

Marie Odile Bristeau
Roland Glowinski
Jacques Periaux
Henri Viviand (Eds.)

Numerical Simulation of Compressible Navier-Stokes Flows

A GAMM-Workshop



Friedr. Vieweg & Sohn Braunschweig/Wiesbaden

CONTENTS

	page
M.O. BRISTEAU, R. GLOWINSKI, J. PERIAUX, H. VIVIAND : Presentation of Problems and Discussion of Results	1
R. PEYRET : Numerical Simulation of Compressible Viscous Flows. A Survey	41
J. ALLEGRE, M. RAFFIN, J.C. LENGEND : Experimental Flowfields around NACA0012 Airfoils located in Subsonic and Supersonic Rarefied Air Streams	59
F. ANGRAND : Viscous Perturbation for the Compressible Euler Equations. Application to the Numerical Simulation of Compressible Viscous Flows.....	69
M.O. BRISTEAU, R. GLOWINSKI, B. MANTEL, J. PERIAUX, C. POULETTY : Solution of the Compressible Navier-Stokes Equations by Least-Squares and Finite Element Methods	85
L. CAMBIER : Computation of Viscous Transonic Flows using an Unsteady Type Method and Zonal Grid Refinement Technique	105
F. GRASSO, A. JAMESON, L. MARTINELLI : A Multistage Multigrid Method for the Compressible Navier-Stokes Equations	123
W. HAASE : Solutions of the Navier-Stokes Equations for Sub- and Supersonic Flows in Rarefied Gases	139
D. KALFON, D. VOLPERT, O. BROCARD : A Finite Element Method for Solving Navier-Stokes Equations.....	158
W. KORDULLA : Using an Unfactored Implicit Predictor-Corrector Method	165
B. MÜLLER, T. BERGLIND, A. RIZZI : Implicit Central Difference Simulation of Compressible Navier-Stokes Flow Over a NACA0012 Airfoil.....	183
N. SATOFUKA, K. MORINISHI, Y. NISHIDA : Numerical Solution of Two-dimensional Compressible Navier-Stokes Equations Using Rational Runge-Kutta Method	201
Y. SECRETAN, G. DHATT, D. NGUYEN : Compressible Viscous Flow around a NACA0012 Airfoil	219
F. BASSI, F. GRASSO, A. JAMESON, L. MARTINELLI, M. SAVINI : Solution of the Compressible Navier-Stokes Equations for a Double Throat Nozzle	237

	page
O. LABBE : Solution of 2D Compressible Navier-Stokes Equations for a Double Throat Nozzle by Means of Implicit Finite Volume Method	255
Y. MARX : Computations for Viscous Compressible Flows in a Double Throat Nozzle ,.....	273
D. SCHWAMBORN : Numerical Simulation of Compressible Laminar Nozzle Flow	291
J.N. SCOTT, M.R. VISBAL : Numerical Simulation of Compressible Navier-Stokes Flow in a Double Throat Nozzle	308
J.L. THOMAS, R.W. WALTERS, B. VAN LEER, C.L. RUMSEY : An Implicit Flux-Split Algorithm for the Compressible Navier-Stokes Equations ,...	326