

CONTENTS

Preface

Organizing Committee

Division 1: General

- 1 Recent Trends in Boundary Element Methods for Elastodynamics 1
S. Kobayashi
- 2 Stresses and Stress Intensity Factors Computations by the Boundary Element Method and the Combination of Finite Elements to Boundary Elements 9
Du Qinghua, Cen Zhangzhi and Huang Qingping
- 3 Boundary Element Method Applied to Some Dynamic Inverse Problems 23
M. Tanaka and K. Yamagiwa
- 4 The Boundary Element Method for a Contact Problem 33
Han Houde and George C. Hsiao
- 5 Integral Equation Analysis for High Reynolds Number Viscous Flow Problems 39
N. Tosaka and K. Kakuda
- 6 The Integral Equation Method for Solving Compressible Navier–Stokes Equations 51
Yang Zuosheng and Zhang Huiliu

Division 2: Elasticity and Plasticity, Plates and Shells

- 7 Three Dimensional Boundary Element Analysis of Transversely Isotropic Elastic Body 57
H. Ishikawa and H. Takagi
- 8 Local Yielding Analysis of Multiphase Materials by Boundary 65

Element Method

Gao Yuli and Lou Zhiwen

- 9 Boundary Element Analysis of Transient Response for Multiphase
Viscoelastic Material 73
Sun Bingnan and Qi Zhiquan
- 10 On Some Integration Techniques and the Results of Computations for
Elastoplastic Analysis of an Axisymmetric Body Subjected to a
Nonaxisymmetric Load 81
Huang Qingping and Du Qinghua
- 11 Formulation of Boundary Element – Linear Complementary Equation
for the Frictional Elastic Contact Problems 91
Sha Desong, Sun Huanchun and Xu Shouze
- 12 Fractural Analysis of Three Dimensional Cracked Body 101
He Yong and Chen Haoran
- 13 The BEM Analysis on Bending Fracture Problem of thin Plate 109
Li Zengfu and Yang Guichang
- 14 Endochronic Boundary Integral Method for Elastoplastic Spherical
Shell 117
Fu Mingfu, Yang Depin, Lin Zhongxiang

Division 3: Elastodynamics

- 15 Elastodynamic Analysis of Crack–Tip Fields by a Time–Domain BIE
Method 125
Ch. Zhang and J.D. Achenbach
- 16 Elastodynamic Analysis of a Crack by BIEM 133
Q. C. Guo, N. Nishimura and S. Kobayashi
- 17 Dynamic Analysis of 3–D Crack Problem by the Laplace Transformed
Boundary Element Method 141
Zhang Xianghui and Zhang Yongyuan

18	A Multi-Scattering Calculation of SH Waves <i>Y. Hiei and M. Kitahara</i>	151
19	The Dynamic Analysis of Viscoelastic Body by BEM <i>Zhang Qi and Lou Zhiwen</i>	157
20	Boundary Element Method in Elastic Eigenvalue Problem of Thin Plate <i>Hu Caifeng</i>	165

Division 4: Fluid Flow, Heat Transfer and Other Field Problems

21	Three-Dimensional Boundary Element Analysis of Potential and Current Density in Galvanic Corrosion <i>K. kishimoto, S. Aoki and M. Miyasaka</i>	173
22	Numerical Modelling of Three-Dimensional Viscous Flow around Arbitrary Multi-Bodies <i>Lu Shouzhi and Han Qingshu</i>	181
23	Coupled Boundary Element Method for Salt-Water Wedge Diffusion with Constant Convective Term <i>M. Kanoh, T. Kuroki, G. Aramaki and N. Tosaka</i>	189
24	Study of Vortex in Theory of Hydrodynamic Lubrication <i>Yang Dequan, Han Qingshu and Lin Changsheng</i>	197
25	Boundary Element Method for Water Wave Diffraction and Radiation Problems <i>Shen Hua, Yu Yang and Zhou Suxin</i>	205

Division 5: Mathematical and Numerical Aspects

26	A Boundary Element Method for Steady Oseen Flow <i>Yuan Zhengqiang and Zhu Jialin</i>	213
27	A Numerical Study on Errors of Time Marching Boundary Integral Equation Method in Wave Problems <i>T. Fukui</i>	221

28	Fundamentals and Applications of Spline Boundary Element–Energy Collocation Method <i>Qin Rong</i>	229
29	Nonlinear Potential Analysis by Improved Volume Integration Procedure for Boundary Element Method <i>T. Takeda, K. Shimada and T. Kuwahara</i>	237
30	On an Objective Measurement of the Accuracy of Boundary Element Methods <i>Yao Zhenhan and Zhong Xiaoguang</i>	245
31	Numerical Methods for an Integro–Differential Equation Arising from Heat Exchange Problem on Unbounded Domain <i>M. Sakakihara, J.W. Hu, N. Okamoto and H. Niki</i>	255
32	The Improved Isoparametric Transformation in BEM <i>Ding Haojiang and He Wenjun</i>	263
33	Some Applications of Symbolic Manipulation to BEM <i>G. W. Ye, G. Yagawa and S. Yoshimura</i>	271
34	A New Type of Boundary Integral Equation in Plane Problem of Elasticity <i>Shen Xinzhuo and Hu Haichang</i>	281
35	A Boundary Element Method and Error Analysis for the Dirichlet Problem of the Helmholtz Equation in R^2 <i>Jin Chaosong</i>	289
36	Some Mathematical Aspects of Adaptive Boundary Elements <i>Yu Dehao</i>	297
Division 6: Fluid – Structure Interaction Problem and BE – FE Coupling Method		
37	A Scheme for the Numerical Treatment of Line Integral in Newmann–Kelvin Problem <i>Zang Yuelong and Ji Xing</i>	305

38	Simulation of Nonlinear Acoustic Wave Scattering by Boundary Element – Finite Element Combination Approach <i>Y. Kagawa and T. Murai</i>	313
39	A Mixed FE – BE Method for Coupled Vibration of Floating Plates with Complicated Shape <i>Huang Yuying</i>	321
40	Indentation by Circular Punch with BEM / FEM Combination Analysis <i>T. Sawada and H. Sakaguchi</i>	329
41	Mathematical Models for Moving Boundary Problems <i>Feng Zhenxing</i>	337
42	Nonlinear Analysis of Solid Fluid Coupling Vibration <i>Sha Desong, Sun Huanchun, Sun Keming and Zhao Jincheng</i>	345
Division 7: Engineering Applications		
43	Optimal Design by BEM <i>N. Kamiya and E. Kita</i>	361
44	AS – BE Coupling Method for 3–D Dynamic Response of Underground Vertical Well <i>Ni Haiying and Weng Zhiyuan</i>	369
45	Personal Computer Drawing Program of Plane Frame Structure by FEM and BEM <i>Y.Miyamoto, S.Iwasaki, H.Deto, S.Takehora and T.Tsujino</i>	375
46	Stress Analysis of Monolithic Gravity Dams by 3D Infinite Boundary Elements <i>Zhang Chuhan, Song Chongmin, Wang Guanglun and Jin Feng</i>	383
47	The Elastoplastic Analysis of BEM and FEM in Structures Composed of Thin Plates <i>Qi Kui and Jin Zailu</i>	393

48	Structural Analysis and Optimal Design of Shallow Spherical Shells <i>Xiao Fan and Yang Zhiqing</i>	401
49	An Approach of Discretizing Hereditary Integral by Means of Boundary Element Method <i>Jia Lihong and Xiong Yixiang</i>	409
50	The Analysis of Dynamic Response of Underground Structures <i>Zhou Deliang, Weng Zhiyuan and Xu Bangwei</i>	415
51	An Analysis of Plates on Elastic Foundations by Boundary Element Method <i>Wang Xuancang and Wang Binggang</i>	423
52	The Application of BEM in Stress Analysis on Axisymmetrical Rotator in Thermal Loading <i>Zhang Baoheng and Fu Zhongguang</i>	431
53	Use of Three Dimensional Potential Boundary Element Method for Calculating Flow Distribution on a Water Turbine Vane <i>Li Xiaofang</i>	439
54	Singular Solutions for Tri-Layer-Planes and Its Boundary Element Method <i>Dai Ching and Tong Guangxu</i>	445
55	Analysis of Shallow Shells by Boundary Elements <i>Ye Tianqi</i>	455
56	A Solution to the Problem of Free Torsional Vibration of Axi-symmetric Bodies Using Boundary Element Method <i>Wu Jie and Huang Maokuang</i>	461
57	A Corrected Scheme for the Boundary Element Method for Analysis of Shallow Spherical Shells <i>Lu Xilin and Du Qinghua</i>	469
58	Boundary Element Analysis of Edge Effect in Laminated	473

Composite (Abstract)

Ye Biquan and Chou Huanwen

- 59 On the Approximate Fundamental Solution in Boundary Element Method for Dynamic Problems of Anisotropic Structures (Abstract) 475
Zhu Jimei
- 60 Studies on the Stability of the Solution of Regular Boundary Integral Equations—Boundary Element Methods (Abstract) 477
Liu Weiqian