

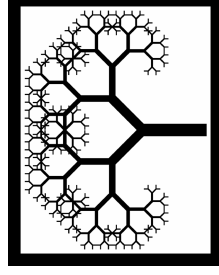
DRAFT PROGRAMME

**THE TENTH INTERNATIONAL CONFERENCE ON
CIVIL, STRUCTURAL AND ENVIRONMENTAL
ENGINEERING AND COMPUTING**

&

**THE EIGHTH INTERNATIONAL CONFERENCE ON THE
APPLICATION OF ARTIFICIAL INTELLIGENCE TO
CIVIL, STRUCTURAL AND ENVIRONMENTAL ENGINEERING**

***30 August - 2 September 2005
Rome - Italy***



organised by:

**CIVIL-COMP PRESS
Stirling, UK**

HOW TO FIND A PAPER IN THE CONFERENCE PROCEEDINGS

The conference proceedings are published in three volumes (one hardback volume and two paperback volumes with accompanying CD-ROMs). The invited lectures are published in the hardback volumes as follows:

- **volume LE: Innovation in Civil and Structural Engineering Computing**
B.H.V. Topping (Editor)
Saxe-Coburg Publications, 2005, ISBN 1-874672-24-5

The contributed papers are published in the two paperback volumes with accompanying CD-ROMs as follows:

- **volume CC: Proceedings of the Tenth International Conference on Civil, Structural and Environmental Engineering Computing**
B.H.V. Topping, (Editor)
Civil-Comp Press, 2005, ISBN 1-905088-02-7
- **volume AI: Proceedings of the Eighth International Conference on the Application of Artificial Intelligence to Civil, Structural and Environmental Engineering**
B.H.V. Topping, (Editor)
Civil-Comp Press, 2005, ISBN 1-905088-05-1

In this programme the letters immediately preceding a paper title refer to the volume identifier given above. For example: LE.1 refers to the first chapter of Innovation in Civil and Structural Engineering Computing and CC.2 refers to the second paper in the Proceedings of the Tenth International Conference on Civil, Structural and Environmental Engineering Computing. The roman numerals immediately preceding a session title refer to the section number in the corresponding abstract book and CD-ROM.

Day 0: Tuesday 30 August 2005
15.00-19.30 : Registration desk open
18.00-19.00 : Conference opens with plenary session
19.00 : Welcome drinks in the foyer

Day 1: Wednesday 31 August 2005
08.15-17.00 : Registration desk open
09.00-12.30 : Parallel sessions
10.30-11:00 : Coffee / Tea
12.30-13.45 : Buffet lunch
14.00-17.45 : Parallel sessions
15.30-16.00 : Coffee / Tea

Day 2: Thursday 1 September 2005
08.15-17.00 : Registration desk open
09.00-12.30 : Parallel sessions
10.30-11:00 : Coffee / Tea
12.30-13.45 : Buffet lunch
14.00-18.00 : Parallel sessions
15.30-16.00 : Coffee / Tea

19.45 : Coaches leave for conference dinner from the main entrance of the Hotel
23.00 : Estimated return time from the conference dinner

Day 3: Friday 2 September 2005
08.30-15.30 : Registration desk open
09.00-12.30 : Parallel sessions
10.30-11:00 : Coffee / Tea
12.30-13.45 : Buffet lunch
14.00-15.00 : Parallel sessions
15.00 : Coffee / Tea

JOURNAL SPECIAL ISSUES

Details of the procedure for submitting conference papers for publication in the journal special issues, will be included in the conference package issued to all participants at the conference.

A NOTE FOR AUTHORS PRESENTING PAPERS AND CHAIRMEN

All authors should meet at the front of the meeting room for their session at least 10 minutes before the session starts. Each contributed paper has been allocated 15 minutes for presentation and questions. Chairmen should indicate when 10 minutes have passed and again after 12 minutes that the presenter should immediately finish. Three minutes are available for questions and comments.

Authors are kindly asked to keep to the time allocated to them by the Chairmen. The preferred aid to presentation is overhead projector or the Powerpoint presentation system, which are ideal for short presentations of 10 minutes. Authors are discouraged of using their own laptops unless absolutely necessary, in which case they should ensure that they can quickly and efficiently start their presentation when requested by the Chairman.

Chairmen are requested to keep to the timetable. Changes to the programme will be indicated on the copies of the programme displayed on the conference timetable board and at the entrance to each of the rooms.

Conference venue:
Hotel Villa Pamphili
Via delle Nocetta, 105
00164 Rome, Italy
Tel: +390 6 6602636
Fax: +390 6 6602645
<http://www.hotelvillapamphili.com>

Day 0: Tuesday 30 August 2005
ROOM A

OPENING PLENARY SESSION

18:00-19:00 Chair: Professor B.H.V. Topping

Welcome

LE.0 Epistemological Aspects of Safety Concerning the Challenge of Future Construction: The Messina Bridge
Professor R. Calzona
Professor of Structural Analysis and Design, University of Rome "La Sapienza", Italy
Coordinator of the scientific committee for the Messina Bridge

19:00 Welcome drinks in the foyer

IMPORTANT TECHNICAL INFORMATION

- All conference rooms are equipped with an overhead transparency projector, a video projector and a conference laptop.
- To prevent theft, the conference laptops are secured with a motion detection alarm. Do not move the laptops. Do not move the table. Do not unplug any cables from the laptops.
- If you need assistance with any of the presentation equipment, please contact the conference desk. An assistant will come and help you.
- If you bring your own laptop, please use the video cable and video switching system provided. Insert the free video cable and USB plug into your laptop. The USB plug must be inserted, otherwise the switching system will not work. When your presentation is due, push the button on the switching system to swap the video channels. Please try this procedure at the start of your session. If you do not have a free USB port, please ask assistance from the conference desk.

***AS A COURTESY AND IN POLITENESS TO
ALL SPEAKERS AND OTHER PARTICIPANTS
PLEASE TURN OFF YOUR MOBILE PHONE
WHENEVER YOU ENTER ANY OF THE
MEETING AND LECTURE ROOMS.***

THANK YOU

Programme Overview: Day 1: Wednesday 31 August 2005

AM	<p>ROOM 1 page 7</p> <p>Frameworks for Structural Analysis F. Bontempi</p> <p>CC.I NEW FRAMEWORKS FOR STRUCTURAL ANALYSIS</p> <p>—</p> <p>CC.I (continued)</p>	<p>ROOM 2 page 7</p> <p>CC.III COMPUTATIONAL TOOLS FOR SAFETY IN THE BUILT ENVIRONMENT</p> <p>—</p> <p>CC.III (continued)</p>	<p>ROOM 3 page 8</p> <p>Design of Aluminium Structures using Eurocode 9: Shells and Computers J.W. Bull</p> <p>A Review of Nonlinear Analysis Models for Concrete Filled Tubular Columns, M.L. Romero</p> <p>—</p> <p>CC.IV ANALYSIS OF STEEL AND COMPOSITE STRUCTURES</p>	<p>ROOM 4 page 8</p> <p>CC.XVIII PAVEMENT ENGINEERING</p> <p>CC.XIII INFRASTRUCTURE MANAGEMENT</p> <p>CC.XIV CONSTRUCTION MANAGEMENT</p> <p>—</p> <p>CC.XIV (continued)</p>	<p>ROOM 5 page 9</p> <p>CC.XLVIII DAM ENGINEERING</p> <p>CC.XLIX FOUNDATION ENGINEERING</p> <p>—</p> <p>CC.XV ENVIRONMENTAL MODELLING AND SIMULATION</p> <p>AI.V ENVIRONMENTAL DECISION SYSTEMS</p>	<p>ROOM 6 page 9</p> <p>Structural Design Inspired by Nature T. Arciszewski</p> <p>AI.VII METAPHORS FROM NATURE FOR ENGINEERING ANALYSIS</p> <p>AI.VIII GENETIC AND EVOLUTIONARY ALGORITHMS IN STRUCTURAL ENGINEERING</p> <p>—</p> <p>AI.VIII (continued)</p>
PM	<p>ROOM 1 page 10</p> <p>CC.XLII CONTROL OF ENGINEERING STRUCTURES</p> <p>—</p> <p>CC.XLIII EARTHQUAKE ENGINEERING AND SEISMIC DESIGN</p>	<p>ROOM 2 page 10</p> <p>—</p> <p>CC.XVII TRAFFIC AND TRANSPORTATION ENGINEERING</p> <p>CC.XXVIII RELIABILITY AND STOCHASTIC TECHNIQUES</p>	<p>ROOM 3 page 11</p> <p>CC.IV ANALYSIS OF STEEL AND COMPOSITE STRUCTURES</p> <p>—</p> <p>CC.XXXIX COMPOSITE STRUCTURES</p> <p>CC.184</p>	<p>ROOM 4 page 11</p> <p>Grid Technology in Civil Engineering, M. Dolenc</p> <p>CC.VIII SOFTWARE ENGINEERING</p> <p>—</p> <p>CC.X GRID COMPUTING</p> <p>AI.VI DATA MINING</p> <p>AI.IV IMAGE ACQUISITION AND PROCESSING</p>	<p>ROOM 5 page 12</p> <p>CC.XXX NANO-SCALE MECHANICS</p> <p>CC.XXXI HYSTERESIS ANALYSIS AND MODELLING</p> <p>—</p> <p>CC.XXI FINITE STRIP METHOD</p> <p>CC.XXII BOUNDARY ELEMENT METHODS</p> <p>CC.XXIII ELEMENT FREE ANALYSIS</p>	<p>ROOM 6 page 12</p> <p>AI.IX GENETIC AND EVOLUTIONARY ALGORITHMS IN CIVIL AND ENVIRONMENTAL ENGINEERING</p> <p>—</p> <p>AI.XI NEURAL NETWORKS IN STRUCTURAL ENGINEERING</p>

Programme Overview: Day 2: Thursday 1 September 2005

AM	<p>ROOM 1 page 13</p> <p>Pavement Instrumentation Systems in Expansive Soils to Evaluate the Effectiveness of Stabilizers A.J. Puppala</p> <p>CC.L GEOTECHNICAL ENGINEERING</p> <p>—</p> <p>CC.L (continued)</p>	<p>ROOM 2 page 13</p> <p>—</p> <p>CC.II INNOVATIVE TECHNOLOGY AND MANAGEMENT FOR CONSTRUCTION ENGINEERING</p>	<p>ROOM 3 page 14</p> <p>Local Formulation for Geometrically Nonlinear Shell Elements based upon the Deformed Configuration R. Levy</p> <p>—</p> <p>CC.VI BUCKLING OF SHELLS</p>	<p>ROOM 4 page 14</p> <p>CC.193 CC.234</p> <p>CC.XLII CONTROL OF ENGINEERING STRUCTURES</p> <p>—</p> <p>CC.XLIII EARTHQUAKE ENGINEERING AND SEISMIC DESIGN</p>	<p>ROOM 5 page 15</p> <p>CC.XXXIV STEEL STRUCTURES</p> <p>—</p> <p>CC.XXXIV (continued)</p> <p>CC.XXXV STEEL CONNECTIONS</p>	<p>ROOM 6 page 15</p> <p>AI.XII NEURAL NETWORKS IN CIVIL AND ENVIRONMENTAL ENGINEERING</p> <p>—</p> <p>AI.XII (continued)</p>
PM	<p>ROOM 1 page 16</p> <p>CC.L GEOTECHNICAL ENGINEERING</p> <p>CC.LII TUNNELING</p> <p>—</p> <p>CC.LI SOIL-STRUCTURE INTERACTION</p>	<p>ROOM 2 page 16</p> <p>CC.II INNOVATIVE TECHNOLOGY AND MANAGEMENT FOR CONSTRUCTION ENGINEERING</p> <p>—</p> <p>CC.II (continued)</p>	<p>ROOM 3 page 17</p> <p>Wind Field Simulation using Adaptive Tetrahedral Meshes, R. Montenegro</p> <p>CC.IX MESH GENERATION</p> <p>—</p> <p>CC.IX (continued)</p> <p>CC.XXIV FLOW SIMULATION</p> <p>CC.XXV CFD</p> <p>CC.XXVI FLUID-STRUCTURE INTERACTION</p>	<p>ROOM 4 page 17</p> <p>CC.XLIII EARTHQUAKE ENGINEERING AND SEISMIC DESIGN</p> <p>CC.XLVI BRIDGE ENGINEERING</p> <p>CC.XLV DYNAMICS OF BRIDGES: VIBRATION AND SEISMIC</p> <p>—</p> <p>CC.XLV (continued)</p>	<p>ROOM 5 page 18</p> <p>CC.XXIX PLATES AND SHELLS</p> <p>—</p>	<p>ROOM 6 page 18</p> <p>AI.I ARTIFICIAL INTELLIGENCE BASED ASSESSMENT AND DESIGN: TOOLS AND TECHNIQUES</p> <p>AI.II RISK ANALYSIS AND SAFETY MANAGEMENT</p> <p>—</p> <p>AI.II (continued)</p> <p>AI.III CASE BASED REASONING AND DESIGN</p>

Programme Overview: Day 3: Friday 2 September 2005

AM	<p>ROOM 1 page 19</p> <p>CC.V COMPUTATIONAL METHODS FOR CONCRETE STRUCTURES</p> <p>CC.XXXVIII REINFORCED CONCRETE STRUCTURES</p> <p>—</p> <p>CC.XXXVIII (continued)</p>	<p>ROOM 2 page 19</p> <p>CC.XII VIRTUAL REALITY</p> <p>CC.XIX STRUCTURAL ANALYSIS</p> <p>—</p> <p>CC.XIX (continued)</p> <p>CC.XX FE TECHNIQUES: ANALYSIS, MODELLING AND DESIGN</p>	<p>ROOM 3 page 20</p> <p>CC.XL MASONRY STRUCTURES</p> <p>—</p> <p>CC.XL (continued)</p>	<p>ROOM 4 page 20</p> <p>CC.XLIV DYNAMIC ANALYSIS OF STRUCTURES</p> <p>—</p> <p>CC.XLVII SYSTEM IDENTIFICATION, DIAGNOSIS, MAINTENANCE AND REPAIR</p>	<p>ROOM 5 page 21</p> <p>CC.XXXVII BUILDING TECHNOLOGY: MODELLING AND SIMULATION</p> <p>CC.XXXII MATERIALS ENGINEERING</p> <p>—</p> <p>CC.XXXIII COMPOSITE MATERIALS</p> <p>CC.XXXVI MODELLING OF TALL BUILDINGS</p>	<p>ROOM 6 page 21</p> <p>A.I.X HYBRID SYSTEMS INCORPORATING GENETIC ALGORITHMS AND NEURAL NETWORKS</p> <p>CC.XXVII STRUCTURAL OPTIMIZATION</p> <p>—</p> <p>CC.XXVII (continued)</p>
PM	<p>ROOM 1 page 22</p> <p>CC.XXXVIII REINFORCED CONCRETE STRUCTURES</p>	<p>ROOM 3 page 23</p> <p>CC.XLI TIMBER STRUCTURES</p>	<p>ROOM 4 page 23</p> <p>CC.XI DATA PROCESSING</p> <p>CC.VII DESIGN AND INFORMATION TECHNOLOGY</p>	<p>ROOM 6 page 24</p> <p>CC.XV ENVIRONMENTAL MODELLING AND SIMULATION</p> <p>CC.XVI WATER ENGINEERING</p>		

**Day 1: Wednesday 31 August 2005: AM
ROOM 1**

09.30-10.30: Chaired by: Professor F. Bontempi and Professor R. Levy

INVITED LECTURE

LE.1 Frameworks for Structural Analysis
F. Bontempi

CC.1 NEW FRAMEWORKS FOR STRUCTURAL ANALYSIS
Session organised by Professor F. Bontempi

CC.1 Handling Model Approximations and Human Factors in Complex Structure Analyses
L. Sgambi

10.30-11.00: Coffee

11.00-12.30: Chaired by: Professor F. Bontempi

CC.2 The Robust Design of Long Span Suspension Bridges
L. Catallo

CC.3 A Genetic Algorithm Approach for Performance Evaluation of Long Span Suspension Bridges
L. Sgambi and F. Bontempi

CC.4 Requirements and Main Aspects of an Intelligent Monitoring System for Long Span Bridges
K. Gkoumas

CC.5 The Heightening of an Old Masonry Gravity Dam
S. Manenti, U. Ravaglioli and F. Bontempi

CC.6 Heuristic Methods for Solving Direct and Inverse Problems of Complex Structural Systems
S. Arangio

CC.7 Multilevel Approaches to the Analysis and Synthesis of the Serviceability Performance of a Long Span Suspension Bridge
F. Bontempi and F. Giuliano

**Day 1: Wednesday 31 August 2005: AM
ROOM 2**

09.00-10.30: Chaired by: Professor F.C. Hadipriono

CC.III COMPUTATIONAL TOOLS FOR SAFETY IN THE BUILT ENVIRONMENT
Session organised by Professor F.C. Hadipriono

CC.35 Applications of Virtual Construction Environments in Improving Construction Site Safety, K.K. Najji

CC.24 Selection of Construction Methods for Deep Foundation Excavations
N.F. Pan

CC.25 A Fuzzy Logic Model to Avoid Electrocution during Mobile Crane Operations
H.M. Al-Humaidi and F.C. Hadipriono

CC.26 A Fuzzy Logic Approach to Model Worker Safety in Deconstruction
M. Manohar, J.W. Duane and F.C. Hadipriono

CC.27 Evaluating Trench Safety using Fuzzy Logic
C.B. Patel and F.C. Hadipriono

CC.28 Retrieving Knowledge for Falsework Safety Inspection
C.C. Huang, N.S. Al-Kaabi and F.C. Hadipriono

10.30-11.00: Coffee

11.00-12.30: Chaired by: Professor F.C. Hadipriono

CC.29 Using Fuzzy Logic Models for Safety Assessment of Tunnel Grouting
K.R. Al-Labadi and F.C. Hadipriono

CC.30 Development of Model-Based Systems for Integrated Design of Highway Bridges
M.R. Halfawy, F.C. Hadipriono, J.W. Duane and R. Larew

CC.31 A Fault Tree Analysis for Assessing Construction Safety based on Environmental Psychology
N.S. Al-Kaabi and F.C. Hadipriono

CC.32 Multivariate Analysis and the use of Fuzzy Logic for Garage Safety Evaluation
C.C. Tseng and F.C. Hadipriono

CC.33 Fuzzy-Random Reliability Analysis of Building Performance
X. Gu and Y. Lu

CC.34 Vulnerability Assessment of Industrial Facilities
I. Karimi, C. Butenweg and B. Toll

Day 1: Wednesday 31 August 2005: AM
ROOM 3

09.00-10.30: Chaired by: Dr L.F. Costa Neves

INVITED LECTURES

- LE.7 Design of Aluminium Structures using Eurocode 9: Shells and Computers
J.W. Bull
- LE.6 A Review of Nonlinear Analysis Models for Concrete Filled Tubular Columns
M.L. Romero, J.L. Bonet and S. Ivorra
- 10.30-11.00: Coffee**
- 11.00-12.30: Chaired by: Dr L.F. Costa Neves and Professor J.G.S. da Silva**
- CC.IV ANALYSIS OF STEEL AND COMPOSITE STRUCTURES**
Session organised by Dr L.F. Costa Neves
- CC.46 The Non-linear Simulation of the Behaviour of Integral Concrete-Filled Steel Tubular Framed Structures in Fire Conditions
S. Liu, Y. Li, X.X. Zha and J.Q. Ye
- CC.37 Structural Analysis of T and KT Joints of a Steel Truss Structure using the Finite Element Method
L.F. Costa Neves, L.R.O. de Lima, S. Jordão and J.G.S. da Silva
- CC.38 Post-Buckling Analysis of Thin-Walled Channel Columns in the Framework of the Generalized Beam Theory
P. Simão and L. Simões da Silva
- CC.39 A Parametric Study of Composite Footbridges with Pedestrian Walking Loads
F.P. Figueiredo, J.G.S. da Silva and L.R.O. de Lima
- CC.40 Dynamical Analysis for the Walking Induced Vibrations of Composite Floors
A.V.A. Mello, J.G.S. da Silva and L.R.O. de Lima
- CC.41 Finite Element Analysis of Beam-to-Column Minor Axis Steel Joints
W.O. Bessa, L.F.L. Ribeiro, R.M. Gonçalves, L.F. Costa Neves and F.C.T. Gomes

Day 1: Wednesday 31 August 2005: AM
ROOM 4

09.00-10.30: Chaired by: Professor A.P. Chassiakos and Professor S. Christodoulou

CC.XVIII PAVEMENT ENGINEERING

- CC.94 Development of the Transition Matrix Calculator
S.B. Costello, J.J. Ortiz-Garcia and M.S. Snaith

CC.XIII INFRASTRUCTURE MANAGEMENT

- CC.72 Recommendations for an IT Strategy Plan for the Malaysian Construction Sector
M.J. Sulaiman, C.D. Theng, N.K. Weng, J. Adnan, Z. Usop and R. Usop
- CC.73 Towards Better Housing Management: Service Life Planning in Achieving Sustainability for Affordable Housing
S.H. Tapsir, J.M. Yatim and F. Usman
- CC.74 GIS Support for Optimizing Infrastructure Programs of Distributed Sites
T. Hegazy
- CC.75 Improving Quality and Data Acquisition in Asset Management
J. Christian

CC.XIV CONSTRUCTION MANAGEMENT

- CC.76 An Innovative Project Controls System
N.N. Eldin and L.C. Lloyd

10.30-11.00: Coffee

11.00-12.30: Chaired by: Professor P.P. Zouein and Professor J. Christian

- CC.77 Scheduling Construction Activities using Ant Colony Optimization
S. Christodoulou
- CC.78 An Optimization Model for Workgroup-Based Repetitive Scheduling
R.Y. Huang and K.S. Sun
- CC.79 Interaction with Virtual Three-Dimensional Models for the Visualisation of Construction Processes
A.Z. Sampaio, P.G. Henriques, P.S. Ferreira and R.P. Luiz
- CC.80 Duration Sensitivity Risk Analysis in Construction Feasibility Management: A Case Study, P. Daneshmand
- CC.81 A Web-based System for Managing Construction Information
A.P. Chassiakos and S.P. Sakellariopoulos
- CC.82 Design Constructability and Space Management
P.P. Zouein and T. Franjeh

**Day 1: Wednesday 31 August 2005: AM
ROOM 5**

09.00-10.30: Chaired by: Professor F. Molenkamp and Professor T. Nakai

CC.XLVIII DAM ENGINEERING

- CC.250 Dam Safety Instrumentation Computer Program
R.L. Hill and L.L. Perrin
- CC.251 Collapse Settlement of a Clay Core Rockfill Dam during the First Impoundment
F. Jafarzadeh, T. Heidari and A.R. Azami
- CC.252 Inverse Analysis of an Embankment on Soft Clay using the Ensemble Kalman Filter
A. Hommels, F. Molenkamp, B. Nguyen and A.W. Heemink

CC.XLIX FOUNDATION ENGINEERING

- CC.253 An Elastoplastic Model for Geomaterials using the Modified Stress and Subloading Surface Concept and its Application to Bearing Capacity Problems
T. Nakai, M. Hinokio and S. Kurosaki
- CC.254 Three Dimensional Bearing Capacity Analysis of Shallow Foundations Adjacent to Slopes
A.A. Mirghasemi and A.R. Majidi
- CC.255 Impedance of Surface Footings on Layered Ground
L. Andersen and J. Clausen

10.30-11.00: Coffee

11.00-12.30: Chaired by: Professor R. Montenegro

CC.XV ENVIRONMENTAL MODELLING AND SIMULATION

- CC.84 Innovative Approach in Simulation of Suspended Floc Formation in Activated Sludge, N. Khandani A., T. Donnelly and D.J. Elliott
- CC.85 An Investigation into the Influence of Hydrogeological Conditions on LNAPL Migration, M.H.A. Mohamed
- CC.86 Interaction between Physical, Chemical and Biological Processes in the Coastal Water off a River Mouth in a Post-Flood Condition
Y.M. Yustiani and A. Mano
- CC.87 Preconditioning Shifted Linear Systems arising in a Wind Model
G. Montero, A. Suárez, E. Rodríguez, E. Flórez and M.D. Garcia

AI.V ENVIRONMENTAL DECISION SYSTEMS

- AI.15 Process Control using Artificial Intelligence Techniques: Innovative Activated Sludge Process
P.N. Ravindra and H. Rao
- AI.16 Solid Waste Management using a Multicriteria Decision System
R. Galvez-Cloutier and R. Rodriguez-Méndez

**Day 1: Wednesday 31 August 2005: AM
ROOM 6**

09.00-10.30: Chaired by: Professor J.C. Miles and Dr J.W.Z. Lu

INVITED LECTURE

- LE.2 Structural Design Inspired by Nature
T. Arciszewski and R. Kicinger

AI.VII METAPHORS FROM NATURE FOR ENGINEERING ANALYSIS

- AI.20 Simulating Ozone Level Time Series using an Innovative Hybrid Model based on a Multilayer Perceptron
D. Wang and W.Z. Lu

AI.VIII GENETIC AND EVOLUTIONARY ALGORITHMS IN STRUCTURAL ENGINEERING

- AI.22 A new Parallel Genetic Algorithm Scheme in Structural Design Optimisation
T. Talaslioglu
- AI.23 Discrete and Continuous Structural Optimization using Evolution Strategies
O. Hasançebi and A.F. Ulusoy

10.30-11.00: Coffee

11.00-12.30: Chaired by: Professor E. Salajegheh and Professor P.C.G.S. Vellasco

- AI.24 Genetic Algorithm Optimization of Semi-Rigid Steel Structures
A.A. Del Savio, S.A.L. de Andrade, P.C.G.S. Vellasco and L.F. Martha
- AI.25 Coarse-Grain Parallel Meta-Genetic Algorithms in the Optimization of Truss-Structure Design
V. Esfahanian, A. Khajavi Rad and F. Torabi
- AI.26 Parallel Computing for Design Optimization with Computationally Expensive Functions using Evolutionary Algorithms
M. Mrzyglod and A. Osyczka
- AI.27 Optimal Fuzzy Control of Hybrid Base Isolation System using Genetic Algorithms
H.S. Kim, P.N. Roschke and D.G. Lee
- AI.28 Conceptual Design of Geodesic Domes
D.J. Shaw, J.C. Miles and W.A. Gray
- AI.29 Optimum Shape Design of Space Structures using Genetic Algorithms
E. Salajegheh, M. Mashayekhi, M. Kaykha and M. Khatibinia

**Day 1: Wednesday 31 August 2005: PM
ROOM 1**

14.00-15.30: Chaired by: Professor M.N.S. Hadi and Dr G. De Matteis

CC.XLII CONTROL OF ENGINEERING STRUCTURES

- CC.200 An Effective Numeric Procedure for Seismic Response Analysis of Multistory Buildings with Active Control Systems
G. Agronovich, Y. Ribakov and B. Blotsotsky
- CC.201 Active Control Optimization of Structures using Genetic Algorithms
P. Rosko
- CC.202 Experimental Tests and Numerical Simulations of Stiffened Pure Aluminium Shear Panels
G. De Matteis, A. Formisano, F.M. Mazzolani and S. Panico
- CC.203 Fluid Viscous Damper Optimal Design for Seismic Protection of Bridges
S. Berton, T. Takahashi and Y. Sonoda
- CC.204 Supplemental Hydraulic Dampers for Buildings
Y. Arfiadi and M.N.S. Hadi
- CC.205 Active Control of High Rise Building Structures using Fuzzy Logic and Genetic Algorithms
H.H. Lavasani and S. Pourzeynali

15.30-16.00: Coffee

16.00-17.45: Chaired by: Dr A. Chanerley and Professor M.N.S. Hadi

CC.XLIII EARTHQUAKE ENGINEERING AND SEISMIC DESIGN

- CC.211 System Development for GIS-based Urban Loss Assessment in Low-to-Moderate Seismic Regions with a Case Study
M.J. Qiao and A.M. Chandler
- CC.212 Pseudo Excitation Method for Seismic Random Vibration Analysis of Long-Span Structures
J.H. Lin, Y.H. Zhang and Y. Zhao
- CC.213 Interoperability in an IFC-Compliant Integrated Earthquake Simulation
M. Hassanian and J. Inoue
- CC.214 Using 3D GIS Information for Structural Modeling of a Metropolis
P. Zhu, Y. Fujino, M. Hori and J. Kiyono
- CC.215 Seismic Resistance of Natural and Artificial Variable Stiffness Reinforced Concrete Buildings
I. Iskhakov and Y. Ribakov
- CC.216 Evaluation of the Seismic Response of Liquid Storage Tanks
S. Bagheri, F.R. Rofooei and Y. Bozorgnia
- CC.217 Using the Method of Total Least Squares for Seismic Correction
A.A. Chanerley and N.A. Alexander

**Day 1: Wednesday 31 August 2005: PM
ROOM 2**

15.30-16.00: Coffee

16.00-17.45: Chaired by: Professor K. Marti and Professor E. Kita

CC.XVII TRAFFIC AND TRANSPORTATION ENGINEERING

- CC.91 Urban City Traffic Simulation based on a Stochastic Velocity Model
T. Tamaki and E. Kita
- CC.92 Development of a Procedure to Estimate Control Delay
M.A. Saif
- CC.93 Reliability Analysis of Urban Transportation Networks by @Risk
A.S. Mohaymany and A. Golroo
- CC.XXVIII RELIABILITY AND STOCHASTIC TECHNIQUES**
- CC.125 Numerical Study of Stochastic Stability of Structures
W.C. Xie
- CC.126 Explicit Formulations for Reliability-Based Optimal Plastic Design Problems
K. Marti
- CC.127 Reliability Analysis for Human Comfort under Random Vibration
J.E. Laier
- CC.128 Non-linear Time-Dependent Post-Elastic Analysis and Reliability Assessment of a Suspended Cable Considering Creep Effects
S. Kmet, M. Tomko and J. Brda

**Day 1: Wednesday 31 August 2005: PM
ROOM 3**

- 14.00-15.30: Chaired by: Dr L.F. Costa Neves and Professor H. Hikosaka**
- CC.IV ANALYSIS OF STEEL AND COMPOSITE STRUCTURES**
Session organised by Dr L.F. Costa Neves
- CC.42 Finite Element Modelling of Steel Webbed Joists
Z.W. Guan, K. Legakis and D.J. Pope
- CC.43 Nonlinear Analysis and Tests of Prestressed Concrete Composite Girders with Steel Truss Webs, L. Huang, K. Naitani and H. Hikosaka
- CC.44 Stress Analysis and Verification of the Web Weld Connection of Opened I-Beams in Composite Constructions, O.R.O. Cavalcante and L.M. Bezerra
- CC.45 A Numerical Study of Concrete Filled Tubular Columns with High Strength Concrete, M.L. Romero, J.L. Bonet, S. Ivorra and A. Hospitaler
- CC.47 Dynamic Characteristics of Composite Floors
S.S. De Silva and D.P. Thambiratnam
- CC.36 Finite Element Modelling of Steel-Concrete Composite Beams Subjected to Uniformly Distributed Loads
F.D. Queiroz, P.C.G.S. Vellasco and D.A. Nethercot
- 15.30-16.00: Coffee**
- 16.00-17.45: Chaired by: Dr L.F. Costa Neves and Professor M. Walker**
- CC.XXXIX COMPOSITE STRUCTURES**
- CC.177 A Dynamic Finite Element for Vibration Analysis of Composite Circular Tubes
S.M. Hashemi and A. Roach
- CC.178 A Methodology for Minimum Weight Optimal Design of Fibre-Reinforced Laminated Structures Accounting for Manufacturing Uncertainties
M. Walker and R. Hamilton
- CC.179 Multilayered Timoshenko Beams with Interlayer Slip: Exact Solution
S. Schnabl, M. Saje, B. Cas, G. Turk and I. Planinc
- CC.180 Dynamic Stiffness Formulation and Free Vibration Analysis of a Composite Beam
J.R. Banerjee and H. Su
- CC.181 Development and Application of a Progressive Damage Approach to a Grid Structure Representative Volume Element
N. Tessitore and A. Riccio
- CC.182 Finite Element Analysis of Tapered Fibre Reinforced Polymer Hollow Poles
J. Jung and A. Abolmaali
- CC.XL MASONRY STRUCTURES**
- CC.184 Modelling of Textile Strengthened Masonry
I. Kalker, C. Butenweg, S. Holler and B. Toll

**Day 1: Wednesday 31 August 2005: PM
ROOM 4**

- 14.00-15.30: Chaired by: Dr P. Iványi and Dr I.E.G. Davey-Wilson**
- INVITED LECTURE**
- LE.4 Grid Technology in Civil Engineering
M. Dolenc, V. Stankovski and Z. Turk
- CC.VIII SOFTWARE ENGINEERING**
- CC.60 An Object-Oriented Framework for Programming Iterative Solution Algorithms
R.I. Mackie
- CC.61 Data Structures and Schema for Quality Assurance and Process Management in Finite Element Analysis
J. Dhayanidhi and S. Chandra
- CC.62 A Process Model for Material Research Applied to Textile Reinforced Concrete
F. Peiffer and R. Chudoba
- 15.30-16.00: Coffee**
- 16.00-17.30: Chaired by: Dr R.I. Mackie and Dr M. Dolenc**
- CC.X GRID COMPUTING**
- CC.68 A Grid-based Application for the Three-dimensional Dynamic Analysis of High-Rise Buildings
J.M. Alonso, C. de Alfonso, V. Hernández and G. Moltó
- CC.69 Towards a Grid Enabled Engineering Collaboration Environment
M. Dolenc, Z. Turk, P. Katranuschkov, K. Kurowski and M. Hannus
- AI.VI DATA MINING**
- AI.17 Data Mining Techniques for Analysing Geotechnical Data
I.E.G. Davey-Wilson
- AI.18 Application of Data Mining Techniques in Predicting the Behaviour of Composite Joints
S. Shirazi Kia, S. Noroozi, B. Carse and J. Vinney
- AI.IV IMAGE ACQUISITION AND PROCESSING**
- AI.13 Shape Image Acquisition and Merging Methods using Digital Holograms for a Computer Aided Industrial Design System
K. Sakita
- AI.14 A Knowledge Based Decision System for an Image Based Measurement System
A. Reiterer, U. Egly, T. Eiter and H. Kahmen

**Day 1: Wednesday 31 August 2005: PM
ROOM 5**

14.00-15.30: Chaired by: Professor H. Rotherth and Dr J.W.Z. Lu

CC.CXX NANO-SCALE MECHANICS

- CC.135 Stability Problems at Nanoscale
H. Rotherth, G. Ernst and L. Nasdala
- CC.136 Application of the Atomic-Scale Finite Element Method to Buckling and Post-Buckling of Single-Walled Carbon Nanotubes
A.Y.T. Leung, X. Guo, X.Q. He, H. Jiang, S. Kittipornchai, Y. Huang and J.W.Z. Lu

CC.CXXI HYSTERESIS ANALYSIS AND MODELLING

- CC.137 A Discrete Quasi-Static Cyclic Material Model Incorporating Hysteresis for Quasi-Brittle Materials
S. Mertens, K. De Proft and J. Vantomme
- CC.138 Solution of a Transient 2D Nonlinear Heat Diffusion Problem with the Multigrid Method, I. Jancsakar and A. Iványi
- CC.139 Finite Element Analysis of the Hysteretic Behaviour of Steel Frames with Semi-Rigid Connections, S. Liu, Y. Li and X.X. Zha
- CC.140 Stability of Nonlinear Iteration in Diffusion Problems
Z. Sari and A. Iványi

15.30-16.00: Coffee

16.00-17.45: Chaired by: Professor A.A. Becker and Professor J.B. Paiva

CC.CXXI FINITE STRIP METHOD

- CC.105 A Simple Method for the Inclusion of External and Internal Supports in the Spline Finite Strip Method for Buckling Analysis
Z. Vrcelj and M.A. Bradford

CC.CXXII BOUNDARY ELEMENT METHODS

- CC.106 Combining a Similar Coefficient Identification Algorithm with the Boundary Element Method, L. Hermanns, I. del Rey, A. Fraile and E. Alarcón
- CC.107 Analysis of 3D Flat Shell Structures by the Boundary Element Method
A.V. Mendonça and J.B. Paiva

CC.CXXIII FLEXURAL-TORSIONAL VIBRATIONS OF BEAMS BY THE BEM

- E.J. Sapountzakis and G.C. Tsiatas
- CC.109 Boundary Element Analysis of Contact under Creep Conditions
C. Chandenduang and A.A. Becker

CC.CXXIV COMPARING BEM AND FEM STRATEGIES FOR THE COMPUTATION OF THE STRESS INTENSITY FACTOR USING SINGULAR AND NON-SINGULAR ELEMENTS

- S.P.L. Leme, R.F. Lima, L.M. Bezerra and P.W. Partridge

CC.CXXIII ELEMENT FREE ANALYSIS

- CC.111 Three-Dimensional Element Free Analysis using a Mapping Technique
T. Ohkami, M. Ohara and S. Koyama

**Day 1: Wednesday 31 August 2005: PM
ROOM 6**

14.00-15.30: Chaired by: Professor T. Hegazy and Professor T. Arciszewski

AI.IX GENETIC AND EVOLUTIONARY ALGORITHMS IN CIVIL AND ENVIRONMENTAL ENGINEERING

- AI.30 Emerging Security Patterns: Co-evolution of Terrorist and Security Scenarios
Z. Skolicki, T. Arciszewski, M.H. Houck and K. De Jong
- AI.31 Application of a Genetic Algorithm to Optimize the Layout of Temporary Construction Facilities
B. Soltani, A.A. Ramezani-pour and H.R. Ashrafi
- AI.32 Water Network Optimisation using Fuzzy Multiobjective Genetic Algorithms
L.S. Vamvakieridou-Lyroudia, G.A. Walters and D.A. Savic
- AI.33 The Use of the Simple Genetic Algorithm in the Non-Circular Analysis of Slope Stability
P.F. McCombie, A.R. Zolfaghari and A.C. Heath
- AI.34 A Genetic Algorithm Approach for Critical Non-Circular Slip Surface Analysis
S. Solati and G. Habibagahi
- AI.35 Optimum Design of Pile Groups in Nonlinear Soil using Genetic Algorithms
J.T.M. Ng, C.M. Chan and L.M. Zhang

15.30-16.00: Coffee

16.00-17.30: Chaired by: Professor A. Kaveh and Dr M. Lefik

AI.XI NEURAL NETWORKS IN STRUCTURAL ENGINEERING

- AI.39 Life Cycle Cost-Oriented Optimization of Steel Frames: A Neural Network Approach
S.S. Abdelatif Hassanien and N. Shrive
- AI.40 Joint Finite Element: Artificial Neural Network Numerical Analysis of Multilevel Composites
D.P. Boso, M. Lefik and B.A. Schrefler
- AI.41 Efficient Neural Network Models for Structural Reliability Analysis and Identification Problems
Y. Tsompanakis, N.D. Lagaros and G.E. Stavroulakis
- AI.42 Displacement Based Assessment of Existing Structures using Intelligent Systems
M. Safi and M. Tehranizadeh
- AI.43 Fault Detection in Shear Buildings Subject to Earthquakes using a Neural Network
F.J. Rivero-Angel, E. Gomez-Ramirez, B. Gomez-Gonzalez and R. Garrido
- AI.44 Neural-Network Based Models of a Diagnosis System for Concrete Structures using Non-destructive Test Data
B. Cho, S.C. Lee and Y.S. Cho

**Day 2: Thursday 1 September 2005: AM
ROOM 1**

09.00-10.30: Chaired by: Professor F. Molenkamp

INVITED LECTURE

LE.9 Pavement Instrumentation Systems in Expansive Soils to Evaluate the Effectiveness of Stabilizers
A.J. Puppala and N. Intharasombat

CC.L GEOTECHNICAL ENGINEERING

CC.258 A Numerical Analysis of Seepage Failure in Stratified Soils within a Cofferdam
N. Benmebarek, S. Benmebarek and R. Kastner

CC.259 Analysis of the Expansive Behaviour of a Cavity with a Finite Boundary
C.S. Wu, Y.S. Hong and I.J. Chen

CC.261 Experimental Investigations to Monitor Swell and Loading Responses of Expansive Soil Due to Environmental and Loading Changes
V. Mohan and A.J. Puppala

10.30-11.00: Coffee

11.00-12.30: Chaired by: Professor A.J. Puppala

CC.256 Shear Rotation in Sub-Glacial Sediments
L.F. Gareau and F. Molenkamp

CC.257 Numerical Studies of 3D Passive Earth Pressures Induced by the Translation of a Rigid Rough Retaining Wall
S. Benmebarek, T. Khelifa and N. Benmebarek

CC.260 Seismic Safety Evaluation of Liquefiable Embankments under a Strong Earthquake using Finite Element Approaches
C. Takahashi, F. Cai and K. Ugai

CC.262 Computation and Validation of Rebound Characteristics of Layered Systems
U.F.A. Karim and A. Menkveld

CC.263 Numerical Modelling for Soil Nail Pullout Behaviour
Y.S. Hong, C.S. Wu and X.Z. Chen

CC.264 Dynamic Earth Pressures Acting on Buried Structures
G.A. Montalva and M. Van Sint Jan

**Day 2: Thursday 1 September 2005: AM
ROOM 2**

10.30-11.00: Coffee

11.15-12.15: Chaired by: Professor N.F. Pan

**CC.II INNOVATIVE TECHNOLOGY AND MANAGEMENT FOR CONSTRUCTION ENGINEERING
Session organised by Professor N.F. Pan**

CC.8 Applying TRIZ to the Construction Industry
Y.H. Lin and P.C. Lee

CC.9 Performance Prediction of Highway Bridges using Fuzzy Regression Models
N.F. Pan

CC.10 Decision Making for Mobile City Infrastructure Strategic Planning
H.S. Wu and J.C. Li

CC.11 An Insurance Decision Model for Contractor's All Risks Insurance
P.C. Chiu and S.J. Guo

Day 2: Thursday 1 September 2005: AM
ROOM 3

09.45-10.30: Chaired by: Dr J.W. Bull

INVITED LECTURES

LE.5 Local Formulation for Geometrically Nonlinear Shell Elements based upon the Deformed Configuration
R. Levy and E. Gal

10.30-11.00: Coffee

11.00-12.15: Chaired by: Dr J. Blachut and Professor C.T.F. Ross

CC.VI BUCKLING OF SHELLS

Session organised by Dr J. Blachut

CC.51 Discretely Supported Thin-Walled Steel Silo Shells: Advanced Buckling Design and Modelling Aspects
W. Guggenberger

CC.52 Lower Critical Stress Analysis of Axially Compressed Cylindrical Shells
K. Magnucki

CC.53 Buckling of an Isotropic Porous Cylindrical Shell
M. Malinowski and K. Magnucki

CC.54 Buckling of Axially Compressed Cylinders with Imperfect Length
J. Blachut

CC.55 Buckling of Corrugated Circular Cylinders under Uniform External Pressure
C.T.F. Ross

Day 2: Thursday 1 September 2005: AM
ROOM 4

08.45-10.30: Chaired by: Dr Y. Ribakov and Professor M. Tehranizadeh

CC.XL MASONRY STRUCTURES

CC.193 A Seismic Design Procedure for Masonry Buildings
A. Mistler and C. Butenweg

CC.XLV DYNAMICS OF BRIDGES: VIBRATION AND SEISMIC

CC.234 A Seismic Vulnerability Assessment System for Bridges
P. Renault, C. Butenweg and M. Mistler

CC.XLII CONTROL OF ENGINEERING STRUCTURES

CC.206 A Practical Approach to Install Viscous Dampers on Flexible Structures
K. Engelen, J. Anthonis and H. Ramon

CC.207 Signal Processing and Predictive Control of a Semi-Active Structural Control System
W.P. Sung and M.H. Shih

CC.208 Analysis and Modelling of the Energy Dissipation Behaviour of Velocity and Displacement Dependent Hydraulic Dampers
W.P. Sung and M.H. Shih

CC.209 Modelling and Design of Variable Friction Dampers for Improving Seismic Response of Structures
Y. Ribakov, B. Blototsky and I. Iskhakov

CC.210 The Isolation Efficiency of the Dual-Trench System in a Three Dimensional Wave Propagation Problem
S.H. Tung, C.C. Yu, W.H. Lee and M.H. Shih

10.30-11.00: Coffee

11.00-12.45: Chaired by: Professor M. Tehranizadeh and Dr Y. Ribakov

CC.XLIII EARTHQUAKE ENGINEERING AND SEISMIC DESIGN

CC.218 Structural Damage Estimation using Seismic and Spectral Parameters
A. Bakhshi, H. Tavallali and K. Karimi

CC.219 The Effects of Vertical Seismic Acceleration in Columns Supported by Beams
J. Lavado

CC.220 A Comparison of Input Energy in Different Lateral Force Resisting Systems
M. Tehranizadeh and M. Torabi

CC.221 Dynamic Analysis of Steel Tanks Subjected to Three-Dimensional Ground Motion
G. Fabbrocino, I. Iervolino and A. Di Carluccio

CC.222 Seismic Nonstationary Random Response of Multi-Supported Structures
Y.H. Zhang, J.H. Lin and Y. Zhao

CC.223 Fragility Based Life Cycle Loss Estimation Methodology for Critical Facilities
G.P. Cimellaro and C. Kafali

CC.224 Simulation of Earthquake-Induced Pounding of Seismically Isolated Buildings
P. Komodromos

**Day 2: Thursday 1 September 2005: AM
ROOM 5**

09.00-10.30: Chaired by: Professor A. Zingoni and Dr J.P. Papangelis

CC.XXXIV STEEL STRUCTURES

- CC.149 Computer Analysis and Design of Cold-Formed Purlins
J.P. Papangelis and G.J. Hancock
- CC.150 Analysis of Steel Pipelines with Plain and Gouged Dents
J. Blachut and I.B. IflefeI
- CC.151 Numerical Results on the Buckling Strength of Stiffened Elliptic Paraboloidal Steel Panel Shutters
A. Zingoni and V. Balden
- CC.152 Analysis of Local-Plate/Distortional Mode Interaction in Cold-Formed Steel Lipped Channel Columns
P.B. Dinis, N. Silvestre and D. Camotim
- CC.153 Repair of Cracked Steel I-Beams: Fracture Demand versus Force and Stress Criteria
S.S.F. Mehanny, O.M.O. Ramadan and H.G.Z. Nasralla
- CC.154 Finite Element Modelling of Heat Curved Steel Girders
A.N. Gergess

10.30-11.00: Coffee

11.00-12.30: Chaired by: Dr R.G. Beale and Professor S. Kmet

- CC.155 A Parametric Study of the Non-Linear Geometric Behaviour and Carrying Capacity of 3D Asymmetric Steel Frames
M.B. César and R.C. Barros

CC.XXXV STEEL CONNECTIONS

- CC.156 Study of the Bolt Pull-out Phenomenon from a Steel Plate
P. Iványi, M. Zygomalas and C.C. Baniotopoulos
- CC.157 Modelling and Simulation of Endplate Connections and their Effects on Steel Frames, A.R. Kukreti and F.F. Zhou
- CC.158 Second Order Analysis of Scaffolds with Semi-Rigid Connections
U. Prabhakaran, R.G. Beale and M.H.R. Godley
- CC.159 Numerical Evaluation of Flange Thickness on the Contact Stress and Prying Action in T-Stub Steel Connections
C.A.S. Freitas, L.M. Bezerra and Y. Nagato
- CC.160 Optimum Design of Socket Joint Systems for Space Structures using Second Order Approximation
J. Salajegheh, E. Salajegheh and S.M. Seyedpoor

**Day 2: Thursday 1 September 2005: AM
ROOM 6**

09.00-10.30: Chaired by: Professor C.P. Tsai and Professor M.C. Deo

AI.XII NEURAL NETWORKS IN CIVIL AND ENVIRONMENTAL ENGINEERING

- AI.45 Back-Propagation Neural Networks for Prediction of Storm Surges
C.P. Tsai, T.L. Lee, T.J. Yang and Y.J. Hsu
- AI.46 Evaluation of Building Performance using Artificial Neural Networks: A Study on Service Life Planning in Achieving Sustainability
J.M. Yatim, S.H. Tapir and F. Usman
- AI.47 Alternative Neuro-Nets to Estimate Spillway Scour
H.M. Azmathullah, M.C. Deo and P.B. Deolalikar
- AI.48 Traffic Pattern Recognition using an Active Learning Neural Network and Principal Components Analysis
L. Yan, M. Fraser, K. Oliver, A. Elgamal, J.P. Conte and T. Fountain
- AI.49 Towards a Generic Artificial Neural Network Model for Dynamic Predictions of Stream Flow in Ungauged Watersheds
M.H. Nour, D.W. Smith, M. Gamal El-Din and E.E. Prepas
- AI.50 Mass Transfer Analysis in Ozone Bubble Columns using Artificial Neural Networks
M.S. Baawain, M. Gamal El-Din and D.W. Smith

10.30-11.00: Coffee

11.00-12.30: Chaired by: Dr M.S. Jaafar and Dr V. Berkhahn

- AI.51 Automatic Component Identification using Artificial Neural Network Techniques
M. Schleinkofer, A. Bastian, C. van Treeck and E. Rank
- AI.52 Stability Prediction of Asphaltic Concrete Mixes using Neural Networks
M.H. Alawi, M.A. Saif and M.S. El-Bisy
- AI.53 Merging Neural Networks and Topological Models to Re-Engineer Construction Drawings
V. Berkhahn and S. Komorowski
- AI.54 Seismic Micro-zoning in Tangshan City based on an ANN
Q.J. Zhu, Y.H. Chen and Y.P. Su
- AI.55 Development of an Artificial Neural Network Model for Prediction of Ultimate Soil Bearing Capacity
J. Noorzadei, M.S. Jaafar, W.A.M. Thanoon and S.J.S. Hakim
- AI.56 The Ranking of Factors Influencing the Behaviour of Light Structures on Expansive Soils in Victoria, Australia
N.Y. Osman and K.J. McManus

**Day 2: Thursday 1 September 2005: PM
ROOM 1**

14.00-15.30: Chaired by: Mr P.F. McCombie and Professor J. Bencat

CC.L GEOTECHNICAL ENGINEERING

- CC.266 Evaluation of the Soil Initial Tangent Moduli (E0,G0) by the Shear Wave Propagation Method
J. Bencat
- CC.267 Numerical Simulation of the Response of a Fine Medium Sand to Torsional Loading
A. Tsomokos and V.N. Georgiannou
- CC.268 United States Capitol Visitor Centre: Diaphragm Wall Performance and Movement of the United States Capitol Building
G.A. Bonita
- CC.LII TUNNELING**
- CC.275 Numerical Analysis of Soft Rock Tunneling in the Western Taiwan Area
K.J. Shou, Y.C. Chuang and Y.C. Liu
- CC.276 Enhancing Numerically-Predicted Ground Movement Patterns due to Shield Tunneling in Clays
T.T. Abdel-Fattah, A.Y. Akl, H.A. Hodhod and A.M. Abdel-Rahman
- CC.277 Applicability of Elastoplastic Modelling for Simulating Tunnel Excavation in Lightly Overconsolidated Clay
T.T. Abdel-Fattah, A.Y. Akl, H.A. Hodhod and A.M. Abdel-Rahman

15.30-16.00: Coffee

16.00-17.30: Chaired by: Dr B. Basu and Dr Y. Tsompanakis

CC.LI SOIL-STRUCTURE INTERACTION

- CC.269 Modelling Soil Structure Interaction of Shear Wall Systems using Super Elements
M.S. Jaafar, M. Paknahad, W.A. Thanoon and J. Noorzai
- CC.270 Response of Wind Turbines Including Soil-Structure Interaction
P.J. Murtagh, B. Basu and B.M. Broderick
- CC.271 Soil-Structure Dynamic Interaction Effects in Buried Cylindrical Concrete Structures, R.A. Izadifard and M.R. Maheri
- CC.272 Inelastic Analysis of Frame-Foundation-Soil Interaction Systems
W.A. Thanoon, J. Noorzai, M.S. Jaafar and M.A. Al-Gorafi
- CC.273 Local Site Conditions and Seismic Design of Municipal Solid Waste Landfills
Y. Tsompanakis, P.N. Psaropoulos and Y. Karabatso
- CC.274 Probability of Failure of Tunnels with Circular Cross Section: A Comparison of Methods
E. Alarcón, I. del Rey, L. Hermanns and A. Fraile

**Day 2: Thursday 1 September 2005: PM
ROOM 2**

14.00-15.30: Chaired by: Professor N.F. Pan

CC.II INNOVATIVE TECHNOLOGY AND MANAGEMENT FOR CONSTRUCTION ENGINEERING

Session organised by Professor N.F. Pan

- CC.12 Development Structure and Performance Evaluation for Applying Wireless Transmission to the Construction Industry
L.K. Lin, C.L. Cheng and S.X. Li
- CC.13 Visual Information Transfer using Mobile IT Solutions
O.O. Koseoglu, B. Erdogan, Y. Nielsen, C.J. Anumba and N.M. Bouchlaghem
- CC.14 Internet based Analytical Services using a Java based GUI
H.M. Chen and Y.C. Lin
- CC.15 An Automated Visual-Aid System for Inspecting Concrete Bridges
N.J. Yau and H.K. Liao
- CC.16 Intelligent Search Guides for the Construction e-Market
R.J. Dzung, S.S. Wang and S.Y. Chang
- CC.17 Bid-Price Determination Considering Cash-flow Effects
W.C. Wang, C.L. Lin and Y.H. Lu

15.30-16.00: Coffee

16.00-17.30: Chaired by: Professor N.F. Pan

- CC.18 A Hybrid Soft Computing Approach for Knowledge Discovery in Construction Engineering
W.D. Yu and G.W. Fan
- CC.19 Optimizing the Design of an Attribute Double Sampling Plan
T.M. Cheng and Y.L. Chen
- CC.20 Information Needs and Direction for Construction ERP Development
A.S. Chang and K.P. Lee
- CC.21 Study on the Mix Proportioning Design of Recycled Concrete by the Taguchi Method
Y.H. Lin, Y.Y. Tyan and P.C. Lee
- CC.22 SPC-based Project Performance Evaluation System
S.S. Leu, Y.C. Lin and T.A. Chen
- CC.23 Ontology Development for Semantic Web Based Services in Construction
D. Ruikar, C.J. Anumba, Z. Aziz, P.M. Carrillo and N.M. Bouchlaghem

**Day 2: Thursday 1 September 2005: PM
ROOM 3**

14.00-15.30: Chaired by: Professor B. Stok

INVITED LECTURE

LE.8 Wind Field Simulation using Adaptive Tetrahedral Meshes
R. Montenegro, G. Montero, J.M. Escobar, E. Rodríguez and J.M. González-Yuste

CC.IX MESH GENERATION

CC.64 Mesh Smoothing for Triangulations Defined on Surfaces

J.M. Escobar, R. Montenegro, G. Montero and E. Rodríguez

CC.65 A Modified Paving Algorithm

A. Dixit

CC.67 A Hybrid Method for Triangulation of Three-Dimensional Domains

D. Ryppl and Z. Bittnar

15.30-16.00: Coffee

16.00-17.00: Chaired by: Professor G. Montero

CC.66 Automatic Constrained Meshing

A. Dixit

CC.XXIV FLOW SIMULATION

CC.112 Simulation of Fresh Concrete Flow

B. Patzák and Z. Bittnar

CC.XXV COMPUTATIONAL FLUID DYNAMICS

CC.113 Sub-Grid-Scale Parameters in Computational Fluid Dynamics Modelling of
Compartment Fires

N.D. Pope and C.G. Bailey

CC.XXVI FLUID-STRUCTURE INTERACTION

CC.114 Coupled Fluid-Structure Simulation of the Coriolis Flowmeter under Forced
Vibration

N. Mole, G. Bobovnik, J. Kutin, B. Stok and I. Bajsic

**Day 2: Thursday 1 September 2005: PM
ROOM 4**

13.45-15.30: Chaired by: Dr M. Hartnett and Dr N.A. Alexander

CC.XLIII EARTHQUAKE ENGINEERING AND SEISMIC DESIGN

CC.225 Fuzzy Dynamic Structural Analysis of 2D Frames

P. Stemberk and J. Kruijs

CC.226 Influence of the Soil Profile Uncertainty on the Tunnel - Layered Soil Interaction
Subject to Seismic Acceleration

M. Badaoui and M.K. Berrah

CC.227 Kernel-Based Message Passing Interfaced Integrated Earthquake Simulation

M. Hassantien, J. Inoue, T. Ichimura and M. Hori

CC.228 The Effects of Near-Field Vertical Ground Motions on Structural Response

M. Tehranizadeh and M.S. Rahim Labafzadeh

CC.XLVI BRIDGE ENGINEERING

CC.242 Time Dependent Analysis of the Movable Scaffolding System

H.G. Kwak and J.K. Son

CC.243 To-Be Information Models for Maintenance of Concrete Highway Bridges

S. Kubota and I. Mikami

CC.XLV DYNAMICS OF BRIDGES: VIBRATION AND SEISMIC

CC.241 Fragility Analysis for the Bridge Control Benchmark Problem

F. Casciati, G.P. Cimellaro and M. Domaneschi

15.30-16.00: Coffee

16.00-17.45: Chaired by: Professor J.R. Banerjee and Professor H.G. Kwak

CC.233 Earthquake Engineering of the Zeceva Draga Bridge

A. Nizic, D. Mestrovic and J. Radic

CC.235 Dynamic Analysis of Train-Bridge Systems under Wind Action

H. Xia, W.W. Guo, N. Zhang and G.J. Sun

CC.236 Incoherent Ground Motion in Multi-Support Dynamics of Bridges

N.A. Alexander

CC.237 Effects of Train Speed, Load and Damping on the Dynamic Response of Railway
Bridges, M. Majka and M. Hartnett

CC.238 A Numerical Assessment of the Use of Fluid Viscous Dampers to Reduce the
Resonance Response of High-Speed Railway Bridges

M.D. Martinez-Rodrigo and P. Museros

CC.239 Dynamic Analysis of a Continuous Arch Bridge across the Yangtze River under High
Speed Train Loading, N. Zhang, H. Xia and G.J. Sun

CC.240 Vibration of Shallow Suspension Footbridges under Walking Dynamic Loads

M.H. Huang, D.P. Thambiratnam and N.J. Perera

**Day 2: Thursday 1 September 2005: PM
ROOM 5**

14.00-15.30: Chaired by: Professor R. Schmidt and Professor R. Levy

CC.XXIX PLATES AND SHELLS

- CC.129 Plastic Buckling Analysis of Mindlin Plates using The Ritz Method
C.M. Wang, T.M. Aung and K.K. Vo
- CC.130 Thermal Buckling Response of Three-Node Isoparametric Shear Flexible Element for Moderately Thick to Thin Plates
H.R.H. Kabir
- CC.131 Elastic Stability Analysis of Simply-Supported Rectangular Plates under Arbitrary Loads
Y.G. Liu and M.N. Pavlovic
- CC.132 The Performance of Allman's Membrane Finite Element for Geometrically Nonlinear Analysis of Shell Structures
E. Gal and R. Levy
- CC.133 The Higher-Order Stiffness Matrix of a Simple Triangular Flat Plate Element for Nonlinear Analysis of Shell Structures
J.T. Chang and I.D. Huang
- CC.134 Computational Simulation of the Transient Elastic-Viscoplastic Response of Structural Components at High Temperature
R. Schmidt and M. Stoffel

15.30-16.00: Coffee

**Day 2: Thursday 1 September 2005: PM
ROOM 6**

14.00-15.30: Chaired by: Professor C.E. Majorana and Dr W. Tizani

AI.I ARTIFICIAL INTELLIGENCE BASED ASSESSMENT AND DESIGN: TOOLS AND TECHNIQUES

- AI.1 Conceptual Design of Orthogonal Commercial Buildings
D.J. Shaw, J.C. Miles and W.A. Gray
- AI.2 Tunnels in an Ontological Perspective
M. Cristiani, C.E. Majorana and V. Salomoni
- AI.3 A Prototype Hybrid Rule-Object System for Structural Design
F. Oudjehane and H. Mili
- AI.4 Specifications and Design for a Multi-Agent Collaborative Structural Design System
I. Fahdah and W. Tizani
- AI.5 Web-Based Tunnel Upgrading
M. Cristiani, C.E. Majorana and V. Salomoni
- AI.II RISK ANALYSIS AND SAFETY MANAGEMENT**
- AI.6 Assessing Vulnerability of Buildings to Blast using Interval Probability Theory
W.P.S. Dias and S.R. Chandratilake

15.30-16.00: Coffee

16.00-17.30: Chaired by: Professor W.P.S. Dias and Professor J.C. Miles

- AI.7 Epiphenomenal Intelligence from Partial Models in Safety Management
M. Lazzari
- AI.8 Radial Basis Function Network Approach to Model the Implicit Performance Function for Reliability Analysis
J. Deng and D.S. Gu

AI.III CASE BASED REASONING AND DESIGN

- AI.9 A Case-based Reasoning Approach for Identifying Risks in Construction Projects
Y. Tan, N.J. Smith and D.A. Bower
- AI.10 AI Techniques for Preliminary Design Decisions on Column Spacing and Sizing
W.P.S. Dias and U.A. Padukka
- AI.11 KnowPrice: Using Derivational Analogy to Estimate Project Costs
B. Raphael and S. Saitta
- AI.12 A Hybrid Approach to Solve Space Planning Problems
G. Bi and B. Medjdoub

**Day 3: Friday 2 September 2005: AM
ROOM 1**

09.15-10.30: Chaired by: Dr A.F. Ashour and Professor M. Saje

**CC.V COMPUTATIONAL METHODS FOR CONCRETE STRUCTURES
Session organised by Dr A.F. Ashour**

- CC.48 Shear Performance of Concrete Beams Reinforced with CFRP Bars
A.S. Ashour
- CC.49 Flexural Behaviour of CFRP Reinforced Concrete Flanged Beams
A.S. Ashour and M. Family
- CC.50 Modelling and Analysis Issues in Assessing the Performance of RC Shear Walls
D. Coronelli, L. Martinelli and M.G. Mulas

CC.XXXVIII REINFORCED CONCRETE STRUCTURES

- CC.165 The Influence of Non-Linear Material Properties on the Global Convergence in the
Finite-Element Analysis of Spatial Beams
D. Zupan and M. Saje
- CC.166 Finite Element Analysis Considering Slip Behaviour of Tendons
H.G. Kwak and J.H. Kim

10.30-11.00: Coffee

11.00-12.30: Chaired by: Professor R.I. Gilbert and Professor H.G. Kwak

- CC.167 Limited Ductility Plastic Analysis of Continuous Concrete Beams
B. Horowitz
- CC.168 Bond Model for Reinforced Concrete Subjected to Impact Loading
F. Lijn
- CC.169 Estimation of Plastic Shrinkage Cracking of Concrete Slabs
H.G. Kwak and S.J. Ha
- CC.170 Computerized Analyses of Alternative Mechanical Models of Waffle Slabs using the
Finite Element Method
R.H. Dias, J.B. Paiva and J.S. Giongo
- CC.171 Computation of Effective Bending Stiffness of RC Telecommunication Towers
based on Experimental Data
M.A. Silva, J.S. Arora and R.M.L.R.F. Brasil
- CC.172 A Triangular Layered Plate Element for Nonlinear Structural Analysis
Y.X. Zhang, M.A. Bradford and R.I. Gilbert

**Day 3: Friday 2 September 2005: AM
ROOM 2**

09.15-10.30: Chaired by: Professor I. Takahashi and Dr D. Tran

CC.XII VIRTUAL REALITY

- CC.71 A Virtual Compressive Test for Structural Engineers
E.A.B. Koenders, E. Schlangen, E. Dado and K. van Breugel

CC.XIX STRUCTURAL ANALYSIS

- CC.95 Topological and Graph Products: Eigenproblems for Optimal Structural Analysis
A. Kaveh and H. Rahami
- CC.96 Geometric and Material Nonlinear Analyses of Elastically Restrained Arches
Y.L. Pi, M.A. Bradford, F. Tin-Loi and R.I. Gilbert
- CC.98 Transport Matrix Based Dynamic Stiffness Matrix of a Circular Helicoidal Bar
S.A. Alghamdi
- CC.101 Analysis Methods for the Pretension Process of Flexible Cable-Strut Structures
H.Z. Yang, J.M. Ding and Q.L. Zhang

10.30-11.00: Coffee

11.00-12.30: Chaired by: Professor R.C. Barros and Professor L. Damkilde

- CC.99 Estimation of the Critical Flutter Load of a Tapered Beam Simultaneously Subjected
to a Follower Force and an Axial Force
I. Takahashi
- CC.100 Suboptimal Cycle Bases for Analysis of Frames with Semi-rigid Joints
A. Kaveh, H. Moez and M.A. Barkhordari
- CC.97 An Efficient Implementation of Non-Linear Limit State Analysis based on Lower-
Bound Solutions
L. Damkilde and L. Juhl Schmidt

CC.CX FINITE ELEMENT TECHNIQUES: ANALYSIS, MODELLING AND DESIGN

- CC.102 Analysis and Design of the Foundations of Wind-Turbo Generators using the Finite
Element Method
R.T. Teixeira and R.C. Barros
- CC.103 Interaction between Vibration and Friction of a Block-Incline held by Magnets
M. Holland and D. Tran
- CC.104 Study of the Brittle Fracture of Monocrystalline Silicon Wafers
J. Barredo, A. Fraile and E. Alarcón

**Day 3: Friday 2 September 2005: AM
ROOM 3**

09.15-10.30: Chaired by: Professor J. Sejnoha and Dr M.S. Jaafar

CC.XL MASONRY STRUCTURES

- CC.183 Nonlinear Analysis of Interlocking Mortarless Block Masonry Systems using the Finite Element Method
W.A. Thanoon, A.H. Alwathaf, J. Noorzaei, M.S. Jaafar and M.R. Abdulkadir
- CC.185 A Micro-Mechanical Model for the Homogenized Limit Analysis of Out-Of-Plane Loaded Masonry Walls
G. Milani, P.B. Lourenço and A. Tralli
- CC.186 An Assessment of the Collapse of the San Andrés Coastal Tower in Tenerife
O. Rio, D. Theodosopoulos, M.P. de Luxán and F. Dorrego
- CC.187 Non-linear Three-Dimensional Analysis of the Charles Bridge Exposed to Temperature Impact
J. Sejnoha, J. Zeman, J. Novák and Z. Janda
- CC.188 On Representative Volume Element Size for the Analysis of Masonry Structures
J. Novák, M. Sejnoha and J. Zeman

10.30-11.00: Coffee

11.00-12.30: Chaired by: Dr J.W. Bull

- CC.189 Analysis of Historical Masonry Structures using Three Dimensional Solid Elements
C.A. Symakezis, A.K. Antonopoulos and O.A. Mavruli
- CC.190 Effective Material Parameters for Transport Processes in Historical Masonry Structures
J. Sýkora, J. Vorel, J. Sejnoha and M. Sejnoha
- CC.191 Upper and Lower Bounds to the Collapse Load of Masonry Bridges Taking into Account Arch-Fill Interaction
A. Cavicchi
- CC.192 Stability of No-Tension Masonry Walls having a Non-Linear Constitutive Law
I. Mura
- CC.194 Historical Structures Vulnerability Evaluation using Fragility Curves
C.A. Symakezis, A.K. Antonopoulos and O.A. Mavruli
- CC.195 A Simplified Model for the Evaluation of the Seismic Behaviour of Masonry Buildings
I. Calió, M. Marletta and B. Pantò

**Day 3: Friday 2 September 2005: AM
ROOM 4**

09.30-10.30: Chaired by: Professor C.T.F. Ross and Professor G. Dargush

CC.XLIV DYNAMIC ANALYSIS OF STRUCTURES

- CC.229 A Finite Element based Large Increment Method for Nonlinear Structural Dynamic Analysis
W. Barham, A.J. Aref and G.F. Dargush
- CC.230 The Longitudinal Strength and Vibration of Model Ships
C.T.F. Ross and E. James
- CC.231 Automated Multi-Level Substructuring for Nonlinear Eigenproblems
K. Elssel and H. Voss
- CC.232 Three-dimensional Structural Dynamic Analysis using Parallel Direct Time Integration Methods
J.M. Alonso and V. Hernández

10.30-11.00: Coffee

11.00-12.30: Chaired by: Dr B. Picoux and Professor H. Voss

CC.XLVII SYSTEM IDENTIFICATION, DIAGNOSIS, MAINTENANCE AND REPAIR

- CC.244 Development of an Information System for the Maintenance of Railway Embankments
Y. Sakamoto and Y. Itoh
- CC.245 An Evaluation of the Application of Infrared Thermography in the Diagnosis of Civil Engineering Structures
R.R. Ramlogun, B. Picoux, L. Ulmet and C. Petit
- CC.246 Dynamic Identification of RC Building No.5 of the College of Industrial Technology at Nihon University
T. Aoki, N. Yuasa, D. Sabia, D. Rivella and H. Muto
- CC.247 Identification of Structural System Parameters by Haar Wavelets
S. Basak and B. Basu
- CC.249 Increasing the Performance of a Reinforced Concrete Frame Strengthened using an Innovative Procedure
L. Anania, A. Badalà, S. Costa and C. Giaquinta
- CC.248 Model Identification of a Small-Scale Bridge using a Genetic Algorithm with Parallel Selection
J.L. Zapico, M.P. González and D.H. Bassir

**Day 3: Friday 2 September 2005: AM
ROOM 5**

09.00-10.30: Chaired by: Professor L. Damkilde and Dr D. Clifford

CC.XXXVII BUILDING TECHNOLOGY: MODELLING AND SIMULATION

- CC.163 Modelling of Heat and Moisture Transport in Buildings with Control Applications
X. Lü, T. Lu and M. Viljanen
- CC.164 HMTB: A Computer Simulation Tool for Heat and Moisture Transfer in Buildings
T. Lu, X. Lü and M. Viljanen
- CC.XXXII MATERIALS ENGINEERING**
- CC.141 An Assessment of Incorporating Proportions of Fly Ash and Ground Granulated Blast Furnace Slag as a Cement Substitute
K. Hassan, K. Hattori, H. Ogata and M. Ashraf
- CC.143 Finite Element Simulation of Damage Evolution in Dynamically Loaded Structures
R. Schmidt and M. Stoffel
- CC.144 An Efficient Return Algorithm for Non-Associated Mohr-Coulomb Plasticity
J. Clausen, L. Damkilde and L. Andersen
- CC.145 Adaptive Architecture: Responsive Building Technology
D. Clifford and E. Moore

10.30-11.00: Coffee

11.00-12.15: Chaired by: Professor M.L. Romero and Dr M.J. Fadaee

CC.XXXIII COMPOSITE MATERIALS

- CC.146 Post-processing Techniques in Free Boundary Flows during Liquid Composite Moulding Processes, Z. Dimitrovová
- CC.148 Symplectic Method for a Piezoelectric Cantilever Beam
A.Y.T. Leung, J.J. Zheng and C.W. Lim
- CC.147 The Dynamic Behaviour of a Piezoelectric Sensor and Actuator Embedded in a Composite Cylinder,
A.R. Daneshmehr and M. Shakeri

CC.XXXVI MODELLING OF TALL BUILDINGS

- CC.161 Geometrically Nonlinear Behaviour of Stiffened Coupled Shear Walls
M.J. Fadaee, H. Saffari and H. Khosravi
- CC.162 Quantitative Lateral Drift Control of Shear Wall-Frame Buildings
H.J. Lee and H.S. Kim

**Day 3: Friday 2 September 2005: AM
ROOM 6**

09.00-10.30: Chaired by: Dr J.W. Bull and Dr M. Leps

AI.X HYBRID SYSTEMS INCORPORATING GENETIC ALGORITHMS AND NEURAL NETWORKS

- AI.36 Black-Box Function Optimization using Radial Basis Function Networks
A. Kucerová, M. Leps and J. Skocek
- AI.37 A Hybrid Computational Strategy for Identification of a Non Linear Composite Model
D.H. Bassir and S. Guessasma
- AI.38 Design Optimization of Offshore Platforms using Genetic Algorithms and Wave-Net
M.J. Fadaee and M. Besharat

CC.XXVII STRUCTURAL OPTIMIZATION

- CC.124 Multi-Objective Optimization of Laminated Cylindrical Panels using a Genetic Algorithm
M. Shakeri, A. Alibeigloo and A. Morowat
- CC.115 Plate Depth Refinement Applied to a Deep Cantilevered Beam
W.C. Christie and J.W. Bull
- CC.116 A Study of Structural Topology Optimization based on ANSYS
Y.D. Liu and G. Bian

10.30-11.00: Coffee

11.00-12.45: Chaired by: Dr S.A. Alghamdi and Professor M.P. Saka

- CC.117 A Hypo-ellipse Approximation for Bi-objective Structural Life Cycle Cost Optimization Problems
S.S. Abdelatif Hassanien, M.A. Maes and N. Shrive
- CC.118 Topology Optimisation using the SERA Method with a BESO Bias on Element Admission, R.N. Brodie, O.M. Querin and D.C. Barton
- CC.119 Optimization of Submerged Domes
K.K. Vo, C.M. Wang and Y.H. Chai
- CC.120 Application of the Reduced Basis Method for Optimisation of Heat Conduction Problems
S.M.B. Afonso, P.R.M. Lyra and T.M. Albuquerque
- CC.121 Optimum Design of the Link of an Inverted Tooth Chain
T.Y. Chen, B.C. Chung and S.J. Chiou
- CC.122 Evolutionary Structural Optimization of Steel Gusset Plates
A.A. Khalaf and M.P. Saka
- CC.123 Design and Optimisation of Cross Sections using Spreadsheet Analyses
P. Mark

**Day 3: Friday 2 September 2005: PM
ROOM 1**

14.00-15.00: Chaired by: Professor M.L. Romero and Dr J. Kruis

CC-XXXVIII REINFORCED CONCRETE STRUCTURES

- CC.173 A Numerical Study of the Second Order Effects in Slender Concrete Columns
M.L. Romero, A. Bendito, J.L. Bonet, M.A. Fernandez and P.F. Miguel
- CC.174 A Numerical Study of One-Way and Two-Way Concrete Walls with Openings
P. Hallinan and H. Guan
- CC.175 Behaviour of High Strength Concrete Columns under Eccentric Loading
T. Hara and M.N.S. Hadi
- CC.176 Hygro-Thermo-Mechanical Analysis of a Nuclear Power Plant Prestressed Concrete
Reactor Vessel
J. Kruis, T. Koudelka, Z. Bittnar and M. Petkovski

15.00-16.00: Coffee

**Day 3: Friday 2 September 2005: PM
ROOM 2**

Day 3: Friday 2 September 2005: PM
ROOM 3

14.00-15.00: Chaired by: Professor A. Ebrahimpour and Dr Z.W. Guan

CC.XLI TIMBER STRUCTURES

- CC.196 Modelling of Timber Framed Shear Walls using Wooden Dowels
Z.W. Guan and C. Zois
- CC.197 Simulating Occupant-Induced Vibrations of Wood Floors with Rotated Joists
A. Ebrahimpour, C.W. Winmill, H. Sadiq and R.L. Sack
- CC.198 Finite Element Modelling of Timber Joints Fastened with Double-Sided Punched
Metal Plate Connectors
T. Zhou and Z.W. Guan
- CC.199 Experimental and Numerical Analysis of Composite Wood Beams
B. Cas, J. Lopatic, M. Saje, S. Schnabl and I. Planinc

15.00-16.00: Coffee

Day 3: Friday 2 September 2005: PM
ROOM 4

14.00-15.15: Chaired by: Dr W. Tizani and Professor F. Farinha

CC.XI DATA PROCESSING

- CC.70 A Method of Updating and Management of Spatial Data Infrastructure in Japan
T. Morii, I. Mikami and S. Kubota
- CC.VII DESIGN AND INFORMATION TECHNOLOGY**
- CC.56 Looking for Flexible and Configurable Civil Engineering Enterprise Environments
R. Jardim-Gonçalves, F. Farinha and A. Steiger-Garçon
- CC.57 Design Process Improvement using a Single Model Environment
D. Ruikar, W. Tizani and R. Smith
- CC.58 Integrated IFC based Collaborative Building Design using Internet Technology
D. Roshani and W. Tizani
- CC.59 The IFC Steel Construction Extension
E. Holtzhauer and H. Saal

15.15-16.00: Coffee

Day 3: Friday 2 September 2005: PM
ROOM 5

Day 3: Friday 2 September 2005: PM
ROOM 6

14.00-15.00: Chaired by: Dr L.S. Vamvakieridou-Lyroudia and Dr A. Clement

CC.XV ENVIRONMENTAL MODELLING AND SIMULATION

CC.83 Numerical Simulation of the Vortex Wave Flow in the Reactor for Wastewater Treatment
F.X. Liu, Z.J. Liu, Q.C. Shi and J.T. Zhou

CC.XVI WATER ENGINEERING

CC.88 A Model for the Design of Water Harvesting Tanks
M.G. Shinde, I.K. Smout and S.D. Gorantiwar

CC.89 Application of GIS for Water Quality Management: Estimation of Nutrient Loads
A. Clement, A. Kovacs and K. Buzas

CC.90 A Fully Integrated Leakage Model for Water Distribution Networks
M. Tabesh and A.H. Asadiani Yekta

15.00-16.00: Coffee