

CONTENTS

PREFACE

1. KEYNOTE ADDRESS

- On Variational Techniques and Discrete Formulations 1-3
*C.A. Brebbia, Institute for Computational Mechanics
and Southampton University, England*

2. POTENTIALS, HEAT TRANSFER PROBLEMS

- The BEM in External Potential Problems 2-3
*Davi'G. - Iannelli G.S. University of Palermo,
Italy*

- Non-linear Time Dependent Potential Problems 2-9
Using BEM
*C.A. Brebbia and P. Skerget, University of
Southampton, England and University of Maribor,
Yugoslavia*

3. SOLID MECHANICS

- Spline Boundary Element Method for Shallow Shells 3-3
Q. Rong, Kuangsi University, China

- On Boundary Element Elastic and Inelastic Analysis 3-19
in the Presence of Cyclic Symmetry
*G. Maier, G. Novati, Technical University
(Politecnico), Milan, Italy and P. Parreira,
Instituto Superior Tecnico, Lisbon*

- Plate Bending Problems Using B.E.M. 3-43
*J.A. Costa Jr. and C.A. Brebbia,
University of Southampton, England*

- The Boundary Element Method Applied to Shallow 3-65
Spherical Shells
*G. Gospodinov, Higher Institute of Civil
Engineering, Bulgaria*

4. FLUID FLOW

- The 2-D Potential Flow Around Airfoils with Lift 4-3
*G. Iannelli and S.-Davi'G. Institute of
Aeronautics, Italy*

Steady Free Surface Flow About a Submerged Object <i>S.K. Kim, Systems and Applied Sciences Corp. and J.A. Liggett & P. L-F. Liu, Cornell University, U.S.A.</i>	4-9
Three-Dimensional Boundary Element Solutions for a Steady-State Convective Diffusion Problem using 0-1 Order Boundary Elements <i>Y. Tanaka, T. Honma and I. Kaji, Hokkaido University, Japan</i>	4-17
Salt-Water Upconing Under a River -- A Boundary Element Solution <i>M. Kemblowski, University of Kansas, U.S.A.</i>	4-29
The Solution of Navier-Stokes Equations in Terms of Vorticity-Velocity Variables by Boundary Elements <i>P. Skerget, A. Alujevic and C.A. Brebbia, University of Maribor, Yugoslavia and Computational Mechanics Centre, Southampton, England</i>	4-41
Solution of the Retarded Potential Problem and Numerical Stability <i>P.H.L. Groenenboom, PISCES International B.V., The Netherlands and I.T. Kuijper & J.J. de Jong, B.V. Neratoom, The Netherlands</i>	4-57
A Magnus Effect Simulation with Discrete Singularities <i>H. Yano, S. Fukutani and A. Kieda, Doshisha University, Japan</i>	4-75
5. NUMERICAL TECHNIQUES AND MATHEMATICAL PRINCIPLES	
Conforming and Nonconforming Boundary Elements <i>F. Hartmann, University of Dortmund, West Germany</i>	5-3
Boundary Element Direct Elimination Procedure in Multi-Region Problems <i>M.C. Au, Carleton University, Canada</i>	5-9
Unified Approach to Discrete Methods <i>I. Herrera, Instituto de Geofisica, U.N.A.M</i>	5-19
Surface Representation in Computer Aided Geometric Design, Finite Element Methods and Boundary Element Methods <i>W.S. Hall, Teesside Polytechnic, England</i>	5-31

Solution of Singular-Matrix Simultaneous Linear Algebraic Equations Through the Least Square Method 5-51
Davi'G - Iannelli G.S. Institute of Aeronautics, Italy

6. GEOMECHANICS

A Visco-Elastic Stress Analysis of Tunnels 6-3
G. Gioda, A. Carini and A. Cividini, Technical University (Politecnico) of Milan, Italy

Transient Analysis of Inhomogeneous Structures by Integral Equation Method 6-15
Y. Niwa, M. Kitahara and S. Hirose, Kyoto University, Japan and Tokai University, Japan

Application of Boundary Element Methods for Soil-Structure Interaction Problems 6-27
C.V. Girija Vallabhan, J. Sivakumar, Texas Tech. University, U.S.A. and N. Radhakrishnan, Waterways Experiment Station, U.S.A.

Nonlinear Formulation for the Analysis of Complete Plane Strain Problems 6-41
W.S. Venturini and C.A. Brebbia, University of Sao Paulo, Brazil and University of Southampton, England

7. DYNAMICS

Transient Wave Fields Around Elastic Inclusions in a Semi-Infinite Foundation 7-3
M. Kitahara & M. Hamada, Tokai University, Japan and K. Nakagawa & Y. Muranishi, Fuyo Data Processing and Systems Developments Ltd., Japan

Dynamic Compliances of Strip Footings on Non Homogeneous Soils 7-15
R. Abascal and J. Dominguez, Escuela Tecnica Superior de Ingenieros Industriales, Spain

Boundary Element Analysis of Structural-Acoustic Problems 7-27
S. Suzuki, M. Imai and S-I. Ishiyama, Toyota Central Research & Development Laboratories, Japan

Analysis of Elastic Wave Field in a Half-Space and Some Applications to Earthquake Engineering 7-37
M. Ohtsu and S. Uesugi, Kumamoto University and Kumamoto Institute of Technology, Japan

8. INDUSTRIAL APPLICATIONS

Practical Experiences in Boundary Element Applications 8-3

G. Kuich, Femcad AG, Switzerland

Comparison of Boundary Element and Finite Element Methods for Linear Stress Analysis 8-21

A.I. Wanderlingh, Hamilton Standard, Windsor, U.S.A.

9. STRESS CONCENTRATION AND FRACTURE MECHANICS

The Boundary Integral Method for Two-Dimensional Screen and Crack Problems 9-3

E.P. Stephan, Georgia Institute of Technology, U.S.A. and W.L. Wendland, Fachbereich Mathematik, Technische Hochschule, Germany

Stress Analysis for Prestrained Solids by Boundary Element Method 9-19

M. Predeleanu, E.N.S.E.T. Universite Paris, France

Application of the Direct Regular Method to Linear Plastic Fracture Mechanics 9-29

C. Patterson & M.A. Sheikh, University of Sheffield, England

The Edge Function Method (E.F.M.) for Cracks, Cavities and Stress Concentrations in Elastostatics 9-39

P.M. Quinlan & M.J.A. O'Callaghan, University College Cork, Ireland

On the Crack-Tip Singularities Estimates in 3-D BEM 9-63

J. Labeyrie & P. Chauchot, Centre Oceanologique de Bretagne, France

