

**Proceedings of the  
Eighth International Conference on  
Civil and Structural  
Engineering  
Computing**

## **Civil-Comp Press Books on Computational Engineering**

### **Identification, Control and Optimisation of Engineering Structures**

*Edited by: G. De Roeck and B.H.V. Topping*

### **Computational Concrete Structures Technology**

*Edited by: Z. Bittnar and B.H.V. Topping*

### **Computational Steel Structures Technology**

*Edited by: M. Iványi, J.P. Muzeau and B.H.V. Topping*

### **Innovation in Computer Methods for Civil and Structural Engineering**

*Edited by: B.H.V. Topping and M.B. Leeming*

### **Developments in Analysis and Design Using Finite Element Methods**

*Edited by: B.H.V. Topping and B. Kumar*

## **Saxe-Coburg Publications on Computational Engineering**

### **Computational Modelling of Masonry, Brickwork and Blockwork Structures**

*Edited by: J.W. Bull*

### **Innovative Computational Methods for Structural Mechanics**

*Edited by: M. Papadrakakis and B.H.V. Topping*

### **Parallel and Distributed Processing for Computational Mechanics: Systems and Tools**

*Edited by: B.H.V. Topping*

### **High Performance Computing for Computational Mechanics**

*Edited by: B.H.V. Topping and L. Lämmer*

### **Computational Mechanics for the Twenty-First Century**

*Edited by: B.H.V. Topping*

### **Derivational Analogy Based Structural Design**

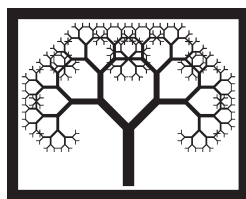
*B. Kumar and B. Raphael*

### **Parallel Finite Element Computations**

*B.H.V. Topping and A.I. Khan*

**Proceedings of the  
Eighth International Conference on  
Civil and Structural  
Engineering  
Computing**

*Edited by*  
**B.H.V. Topping**



**CIVIL-COMP PRESS**

© Civil-Comp Ltd, Stirling, Scotland

published 2001 by

**Civil-Comp Press**

Dun Eaglais, Kippen

Stirling, FK8 3DY, UK

*Civil-Comp Press is an imprint of Civil-Comp Ltd*

ISBN 0-948749-76-8 (Book)

ISBN 0-948749-75-X (CD-Rom)

ISBN 0-948749-77-6 (Combined Set)

**British Library Cataloguing in Publication Data**

A catalogue record for this book is available from the British Library

Printed in Great Britain by Bell & Bain Ltd, Glasgow

# Contents

<b>Preface</b>		<b>xi</b>
<b>I</b>	<b>Internet Applications in Civil and Structural Engineering</b>	<b>1</b>
1	Exchanging Geotechnical Data through the World Wide Web D.G. Toll and A.C. Cubitt	3
2	E-Commerce in Construction: Barriers and Enablers K. Ruikar, C.J. Anumba, P.M. Carrillo and G Stevenson	5
<b>II</b>	<b>Information Technology in Civil and Structural Engineering</b>	<b>7</b>
3	The IT Concerns of Small and Medium Sized Construction Businesses in the Information Age J.H.M. Tah, V. Carr and S. Hoile	9
4	A Quality Management Tool for a Public-Private Partnership Highway Project J. Rankin, A.J. Christian and B. Lundrigan	11
5	Information Management in a Decision Support System for Pavement Management A.P. Chassiakos, D.D. Theodorakopoulos and I.D. Manariotis	13
6	A Platform for the Integration of Civil Engineering Services and Tools Z. Turk and R.J. Scherer	15
<b>III</b>	<b>Construction Management and Construction Engineering</b>	<b>17</b>
7	Managing Geotechnics in a Mega-Project: The Egnatia Motorway Case in Greece S. Lambropoulos and E. Sakoubenta	19
8	The Implementation of a Multi-Agent System for Construction Claims Negotiation Z. Ren, C.J. Anumba and O.O. Ugwu	21
9	Component State Model and its Application in Constructability Analysis of Construction Schedules D.K.H. Chua and Y. Song	23

<b>IV</b>	<b>Computer Aided Design</b>	<b>25</b>
10	Basic Study for Creating 3D Model Spaces from 2D Digital Images with Photogrammetric Technology S. Tanaka, H. Furuta, E. Kitagawa, H. Noda and H. Muraki	27
11	Data Extraction for Design and Construction Integration: An Application in Petrochemical Industry K. Lueprasert and L. Meepradit	29
12	The Ideal Method of Using Digital Data in Highway Construction Works: From Design to Administration M. Yamasaki, T. Hongou and Y. Chiba	31
<b>V</b>	<b>Software Development</b>	<b>33</b>
13	Efficient Object-Oriented Implementation of Boundary Element Software I.A. Jones, P. Wang, A.A. Becker, D. Chen and T.H. Hyde	35
<b>VI</b>	<b>Data Acquisition, Monitoring and Control</b>	<b>37</b>
14	Practical Application of an Advanced Real Time Structural Monitoring System A. Goodier and S.L. Matthews	39
<b>VII</b>	<b>Computers in Structural Analysis</b>	<b>41</b>
15	Efficient Graph Theoretical Methods for Examining the Rigidity of Planar Trusses A. Kaveh and F.N. Ehsani	43
<b>VIII</b>	<b>Computers in Structural Engineering Design</b>	<b>45</b>
16	Three-Dimensional Structural Modelling of Multi-Storey Buildings for Obtaining Moment Envelopes T.M. Nahhas and M.H. Imam	47
17	Behaviour of Pre-Damaged T-Shaped Reinforced Concrete Beams M.B. Emara and A.G. Sherif	49
18	Behaviour of Steel-Concrete Composite Beam with Flexible Shear Stud H.G. Kwak and Y.J. Seo	51
19	The Effects of Infill Walls on the Behaviour of Frames under Horizontal Loads A. Karaduman, Z. Polat and M.Y. Kaltakci	53
20	The Influence of Repaired Slabs in Coupled Shear Walls A. Nadjai and D. Johnson	55

21	Segmentation of Structures into Planar Elements: An Error-tolerant Computation Method S.P. Manikandan and B. Emmanuel	57
22	A Study of the Effect of Crack Propagation and Fracturing on Rock Slope Stability Analysis by Discontinuous Deformation Analysis R. Naderi	59
<b>IX</b>	<b>Analysis and Design of Tension Structures</b>	<b>61</b>
23	Development of an Advanced System for Analysis and Design of Tensile Structures T.H. Zhang and S.L. McCabe	63
24	A Cable and Membrane Pseudo Stiffness Implementation J. Muylle and B.H.V. Topping	65
<b>X</b>	<b>Structural Analysis: Buckling &amp; Stability Computations</b>	<b>67</b>
25	The Influence of Column Base Connectivity on the Carrying Capacity of Columns H.H. Lau, M.H.R. Godley and R.G. Beale	69
26	A Lateral Torsion Buckling Analysis of Elastic Beam under Axial Force and Bending Moment K.M. Hsiao and W.Y. Lin	71
27	A New Beam Finite Element for Tapered Members N. Boissonnade and J.P. Muzeau	73
28	Dynamic Buckling of Columns Considering Shear Deformation and Rotary Inertia M. Ghorashi	75
29	Buckling Behaviour of FRP Thin-Walled Lipped Channel Members N. Silvestre and D. Camotim	77
30	Elastic Flexural-Torsional Buckling and Postbuckling of Arches subjected to a Central Concentrated Load Y.L. Pi and M.A. Bradford	79
31	Lateral Buckling Analysis of Thin-walled Composite I-section Beams J. Lee and S. Lee	81
32	Optimal Design of Stiffened Plates for Buckling under in-plane Forces and Bending Moments M. Ghorashi, A. Askarian and M. Gashtasby	83
<b>XI</b>	<b>Structural Analysis: Dynamic Computations</b>	<b>85</b>
33	Impact Envelope Formula of Simple Beams due to High Speed Trains J.D. Yau and Y.B. Yang	87

34	Dynamical Analysis of Composite Steel Decks Floors Subjected to Rhythmic Load Actions J.G.S. da Silva, F.J. da C.P. Soeiro, P.C.G. da S. Vellasco, S.A.L. de Andrade and R. Werneck	89
35	A New Method for Dynamic Modelling of a Suspension Bridge for Aerodynamic Instability C.P. Pagwiwoko, M.A.M. Said and C.K. Keong	91
<b>XII</b>	<b>Earthquake and Seismic Computations</b>	<b>93</b>
36	Seismic Hazard Assessment in The State of Kuwait A.W. Sadek	95
37	Study of the Dynamic and Equivalent Static Analysis Methods for Seismic Design of Bridges: Ranges of Applicability, Effect of Modelling Assumptions, and Support Conditions M.M. Bakhoun and S. Athanasious	97
38	Design Optimization of Seismic-Resistant Steel Frames H. Moharrami and S.A. Alavinasab	99
39	A Review of Procedures used for the Correction of Seismic data N.A. Alexander, A.A. Chanerley and N. Goorvadoo	101
40	Distress and Restoration of an Old Building damaged by the 07.09.99 Athens Earthquake I.D. Lefas and V.N. Georgiannou	103
41	Modelling of Continuous Slab-Girder Bridges for Seismic Analysis S. Maleki	105
42	Non-linear Finite Element Analysis of Slab Effects in Reinforced Concrete Structures Subjected to Earthquake Loads M.B. Emara and H.M. Hosny	107
<b>XIII</b>	<b>Analysis and Design of Steel Structures</b>	<b>109</b>
43	Non-linear Analysis of Steel I-Girders Curved in-plan under a Uniformly Distributed Load M.A. Bradford, B. Uy and Y.L. Pi	111
44	Practical Non-linear Analysis for 3D Semi-rigid Frames S.E. Kim	113
45	Collapse Load of Optimally Designed Unbraced Flexibly Connected Steel Frames E.S. Kameshki	115
46	Optimum Design of Pitched Roof Steel Frames with Haunched Rafters by Genetic Algorithm M.P. Saka	117



47	Modelling of the Structural Fire Response of Steel Framed Buildings A.Y. Elghazouli and B.A. Izzuddin	119
<b>XIV</b>	<b>Analysis and Design of Connections and Fasteners</b>	<b>121</b>
48	Design of Bolted Joints in Pressure Vessels by Dynamic Modelling M. Ghorashi	123
49	Finite Element Modelling of Threaded Fastener Loosening due to Dynamic Forces M. Holland and D. Tran	125
<b>XV</b>	<b>Analysis and Design of Reinforced Concrete Structures</b>	<b>127</b>
50	An Experimental Study on the Behaviour of Normal and Lightweight Reinforced Concrete Corbels and Analysis with Truss/Strut-and-Tie Model M.Y. Kaltakci and G. Yavuz	129
51	Cracking Analysis of Reinforced Concrete Tension Members using Polynomial Strain Distribution Function H.G. Kwak and J.Y. Song	131
52	Thermal Load Produced Part-Through Cracks in Cement Mortar Layer on Foamed Concrete System Floors J.H.J. Kim	133
53	Efficient Procedure for Stress Integration in Concrete Sections using a Gauss-Legendre Quadrature J.L. Bonet, P.F. Miguel, M.A. Fernandez and M.L. Romero	135
54	Effects of Torsion on the Flexural Stiffness of the Rectangular Reinforced Concrete Sections M.J. Fadaee and M. Banihashemi	137
55	Derivation and Parametric Study of a Damaged Reinforced Concrete Element Y. Liu, C.K. Soh and Y.X. Dong	139
56	Analytical Solutions for Uniaxial Bending Design of Reinforced Concrete T Cross Sections according to The Eurocode 2 Standard M. Skrinar	141
57	Optimum Design of Reinforced Concrete Continuous Beams by Genetic Algorithms M.N.S. Hadi	143
<b>XVI</b>	<b>Computational Modelling of Composite Materials and Structures</b>	<b>145</b>
58	Free Vibration of Sandwich Beams using the Dynamic Stiffness Method J.R. Banerjee	147
59	Theoretical Study of Anisotropic Laminated Shells with Shear Deformation I.N. Kwun, J.Y. Kim and T.J. Kwun	149

60	Homogenization Method in Stochastic Finite Element Analysis of some 1D Composite Structures M. Kamiński	151
61	Mechanical and Thermal Fatigue of Curved Composite Beams L. Figiel and M. Kamiński	153
62	Three-Dimensional Progressive Damage Analysis of Composite Joints P. Perugini, A. Riccio and F. Scaramuzzino	155
<b>XVII Fire Resistance of Structures</b>		<b>157</b>
63	Fire Performance of Single Leaf Masonry Walls A. Nadjai, M. O’Gara and F. Ali	159
64	Finite Element Analysis of Fire Resistance of Reinforced Concrete Columns X.X. Zha, L.Y. Li and J.A. Purkiss	161
65	Fire Resistance of Slim Floors Protected using Intumescent Coatings W. Sha	163
66	Non-linear Fire Resistance Analysis of Reinforced Concrete Frames S. Bratina, G. Turk, M. Saje and I. Planinc	165
67	Fire Resistance of Protected Asymmetric Slim Floor Beam W. Sha	167
<b>XVIII Finite Element Methods in Civil and Structural Engineering</b>		<b>169</b>
68	Finite Element Analyses of Steel Beam to Concrete-Filled Circular Steel Tube Column Connections C.C. Chen and H.L. Li	171
69	Finite Element Simulation of Post-Elastic Strain Energy Release Rate for Ductile Thin Wall Structure D. Tran	173
70	The Effects of Temperature Variation on the Creep Behaviour of Pressure Vessels using Theta Projection Data M. Law, W. Payten and K. Snowden	175
<b>XIX Wave Propagation Problems</b>		<b>177</b>
71	Wave Problems in Infinite Domains M. Premrov and I. Špacapan	179
72	Special Finite Elements for High Frequency Elastodynamic Problems: First Numerical Experiments O. Laghrouche, P. Bettess and D. Le Houédec	181
73	Wave Motion In Infinite Inhomogeneous Waveguides I. Špacapan and M. Premrov	183

<b>XX</b>	<b>Non-Linear Analysis</b>	<b>185</b>
74	A Study on the Effect of Static and Cyclic Loading and Linear and Non-Linear Material Properties in the Analysis of Flexible Pavements by Finite Element Modelling M.N.S. Hadi and B.C. Bodhinayake	187
75	Updated Lagrangian Formulation using ESA Approach in Large Rotation Problems of Thin-Walled Beam-Type Structures G. Turkalj, J. Brnic and J. Prpic-Orsic	189
76	Non-linear Analysis of Composite Floor Slabs with Geometric Orthotropy B.A. Izzuddin, X.Y. Tao and A.Y. Elghazouli	191
77	Non-linear Behaviour, Failure Loads and Inelastic Buckling of Multispan Cable-Stayed Bridges M.M. Bakhoun, G. Helmy, W.A. Attia and M. Mourad	193
78	Geometric Non-linear Analysis of General Shell Structures Using a Flat Triangular Shell Element M.H. Jang, J.Y. Kim and T.J. Kwun	195
79	Insitu Considerations for Non-linear Buckling Analysis S.H. Lee	197
<b>XXI</b>	<b>Computational Methods</b>	<b>199</b>
80	Grid Generation Using Finite Fourier Series T. Ohkami and S. Goto	201
81	Constitutive Error Estimator for the Control of Contact Problems involving Friction J.Ph. Combe, F. Louf and J.P. Pelle	203
82	The Dynamic Behaviour of a Cracked Beam Subjected to a White Noise Input P. Cacciola, N. Impollonia and G. Muscolino	205
83	About Sensitivity Analysis for Elastoplastic Systems at Large Strains T. Rojc and B. Štok	207
84	Determination of Constitutive Material Parameters for Sheet Metal Forming M. Kompis and T.G. Faurholdt	209
85	Local Error Estimator for Stresses in 3D Structural Analysis E. Florentin, L. Gallimard, P. Ladevèze and J.P. Pelle	211
86	The Three-Dimensional Beam Theory: Finite Element Formulation based on Curvature D. Zupan and M. Saje	213

87	Element-Free Crack Propagation by Partition of Unity Weighted Quadrature A. Carpinteri, G. Ferro and G. Ventura	215
88	Sensitivity of Inverse Boundary Element Techniques to Errors in Photoelastic Measurements P. Wang, A.A. Becker, I.A. Jones and T.H. Hyde	217
<b>XXII</b>	<b>Parallel and Distributed Computations</b>	<b>219</b>
89	Influence of Domain Decomposition on Solution of Equation Systems J. Kruis and Z. Bittnar	221
90	An Explicit Parallel Procedure for Non-linear Structural Mechanics with Distributed Computing M.L. Romero, J.I. Aliaga, J.L. Bonet, M.A. Fernandez and P.F. Miguel	223
91	Generation of All-Quadrilateral Meshes Using a Triangular Mesh Generator D. Ryppl and Z. Bittnar	225
92	Convergence of the Iterative Group-Implicit Algorithm for Parallel Transient Finite Element Analysis Y. Dere and E.D. Sotelino	227
<b>XXIII</b>	<b>Optimization</b>	<b>229</b>
93	Quantitative Stiffness-based Optimal Design of Tall Buildings using a Condensed Lateral Stiffness Matrix H.J. Lee, D.H. Lee, H.W. Lee and H.S. Kim	231
94	Multiobjective Optimal Design of Structures under Stochastic Loads H. Jensen	233
95	Extended Study on Limit Analysis of Masonry Wall with Openings A. Miyamura, A. DeStefano, Y. Kohama and T. Takada	235
96	A Review of the Self-Designing Structures Approach on the Optimisation of Engineering Structures J.W. Bull and Z. Pitouras	237
97	Topological Optimization of an Aircraft Engine Mount via Bit-masking Oriented Genetic Algorithms L. Iuspa, F. Scaramuzzino and P. Petrenga	239
98	Shape Optimization Problem for Incompressible Viscous Flow based on Optimal Control Theory T. Ochiai and M. Kawahara	241
99	A Computational Methodology to Select the Best Material Combinations and Optimally Design Composite Sandwich Panels for Minimum Cost M. Walker and R. Smith	243

100	Optimum Design of Cable-Stayed Bridges with Imprecise Data L.M.C. Simões and J.H. Negrão	245
101	Structural Optimisation of an Orthotropic Plate D. Tran	247
102	Application of Simulated Annealing to Optimal Barreling of Externally Pressurised Shells J. Blachut	249
<b>XXIV Geotechnical Engineering: Information Technology</b>		<b>251</b>
103	Development of a Database Oriented Software for Construction Material Selection in Contaminated Soils A.J. Puppala, V. Mohan, E.C. Crosby and S. Valluru	253
104	Geotechnical Parameter Prediction from Large Data Sets I. Davey-Wilson	255
105	Enhancing Geotechnical Education using Interactive Multimedia Simulations M. Budhu	257
<b>XXV Geotechnical Engineering: Analysis and Design</b>		<b>259</b>
106	Numerical Modeling of Nailed Soil Walls in Vertical Excavation Y.S. Hong, R.H. Chen, C.S. Wu	261
107	A Limit Analysis Method for Nailed Earth Slopes Y.S. Hong	263
108	Lateral Pile Response due to Interface Yielding W.D. Guo	265
109	Finite Element Predictions of Centrifuge Tests on Liquefiable Reinforced Soils O.O.R. Famiyesin, A.A. Rodger and A. Matheson	267
110	A Microstructural Computation Simulation Model of Loess Soils S.C. Dibben, I.F. Jefferson and I.J. Smalley	269
111	Finite Element Analysis of an Offshore Pipeline Buried in a Porous Seabed: Effects of Cover Layer D.S. Jeng and P.F. Postma	271
112	Subgrade Modulus for Laterally Loaded Piles W.D. Guo	273
113	Modelling of the Effect of an Impulse on a Ground Anchorage System R.D. Neilson, A. Ivanovic, A. Starkey and A.A. Rodger	275
114	Numerical Modelling of Ground Anchorages Employed in the Field A. Ivanovic, A. Starkey, R.D. Neilson and A.A. Rodger	277

115	Propagation of Vibrations from a Railway Track Lying on a Semi-Infinite Soft Ground B. Picoux, G. Lefeuvre-Mesgouez and D. Le Houédec	279
116	Combined Structural and Coastal Loads on an Offshore Pile: A Numerical Study J.A. Eicher, H. Guan, and D.S. Jeng	281
117	A Software with Integrated Graphics Platform for Limit Analyses of Geotechnical Problems L. Santos da Silva, M.M. Farias and C.L. Sahlit	283
118	Finite Element Predictions of the Dynamic Effects on an adjacent Structure A. Rouaiguia and I. Jefferson	285
119	Computer Monitoring of Load Test on Piles G. Lipnik, B. Kovacic and P. Šparl	287
120	Computer Simulation and Video for Consolidation Testing U.F.A. Karim and J. de Goeijen	289
121	Consolidation of Soft Clays with Large Strains C.J. Leo and K.H. Xie	291
122	Behaviour of Landfill Liners under Earthquake Loading S.P.G. Madabhushi and S. Singh	293
	<b>XXVI Soil-Structure Interaction: Analysis and Modelling</b>	<b>295</b>
123	Implicit Integration of Elastoplastic Constitutive Equations of Interface Element F. Cai and K. Ugai	297
124	Dynamic Analysis of a Steam Turbine Support Structure V. Karthigeyan, G.K.V. Prakhya and K. Vekaria	299
125	Effect of Base Level to Internal Forces of a Structure in case of Earthquake J. Györgyi and S. Ádány	301
	<b>XXVII Water Engineering: Analysis and Design</b>	<b>303</b>
126	Regional Flood Frequency Analysis using L-Moments G. Onusluel, S.D. Ozkul and N.B. Harmancioglu	305
127	Assessment of Information related to Floods N.B. Harmancioglu, C.P. Cetinkaya and S.D. Ozkul	307
	<b>Author Index</b>	<b>309</b>
	<b>Keyword Index</b>	<b>313</b>

# Preface

This volume comprises the extended abstracts of contributed papers presented at The Eighth International Conference on Civil and Structural Engineering Computing (Civil-Comp 2001). The full papers from the conference are available on the accompanying CD-ROM. The conference was held concurrently with The Sixth International Conference on the Application of Artificial Intelligence to Civil and Structural Engineering (AICivil-Comp 2001) in Eisenstadt, Austria, from 19 to 21 September 2001. These conferences are part of the Civil-Comp series that commenced in 1983.

The topics covered in these Proceedings are wide ranging and demonstrate the extensive use of computing in civil and structural engineering. They have been classified as:

- Internet Applications in Civil and Structural Engineering
- Information Technology in Civil and Structural Engineering
- Construction Management and Construction Engineering
- Computer Aided Design
- Software Development
- Data Acquisition, Monitoring and Control
- Computers in Structural Analysis
- Computers in Structural Engineering Design
- Analysis and Design of Tension Structures
- Structural Analysis: Buckling & Stability Computations
- Structural Analysis: Dynamic Computations
- Earthquake and Seismic Computations
- Analysis and Design of Steel Structures
- Analysis and Design of Connections and Fasteners
- Analysis and Design of Reinforced Concrete Structures
- Computational Modelling of Composite Materials and Structures
- Fire Resistance of Structures
- Finite Element Methods in Civil and Structural Engineering
- Wave Propagation Problems
- Non-Linear Analysis
- Computational Mechanics
- Parallel and Distributed Computations
- Structural Optimisation
- Geotechnical Engineering: Information Technology
- Geotechnical Engineering: Analysis and Design
- Soil-Structure Interaction: Analysis and Modelling
- Water Engineering: Analysis and Design

I should like to thank all the authors and co-authors of the papers included in this volume of proceedings. I am especially grateful to those who took the time and made the effort to participate in Eisenstadt.

Finally, we should like to thank the members of the Conference Editorial Board for their help before and during the conference: Professor H. Adeli, USA; Dr T.J.A. Agar, UK; Professor N. Akkas, Turkey; Professor A.M. Alsugair, Saudi Arabia; Dr S.C. Anand, UK; Professor A.J. Aref, USA; Dr C.E. Augarde, UK; Professor M.R. Barnes, UK; Professor J.A.O. de Barros, Portugal; Professor R.C. Barros, Portugal; Professor J.W. Baugh Jr., USA; Dr. A.A. Becker, UK; Dr R. Beheshti, Netherlands; Dr. A. Bensalem, UK; Professor L.G. Bernold, USA; Dr P. Bhatt, UK; Professor D.A. Bradley, UK; Professor F.A. Branco, Portugal; Professor M. Bruneau, USA; Dr J.W. Bull, UK; Professor F. Cai, Japan; Professor A. Carpinteri, Italy; Professor S.L. Chan, Hong Kong; Professor Y.K. Chow, Singapore; Professor J. Christian, Canada; Professor D. Chua Kim Huat, Singapore; Dr R.S. Crouch, UK; Dr L. Davison, UK; Dr. R.A. Day, Australia; Dr. M.M. De Farias, Brazil; Professor G. Degrande, Belgium; Professor M.C. Deo, India; Dr E.A. Dickin, UK; Professor H.M. Elzarka, USA; Dr. O.O.R. Famiyesin, UK; Professor P. Fazio, Canada; Dr. W.J. Ferguson, UK; Professor F.C. Filippou, USA; Professor L. Fryba, Czech Republic; Professor H. Furuta, Japan; Dr. P. Gardner, UK; Dr F. Genna, Italy; Professor J. Gluck, Israel; Professor R.S. Govindaraju, USA; Professor W.J. Grenney, USA; Professor D.E. Grierson, Canada; Professor P. Hajela, USA; Professor N.B. Harmancioglu, Turkey; Professor T. Hegazy, Canada; Professor B.G. Heydecker, UK; Dr M. Hirokane, Japan; Professor G. Hofstetter, Austria; Dr. G.D. Holt, UK; Dr J. Hoybye, Sweden; Professor S.L. Hung, Taiwan; Professor P. Jayachandran, USA; Dr. D.S. Jeng, Australia; Professor X. Jia, USA; K. Kahkonen, Finland; Professor E.S. Kameshki, Bahrain; Dr R. Karoumi, Sweden; Professor A. Kaveh, Iran; Professor T. Kerh, Taiwan; Dr A.I. Khan, Australia; Professor V.K. Koumoussis, Greece; Dr B. Kumar, UK; Dr A.S.K. Kwan, UK; Dr. A.K.H Kwan, Hong Kong; Professor K.H. Law, USA; Professor D. Le Houedec, France; Dr I.D. Lefas, Greece; Dr. C.J. Leo, Australia; Professor R Levy, Israel; Professor Heng Li, Hong Kong; Professor Shie-Yui Liong, Singapore; Dr. G.H. Little, UK; Dr. P.E.D. Love, Australia; Dr. G.W. Ma, Singapore; Dr R.I. Mackie, UK; Professor M.K.S. Madugula, Canada; Professor Dr. K. Marti, Germany; Professor I. May, UK; Professor P.H. McDonald, USA; Dr J. Miles, UK; Professor S.A. Mirza, Canada; Professor A. Miyamoto, Japan; Professor A. Miyamura, Japan; Professor G. Muscolino, Italy; Dr A. Nadjai, UK; Dr. P.O. Olomolaiye, UK; Dr K. Orsborn, USA; Professor M. Papadrakakis, Greece; Professor M. Pastor, Spain; Professor M.N. Pavlovic, UK; Professor S. Pietruszczak, Canada; Professor A.A. Ramezani-pour, Iran; Professor M. Raoof, UK; Professor R. Rikards, Latvia; Dr S.G. Ritchie, USA; Professor M.L. Romero, Spain; Professor C.T.F. Ross, UK; Dr S. Rowlinson, Hong Kong; Professor R.L. Sack, USA; Professor M.P. Saka, Bahrain; Professor A. Samartin, Spain; Professor A. Scanlon, USA; Professor K. Schilling, Germany; Professor J.J. Shi, USA; Professor L.M.C. Simoes, Portugal; Professor S. Singh, USA; Professor V.P. Singh, USA; Professor M. Skitmore, UK; Professor J.E. Souza de Cursi, France; Dr R. Spallino, Germany; Professor B. Stok, Slovenia; Dr N.K. Subedi, UK; D. Taffs, UK; Professor J.H.M. Tah, UK; Professor A.B. Templeman, UK; Professor David Thambiratnam, Australia; Professor G. Thierauf, Germany; Professor H.R. Thomas, UK; Dr D.G. Toll, UK; Dr G.J. Turvey, UK; Professor M. Walker, South Africa; Professor J. Wang, China; Dr Peter K.



Woodward, UK; Professor G. Yagawa, Japan; Professor Y.B. Yang, Taiwan; Professor H. Yao, Japan; Profesor I-Cheng Yeh, Taiwan; Dr T. Zimmermann, Switzerland; Professor A. Zingoni, South Africa; and Professor P.P. Zouein, Lebanon.

Other papers presented at the conferences in 2001 have been published as follows:

- *The Contributed Papers from AICivil-Comp 2001 are published in:* Proceedings of the Sixth International Conference on the Application of Artificial Intelligence to Civil and Structural Engineering Computing, B.H.V. Topping and B. Kumar (Editor), (Book of Abstracts and CD-ROM), Civil-Comp Press, Stirling, Scotland, 2001.
- *The Special Lectures from Civil-Comp 2001 and AICivil-Comp 2001 are published in:* Civil and Structural Engineering Computing: 2001, B.H.V. Topping (Editor), Saxe-Coburg Publications, Stirling, Scotland, 2001.

These Conferences could not have been organised without the contribution of many who helped in their planning, organisation and execution. I should like to thank Professor David Toll who helped in formulation of the conference themes. I am grateful to Dr Martin Sales who suggested Eisenstadt as the venue for these conferences. Thanks are also due to all at Saxe-Coburg Publications: Civil-Comp Ltd for their help and perseverance in the realisation of these conferences, particularly Evelyn Armit and Rosemary Brodie. The development of the new format and design of the Civil-Comp Conference Proceedings for 2001, including the CD-ROMs, required a major effort by Civil-Comp Ltd. This is the first major re-design and re-formatting of the Civil-Comp Conference Proceedings in over ten years and it has been undertaken and coordinated by Jelle Muylle. His skill, support and dedication during this radical change is greatly appreciated. The assistance of members of the Structural Engineering Computational Technology Research Group at Heriot-Watt University, Edinburgh is gratefully acknowledged especially from Roman Putanowicz, Péter Iványi and János Néző.

Barry H.V. Topping