

CONTENTS

	Page
C. ARAKAWA, A.O. DEMUREN, W. RODI, B. SCHÖNUNG : Application of Multigrid Methods for the Coupled and Decoupled Solution of the Incompressible Navier-Stokes Equations	1
M. BARCUS, M. PERIC, G. SCHEUERER : A Control Volume Based Full Multigrid Procedure for the Prediction of Two-dimensional, Laminar, Incompressible Flows	9
F. BASSI, F. GRASSO, M. SAVINI : A Local Multigrid Strategy for Viscous Transonic Flows around Airfoils	17
M. BORSBOOM, A.K. STUBOS, P.-H. THEUNISSEN : The Optimal Time Step for the Implicit Approximate Factorization Scheme - Theory and Applications	25
A. BRENNEIS, A. EBERLE : Unsteady Transonic Flows past Airfoils using a Fast Implicit Godunov Type Euler Solver	37
U. BROCKMEIER, N.K. MITRA, M. FIEBIG : Navier-Stokes Computations of Laminar Compressible and Incompressible Vortex Flows in a Channel	48
D.M. CAUSON : Numerical Computation of External Transonic Flows	56
E. DICK : A Multigrid Method for Steady Incompressible Navier-Stokes Equations in Primitive Variables Form	64
M.G. EDWARDS : The Mobile Element Method for Systems of Conservation Laws	72
L. FEZOU, M.H. LALLEMAND, H. STEVE, A. DERVIEUX : New Developments in Fast Euler Finite Element Solvers	80
B. FORTUNATO, A. DADONE : An Accurate Explicit Solver for 3-D Non-Isentropic Internal Flows	88
L. FUCHS : Calculation of Incompressible Flows in Multiply Connected Domains	96
T.B. GATSKI, C.E. GROSCH, M.E. ROSE, R.E. SPALL : Numerical Simulation of Three-Dimensional Unsteady Vortex Flow Using a Compact Vorticity-Velocity Algorithm	104
J.M.R. GRAHAM, P.D. COZENS, B. DJAHANSOUZI : Computation of Separated Flows Using a Viscous Vortex Method	112
H.W. HAPPEL, B. STUBERT : Application of a 3D Time Marching Euler Code to Transonic Turbomachinery Flow	120
W. JI : A Treatment of Multivalued Singularity of Sharp Corner in Inviscid Hypersonic Flow	130
R. KLEIN : Shock Initiated Ignition in a L-Shaped Duct. Two Aspects of its Numerical Simulation	138

C. KLINGENBERG : Two Dimensional Riemann Problems and its Applications : A Conference Report	146
H-C.KU, R-S. HIRSH, T.D. TAYLOR : A Numerical Simulation of the Effect of Salinity on a Thermally Driven Flow	151
W. LABIDI, L. TA PHUOC : Numerical Resolution of Navier-Stokes Equations in Velocity-Vorticity Formulation : Application to the Circular Cylinder	159
J.M. LACROIX, R. PEYRET, J.P. PULICANI : A Pseudospectral Multi-Domain Method for the Navier-Stokes Equations with Application to Double-Diffusive Convection	167
B. LOYD, E.M. MURMAN, S.S. ABARBANEL : A Semi-Implicit Scheme for the Navier-Stokes Equations	175
N.M. McDOUGALL, W.N. DAWES : Numerical Simulation of the Strong Interaction between a Compressor Blade Clearance Jet and Stalled Passage Flow	183
S. MAJUMDAR, B. SCHOENUNG, W. RODI : A Finite Volume Method for Steady Two-Dimensional Incompressible Flows using Non-Staggered Non- Orthogonal Grids	191
M. MALLET, J. PERIAUX, B. STOUFFLET : Convergence Acceleration of Finite Element Methods for the Solution of the Euler and Navier-Stokes Equations of Compressible Flow	199
L. MARRAFFA, G.S. DULIKRAVICH, G.S. DEIWERT : Computations of Unsteady Dissociating Nitrogen Flows	211
J.-L. MONTAGNE, H.C. YEE, M. VINOKUR : Comparative Study of High- Resolution Shock-Capturing Schemes for a Real Gas.....	219
F. MONNOYER, K.M. WANIE, M.A. SCHMATZ : Calculation of the Three- Dimensional Viscous Flow past Ellipsoids at Incidence by Zonal Solutions	229
G. MORETTI, M. VALORANI : Detection and Fitting of Two-Dimensional Shocks.....	239
B. MÜLLER, A. RIZZI : Navier-Stokes Solution for Transonic Flow over Wings	247
S. OGAWA, T. ISHIGURO, Y. TAKAKURA : Numerical Simulations of Flow Field around Three-Dimensional Complex Configurations	256
M. ONOFRI, D. LENTINI : Inviscid Hypersonic Blunt Body Flows with Finite-Rate Chemical Kinetics	268
J. PEIRO, L. FORMAGGIA, J. PERAIRE, K. MORGAN : Finite Element Solution of the Euler Equations in Two and Three Dimensions	278
B. PERNAUD-THOMAS : High Order Scheme and Multidomain Technique for 2-D. Navier-Stokes Equations : Shock-Temperature Spot Interaction	286

J. PIQUET, M. VISONNEAU : Steady Threedimensional Viscous Flow past a Shiplike Hull	294
E.G. PUCKETT : A Study of the Vortex Sheet Method for Solving the Prandtl Boundary Layer Equations	302
N. QIN, B.E. RICHARDS : Sparse Quasi-Newton Method for High Resolution Schemes	310
E.M. RONQUIST, A.T. PATERA : A Legendre Spectral Element Method for the Incompressible Navier-Stokes Equations	318
C. ROSSOW : Comparison of Cell Centered and Cell Vertex Finite Volume Schemes	327
J. RYAN, T.H. LÊ, Y. MORCHOISNE : Panel Code Solvers	335
A. SAXER, H. FÉLICI, C. NEURY, I.L. RYHMING : Euler Flows in Hydraulic Turbines and Ducts Related to Boundary Conditions Formulation	343
L. SCHMITT, R. FRIEDRICH : Large-Eddy Simulation of Turbulent Backward Facing Step Flow	355
U. SCHUMANN, H. VOLKERT : An Atmospheric Mesoscale Model : Treatment of Hydrostatic Flows and Application to Flows with Hydraulic Jumps	363
H. SCHÜTZ, F. THIELE : An Implicit Method for the Computation of Unsteady Incompressible Viscous Flows	371
R. SCHWANE, D. HAENEL : Computation of Viscous Supersonic Flow around Blunt Bodies	379
Yu. SHOKIN, V. BELOLIPETSKY, V. KOSTYUK : Numerical Algorithm for the Investigation of Stratified Flows in the Variables "Vector Potential-Vorticity"	387
C.-H. SUNG, C.-W. LIN, C.M. HUNG : An Explicit Runge-Kutta Method for 3D Turbulent Incompressible Flows	395
F.N. VAN DE VOSSE, A.A. VAN STEENHOVEN, A. SEGAL, J.D. JANSSEN : Steady Laminar Entrance Flow in a Curved Circular Pipe	403
J.B. VOS : A Numerical Technique to Calculate Reacting Flows Using Finite Rate Chemical Kinetics	410
N.P. WEATHERILL, L.J. JOHNSTON, A.J. PEACE, J.A. SHAW : A Method for the Solution of the Reynolds-Averaged Navier-Stokes Equations on Triangular Grids	418
C. WEILAND, M. PFITZNER, G. HARTMANN : Euler Solvers for Hypersonic Aerothermodynamic Problems	426
A. ZERVOS, S. VOUTSINAS : Coupled Eulerian and Lagrangian Numerical Methods for the Computation of the Flowfield around an Airfoil.....	434

REPORTS ON GAMM-WORKSHOPS

M.O. BRISTEAU, R. GLOWINSKI, J. PERIAUX, H. VIVIAND : Numerical Simulation of Compressible Navier-Stokes Flows. Presentation of Problems and Discussion of Results	442
A. DERVIEUX, J. PERIAUX, A. RIZZI, B. VAN LEER : The Numerical Simulation of Compressible Euler Flows	451