann Problem for a Van Der Waals Fluid	325