Josef Ballmann · Richard Eppler Wolfgang Hackbusch (Eds.)

Panel Methods in Fluid Mechanics with Emphasis on Aerodynamics

Proceedings of the Third GAMM-Seminar Kiel, January 16 to 18, 1987

UNIVERSITÄTSBIBLIOTHEK HAMMOVER

TECHNISCHE INFORMATIONSSIBLIOTHEK



Friedr. Vieweg & Sohn

Braunschweig/Wiesbaden

CONTENTS

Fo	19 6
H.W.M.HOEIJMAKERS: Panel Methods in Aerodynamics; Some Highlights	1
H.ANTES: Time Domain Boundary Element Solutions of Hyperbolic Equations for 2-D Transient Wave Propagation	35
E.BRUCH, S.GRILLI: Computation of the Transient Flow in Zoned Anisotropic Porous Media by the Boundary Element Method	43
L.FORNASIER: HISSS - a Higher-Order Panel Method for Subsonic and Supersonic Attached Flow About Arbitrary Configurations	52
F.K.HEBEKER: Characteristics and Boundary Elements for Threedimensional Nonstationary Navier Stokes Flow	71
J.L.HESS, W.O.VALAREZO: Application of an Advanced Panel Method to Aerodynamic Problems of Aircraft Design	79
H.JAKOB: The Prediction of Transonic Interference Flow by Means of a Hybrid Method	91
O.A.KANDIL, H.HU: Integral Equation Solution for Transonic and Subsonic Aerodynamics	101
E.KATZER: Steady and Unsteady Potential Flows Around Axisymmetric Bodies and Ring Airfoils	110
J.KRAL, W.WENDLAND: On the Applicability of the Fred-holm-Radon Method in Potential Theory and the Panel Method	120
K.KUBRYŃSKI: A Subsonic Panel Method for Design of 3-Dimensional Complex Configurations with Specified Pressure Distribution	137
P.LÖTSTEDT: Evaluation of a Higher Order Panel Program for Subsonic Flow	147
B.MASKEW: Calculation of Flow Characteristics for General Configurations Using Panel Methods	156
Z.P.NOWAK: Panel Clustering Technique for Lifting Potential Flows in the Three Space Dimensions	166
E.L.ORTIZ: Singularity Treatment in the Bidimensional Tau Method with an Application to Problems Defined on L-Shaped Domains	179
J.RYAN, T.H.LÊ, Y.MORCHOISNE: A Fourier Boundary Condi-	1 ន ន

	Page
J.SARANEN: On the Effect of Numerical Quadratures in Solving Boundary Integral Equations	196
H.SCHIPPERS: On the Evaluation of Aerodynamic Influence Coefficients	210
J.SCHÖNE: A Doublet Point Method for the Calculation of Unsteady Propeller Aerodynamics	220
R.VOSS: Calculation of Unsteady Transonic Flow About Oscillating Wings by a Field Panel Method	232
S.WAGNER, CH.URBAN, R.BEHR: A Vortex-Lattice Method for the Calculation of Wing-Vortex Interaction in Subsonic Flow	243
P.WIEMER, K.HAAG, J.BALLMANN: Approximation of Free and Bounded Vortex Sheets at Delta Wings	252
List of Participants	261