Contents

Part I Classical Kinetic Theory and Fluid Dynamics	
Trend to Equilibrium in a Gas According to the Boltzmann Equation By C. Cercignani	3
The Dirichlet Boundary Value Problem for B.G.K. Equation By B. Perthame and A. Pham Ngoc Dinh	13
Asymptotic Theory of a Steady Flow of a Rarefied Gas Past Bodies for Small Knudsen Numbers By Y. Sone	19
Computation of Transitional Rarefied Flow By F. Coron and J.P. Pallegoix (With 6 Figures)	33
Gas Flows Around the Condensed Phase with Strong Evaporation or Condensation – Fluid Dynamic Equation and Its Boundary Condition on the Interface and Their Application – By K. Aoki and Y. Sone (With 3 Figures)	43
Part II Discrete Kinetic Theory	
Fluid Dynamic Limits of Discrete Velocity Kinetic Equations By C. Bardos, F. Golse, and D. Levermore	57
On the Euler Equation in Discrete Kinetic Theory By S. Kawashima and N. Bellomo	73
Existence globale et diffusion en théorie cinétique discrète By JM. Bony (With 1 Figure)	81
On the Cauchy Problem for the Semidiscrete Enskog Equation By G. Toscani, G. Borgioli, and A. Pulvirenti	91
On Uniform Boundedness of Solutions to Discrete Velocity Models in Several Dimensions By R. Illner (With 3 Figures)	99



Temperature and Local Entropy Overshoots for the Second Fourteen-Velocity Cabannes Model By H. Cornille (With 3 Figures)	109
A One Dimensional Lattice Boltzmann Equation with Galilean Invariance By Yue-Hong Qian, D. d'Humières, and P. Lallemand (With 2 Figures)	127
The Euler Description for a Class of Discrete Models of Gases with Multiple Collisions By P. Chauvat, F. Coulouvrat, and R. Gatignol (With 1 Figure)	139
On the Semidiscrete Boltzmann Equation with Multiple Collisions By E. Longo and N. Bellomo	155
A Discrete Velocity Model for Gases with Chemical Reactions of Dissociation and Recombination By R. Monaco and M. Pandolfi Bianchi	169
Part III Applied Fluid Mechanics	
Frozen and Equilibrium Speeds of Sound in Non-equilibrium Flows By M. Pandolfi and R. Marsilio (With 3 Figures)	185
Nonlinear Propagation of Acoustic and Internal Waves in a Stratified Fluid By J. Naze-Tjøtta and S. Tjøtta	195
A Higher Order Panel Method for Nonlinear Gravity Wave Simulation By J. Broeze, E.F.G. van Daalen, and P.J. Zandbergen (With 2 Figures)	205
Numerical Reliability of MHD Flow Calculations at High Hartmann Numbers By K.G. Roesner and W.U. Würfel (With 6 Figures)	213
Interaction Between an Oblique Shock and a Detached Shock Upstream of a Cylinder in Supersonic Flow By M. Holt and M.P. Loomis (With 5 Figures)	223
The Design of Super-Concorde and Space Vehicles Using Global Optimization Techniques By A. Nastase (With 4 Figures)	229
Part IV Continuum Mechanics	
Vibrating Strings with Obstacles: The Analytic Study By C. Citrini	249

Inday of Contributors	300
Modal Analysis of Flexible Multibody Systems By M. Pascal (With 2 Figures)	301
Homogenization Method Applied to Porous Media By T. Lévy (With 3 Figures)	289
Contribution to the Fracture Analysis of Composite Materials By D. Leguillon and E. Sanchez-Palencia (With 9 Figures)	277
Vibrations of Euler-Bernoulli Beams with Pointwise Obstacles By H. Carlsson and R. Glowinski (With 9 Figures)	261