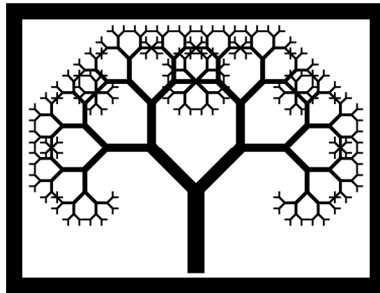


DRAFT PROGRAMME

**The Ninth International Conference on
Computational Structures Technology**

&

**The Sixth International Conference on
Engineering Computational Technology**



**2-5 September 2009
Athens - Greece**

**organised by
Civil-Comp Press
Stirlingshire, UK**

Future Conferences organised by Civil-Comp Press:

- **The First International Conference on Parallel, Distributed and Grid Computing for Engineering**
venue: Pécs, Hungary
period: 6-8 April 2009
- **The Twelfth International Conference on Civil, Structural and Environmental Engineering Computing**
venue: Funchal, Madeira, Portugal
period: 1-4 September 2009
- **The Tenth International Conference on the Application of Artificial Intelligence to Civil, Structural and Environmental Engineering**
venue: Funchal, Madeira, Portugal
period: 1-4 September 2009
- **The First International Conference on Soft Computing Technology in Civil, Structural and Environmental Engineering**
venue: Funchal, Madeira, Portugal
period: 1-4 September 2009
- **The Tenth International Conference on Computational Structures Technology**
period: Autumn 2010
- **The Seventh International Conference on Engineering Computational Technology**
period: Autumn 2010

For more information on these conferences, please visit:

- **<http://www.civil-comp.com/conf>**

For information on past conferences, please visit

- **<http://www.civil-comp.com/pubs>**

How to find a paper in the conference proceedings

The conference proceedings are published in four volumes (two invited lecture volumes and two summary volumes with accompanying CD-ROMs).

The invited lectures are published as follows:

- **volume CLE: Trends in Computational Structures Technology**
B.H.V. Topping and M. Papadrakakis, (Editors)
Saxe-Coburg Publications, 2008
ISBN 978-1-874672-35-7
- **volume ELE: Trends in Engineering Computational Technology**
M. Papadrakakis and B.H.V. Topping, (Editors)
Saxe-Coburg Publications, 2008
ISBN 978-1-874672-36-4

The contributed papers are published in two summary volumes with the full papers available on the accompanying CD-ROMs as follows:

- **volume CST: Proceedings of the Ninth International Conference on Computational Structures Technology**
B.H.V. Topping and M. Papadrakakis, (Editors)
Civil-Comp Press, 2008
ISBN 978-1-905088-23-2
- **volume ECT: Proceedings of the Sixth International Conference on Engineering Computational Technology**
M. Papadrakakis and B.H.V. Topping, (Editors)
Civil-Comp Press, 2008
ISBN 978-1-905088-26-3

In this programme the letters immediately preceding a paper title refer to the volume identifier given above. For example: CLE.1 refers to the first chapter of *Trends in Computational Structures Technology* and CST.2 refers to the second paper in *Proceedings of the Ninth International Conference on Computational Structures Technology*.

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.

Special lectures have been allocated 30 minutes in total, of which 5 minutes may be used for questions.

Authors are kindly asked to keep to the time allocated to them by the Chairmen. Authors are discouraged from 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.

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.

Journal special issue submission

For details of the format specification and procedures for submitting conference papers for possible publication in the journal special issues, please see this box in the final version of the programme as issued at the conference.

Conference timetable

Day 0: Tuesday 2 September 2008

15.00-19.00: Conference Office open
17.00-18.15: Opening Plenary Session
18.15-19.00: Drinks reception

Day 1: Wednesday 3 September 2008

08.15-17.00: Conference Office open
09.00-12.30: Parallel sessions
10.30-11.00: Coffee / Tea
12.30-13.45: Lunch (admission by ticket only)
14.00-18.00: Parallel sessions
15.30-16.00: Coffee / Tea

Day 2: Thursday 4 September 2008

08.30-17.00: Conference Office open
09.00-12.30: Parallel sessions
10.30-11.00: Coffee / Tea
12.30-13.45: Lunch (admission by ticket only)
14.00-18.00: Parallel sessions
15.30-16.00: Coffee / Tea
XX.XX Coaches leave for Conference Dinner from the Hotel Main Entrance
(admission by ticket only)
XX.XX Estimated return time from the Conference Dinner

Day 3: Friday 5 September 2008

08.30-16.00: Conference Office open
09.00-12.30: Parallel sessions
10.30-11.00: Coffee / Tea
12.30-13.45: Lunch (admission by ticket only)
14.00-16.00: Parallel sessions
16.00-16.30: Coffee / Tea

Opening Plenary Session

17.00-18.15: Chaired by:

Professor B. H.V. Topping
Heriot-Watt University, Edinburgh, Scotland, and
University of Pécs, Hungary

Professor M. Papadrakakis
National Technical University of Athens, Greece

Invited Lecture

ELE.1 Isogeometric Analysis: Toward Unification of Computer Aided Design
and Finite Element Analysis
Y. Bazilevs, V.M. Calo, J.A. Cottrell, J. Evans, T.J.R. Hughes, S. Lipton,
M.A. Scott and T.W. Sederberg

Professor T.J.R. Hughes
Computational and Applied Mathematics
University of Texas, Austin TX, United States of America

18.15-19.00: Drinks reception

Overview: Day 1: Wednesday 3 September 2008: AM

Room Omikron I
page 16

H.A. Mang
ELE.11
H. Askes
ELE.10
M. Cross
ELE.8

—

A. Eriksson
ELE.7
P.K. Jimack
ELE.5
B. Patzak
ELE.4

Room Omikron II
page 17

G.P. Nikishkov
ELE.14

Nano-Mechanics
ECT.138-139

—

Nano-Mechanics
ECT.140-144

**Computational
Modelling, Analysis &
Simulation**
ECT.118

Room Ypsilon 1
page 18

R. Montenegro
ELE.12

**Mesh Generation &
Adaption**
ECT.51-54

—

R. Rolfes
CLE.7
Y.L. Pi
CLE.9
J.Y. Cognard
CLE.10

Overview: Day 1: Wednesday 3 September 2008: PM

Room Omikron I
page 25

I. Doltsinis
ELE.15

M. Amabili
CLE.13

Non-Linear Dynamics
CST.131-133

—

**Quantification of
Uncertainty in
Simulations**
ECT.11-17

Room Omikron II
page 26

J.V. Araújo dos Santos
CLE.1

**Modeling & Simulation
of Composite & Adaptive
Structures**
CST.1-2,5,10

—

**Modeling & Simulation
of Composite & Adaptive
Structures**
CST.3-4,6-9,11-12

Room Ypsilon 1
page 27

**Materials Modelling:
Concrete**
CST.259-264

—

**Probabilistic Approaches
& Optimisation for
Structural Mechanics**
CST.105-112

Overview: Day 1: Wednesday 3 September 2008: AM

Room Ypsilon 2
page 19

**Multi-Scale Numerical
Modeling of Engineering
Structures**
CST.16-18

—

Masonry Structures
CST.235-240

Room Ypsilon 3
page 20

Damage Identification
CST.113-118

—

Damage Identification
CST.119-124

Room Omega
page 21

**New Methods of
Characterisation of
Bone Quality**
ECT.55-59

—

Biomedical Engineering
ECT.156-157

Data Collection
ECT.154

Overview: Day 1: Wednesday 3 September 2008: PM

Room Ypsilon 2
page 28

**Structural Analysis &
Optimization in
Acoustics & Vibrations**
CST.99-104

—

**Structural Analysis &
Optimization in
Acoustics & Vibrations**
CST.72-80

Room Ypsilon 3
page 29

**Composites: Damage
Modelling**
CST.305-307
Composite Structures
CST.301-303

—

**Advances in Modelling &
Computation of
Interfaces**
ECT.18-24

Room Omega
page 30

Constitutive Modelling
CST.256

**Numerical Design of
Protective Structures**
CST.19-22

—

**Damage & Identification
Problems**
CST.151-158

Overview: Day 1: Wednesday 3 September 2008: AM

Room Lambda
page 22

Electrodynamic Problems
ECT.125
Multi-Physics: ECT.111
Coupled Problems
ECT.112
Multi-Grid: ECT.114
Cellular Automata
ECT.155
FE Solver Technology
ECT.132
—
XFEM: ECT.126
Meshless Methods
ECT.127-128
FEM: CST.134-135
FE Plasticity
CST.136

Room VIP Lounge
page 23

Decision Making in
Engineering
Management
ECT.25-30
—
Decision Making in
Engineering
Management
ECT.31-36

Room Delta
page 24

Spectral & Wave
Element Methods for
Structural Response
Prediction and Damage
Detection
CST.46,43,44,40
—
Spectral & Wave
Element Methods for
Structural Response
Prediction and Damage
Detection
CST.45,41,37-39,42

Overview: Day 1: Wednesday 3 September 2008: PM

Room Lambda
page 31

Evolutionary & Non-
Deterministic Methods in
Structural Optimization
CST.47-51
—
Structural Optimization
CST.170-171
Shape & Topology
Optimization
CST.172-177

Room VIP Lounge
page 32

Plate Problems
CST.148-150
Shell Structures
CST.231-234
—
Mechanics of
Composites, Functionally
Graded & Piezoelectric
Materials
CST.28-36

Room Delta
page 33

Boundary Element
Methods
CST.144-147
ECT.135-136
—
Analyses of Performance
& Failures of
Constructed Facilities
ECT.60-62
Information Modeling &
Technology Applications
for Construction
ECT.63-68

Overview: Day 2: Thursday 4 September 2008: AM

| | | |
|--|--|---|
| <p>Room Omikron I page 34</p> <p>Partitioned Methods for Computation of FSI ECT.8-10</p> <p>Fluid-Structure Int. ECT.106-110</p> <p>—</p> <p>Particle Thermodynamics ECT.145</p> <p>Hysteresis Computations ECT.146</p> <p>Modelling Steam & Water Networks ECT.193-194</p> | <p>Room Omikron II page 35</p> <p>G. Muscolino CLE.6</p> <p>Bridge Engineering CST.281-282</p> <p>—</p> <p>V. Gattulli CLE.5</p> <p>Bridge Engineering CST.283-286</p> | <p>Room Ypsilon 1 page 36</p> <p>Modelling of Composite Beams CST.23-27</p> <p>—</p> <p>A.A. Shabana CLE.11</p> <p>Multi-Body Systems & Dynamics ECT.115-116</p> <p>Computational Simulation & Optimization ECT.123-124</p> |
|--|--|---|

Overview: Day 2: Thursday 4 September 2008: PM

| | | |
|---|--|---|
| <p>Room Omikron I page 43</p> <p>Computational Fluid Mechanics ECT.45-50</p> <p>—</p> <p>CFD ECT.96-105</p> | <p>Room Omikron II page 44</p> <p>Modeling & Simulation of Composite & Adaptive Structures CST.14-15</p> <p>Composite Materials CST.308-311</p> <p>—</p> <p>Composite Materials CST.312-320</p> | <p>Room Ypsilon 1 page 45</p> <p>Shakedown Analysis & Design CST.159-161</p> <p>—</p> <p>Analysis of Trusses, Frames and Space Structures CST.162-169</p> |
|---|--|---|

Overview: Day 2: Thursday 4 September 2008: AM

Room Ypsilon 2
page 37

**Structural Analysis &
Optimization in
Acoustics & Vibrations**
CST.81-86

—

**Structural Analysis &
Optimization in
Acoustics & Vibrations**
CST.87-92

Room Ypsilon 3
page 38

L.A.C. Neves
CLE.3
M.F. Pellissetti
CLE.2

**Stochastic Optimization
Methods in Structural
Analysis and Optimal
Design**
CST.52-53

—

CST.54-57

Stochastic FEMs
ECT.134

Room Omega
page 39

**Computational Tools for
Earthquake & Structural
Dynamics**
CST.125-130

—

Microstructures
CST.252-253
Polyethylene Materials
CST.254-255
Materials Modelling
CST.257-258

Overview: Day 2: Thursday 4 September 2008: PM

Room Ypsilon 2
page 46

**Structural Analysis &
Optimization in
Acoustics & Vibrations**
CST.93-98

—

Steel Structures
CST.212-220

Room Ypsilon 3
page 47

Reliability Design
CST.178-179
**Reliability Analysis &
Modelling**
CST.180-182
**Probabilistic Engineering
Problems**
CST.183

—

Dynamics & Vibration
CST.184-191

Room Omega
page 48

F. Chinesta
ELE.13
S. De
ELE.9
C.J. Pearce
CLE.4

—

Multiscale Simulation
ECT.37-44

Overview: Day 2: Thursday 4 September 2008: AM

| | | |
|---|---|---|
| <p>Room Lambda page 40</p> <p>F.G. Rammerstorfer ELE.16</p> <p>Biomechanics ECT.158-162</p> <p>—</p> <p>Soft Computing & Structural Engineering CST.58-62</p> | <p>Room VIP Lounge page 41</p> <p>J. Sienz ELE.6</p> <p>GAs and NNs in Engineering ECT.77-80</p> <p>—</p> <p>GAs and NNs in Engineering ECT.81-86</p> | <p>Room Delta page 42</p> <p>Computational Modelling, Analysis & Simulation ECT.117,119-122</p> <p>—</p> <p>Differential Quadrature, Generalized Methods & Related Discrete Element Analysis Methods CST.63-65</p> <p>Discrete Finite Element Methods ECT.129-131</p> |
|---|---|---|

Overview: Day 2: Thursday 4 September 2008: PM

| | | |
|--|--|--|
| <p>Room Lambda page 49</p> <p>M.D. Kotsovos CLE.8</p> <p>Reinforced Concrete: Analysis CST.226-228</p> <p>Fibre Reinforced Concrete CST.229-230</p> <p>—</p> <p>R.C. Barros CLE.12</p> <p>Reinforced Concrete Structures: Design CST.221-225</p> | <p>Room VIP Lounge page 50</p> <p>Passive Damping Systems CST.192-194</p> <p>Seismic Engineering CST.195-197</p> <p>—</p> <p>Seismic Engineering CST.198-205</p> | <p>Room Delta page 51</p> <p>ECT.190</p> <p>Soil-Structure Interaction ECT.166-171</p> <p>—</p> <p>Finite Elements: Modelling & Design CST.137-143</p> <p>Finite Element Methods ECT.133</p> |
|--|--|--|

Overview: Day 3: Friday 5 September 2008: AM

Room Omikron I
page 52

D. Eyheramendy
ELE.2
R.I. Mackie
ELE.3

HPC: Architectures & Applications
ECT.1-2

—

HPC: Architectures & Applications
ECT.3-6

Parallel Computations
ECT.87-89

Room Omikron II
page 53

Geomechanics & Geotechnical Engineering
ECT.173-177,179

—

A.H.C. Chan
ELE.17

Geomechanics & Geotechnical Engineering
ECT.180-182,178

Room Ypsilon 1
page 54

Offshore Structures
CST.275
Automotive Engineering
CST.276-277
Pavement Design
CST.278
Fire Safety Engineering
CST.279-280

—

Application of Finite Element Methods for the Analysis & Design of Steel & Concrete Structures
CST.66-71

Overview: Day 3: Friday 5 September 2008: PM

Room Omikron I
page 59

Parallel Computations
ECT.90-91

Distributed Computing
ECT.92-95

Room Omikron II
page 60

Geophysics
ECT.172

Rock Mechanics
ECT.163-165

Room Ypsilon 1
page 61

Building Analysis & Design
CST.287-291

Modelling Retrofitted & Repaired Structures
CST.292-294

Overview: Day 3: Friday 5 September 2008: AM

Room Ypsilon 2
page 55

**Crack Propagation:
Modelling**
CST.241-245

**Microstructures:
Analysis & Modelling**
CST.250-251

—

**Wave Propagation
Problems**
CST.206

**Contact-Impact
Problems**
CST.208-211

Room Ypsilon 3
page 56

Numerical Methods
ECT.137

**Numerical &
Computational
Linear Algebra**
ECT.69-70

—

**Numerical &
Computational
Linear Algebra**
ECT.71-76

Room Omega
page 57

Composite Structures
CST.295-300,304

Overview: Day 3: Friday 5 September 2008: PM

Room Ypsilon 2
page 62

**Computer Aided
Engineering**
ECT.147-151

Computer Vision
ECT.152-153

Room Ypsilon 3
page 63

**Geotechnical
Engineering: Seepage,
Groundwater &
Watershed Problems**
ECT.183-186

**Geotechnical
Engineering:
Foundations**
ECT.188-189,191

Overview: Day 3: Friday 5 September 2008: AM

Room Lambda
page 58

Timber Structures
CST.246-249

Space Structures
CST.266-267

—

**Cable-Net, Cable &
Tension Structures**
CST.268-274

Day 1: Wednesday 3 September 2008: AM
Room Omikron I

09.00-10.30: Chaired by: M. Papadrakakis

ELE.11 Multiscale Assessment of Low-Temperature Performance of Flexible Pavements
E. Aigner, R. Lackner, M. Wistuba, J. Eberhardsteiner and H.A. Mang

ELE.10 A Multi-Scale Formulation of Gradient Elasticity and Its Finite Element Implementation
H. Askes, T. Bennett, I.M. Gitman and E.C. Aifantis

ELE.8 Computational Modelling of Reactive Porous Media in Hydrometallurgy
C.R. Bennett, D. McBride, M. Cross, T.N. Croft and J.E. Gebhardt

10.30-11.00: Coffee

11.00-12.30: Chaired by: M. Cross

ELE.7 Optimization Techniques in Human Movement Analysis
A. Eriksson

ELE.5 Finite Element Modelling of Two- and Three-Dimensional Viscoelastic Polymer Flows
R. Tenchev, O. Harlen, P.K. Jimack and M.A. Walkley

ELE.4 Rheology and Simulation of Fresh Concrete Flow
B. Patzák and Z. Bittnar

**Day 1: Wednesday 3 September 2008: AM
Room Omikron II**

9.30-10.30: Chaired by: R.V.N. Melnik and N. Hu

ELE.14 Continuum and Atomic-Scale Modeling of Self-Positioning Microstructures and Nanostructures
G.P. Nikishkov and Y. Nishidate

NANO-MECHANICS

ECT.138 Modelling of Nanocrack Evolution in Body-Centred-Cubic Iron
D.B. Wei and Z.Y. Jiang

ECT.139 Phase Transformations in Finite Length Nanowires: Analysis with Mesoscopic Models
L.X. Wang and R.V.N. Melnik

10.30-11.00: Coffee

11.00-12.30: Chaired by: G.P. Nikishkov and N. Hu

ECT.140 Temperature-Dependent Phase Stability of CdS Quantum Dots from First-Principle Molecular Dynamic Calculations
B. Wen and R.V.N. Melnik

ECT.141 Modelling Nanoindentation of Cement Pastes
J. Nemecek and P. Kabele

ECT.142 Accessing Mechanical Properties of Engineering Materials via Virtual Nanoindentation
V. Gountsidou and H.M. Polatoglou

ECT.143 Modelling Nonlinear Electro-Mechanical Effects in Nano-Heterostructures Using Domain-Decomposition Methods
L.X. Wang, M. Willatzen and R.V.N. Melnik

ECT.144 Numerical Modelling of Electrical Conductivity and Piezoelectricity of Carbon Nanotube Polymer Composites
N. Hu, Y. Karube and H. Fukunaga

COMPUTATIONAL MODELLING, ANALYSIS AND SIMULATION

ECT.118 Quasi-Static and Dynamic Analysis of Delamination Growth Using New Interfacial Decohesion Elements, A. Elmarakbi, N. Hu and H. Fukunaga

Day 1: Wednesday 3 September 2008: AM
Room Ypsilon 1

09.00-10.30: Chaired by: J. Sarrate Ramos and J.M. Escobar Sánchez

- ELE.12 Advances in the Meccano Technique for Adaptive Tetrahedral Mesh Generation
R. Montenegro, J.M. Cascón, E. Rodríguez, G. Cascón and J.M. Escobar

MESH GENERATION AND ADAPTION

Session organised by J. Sarrate Ramos and J.M. Escobar Sánchez

- ECT.51 Alignment of Surface Triangulations for Approximating Interior Curves
J.M. Escobar, E. Rodríguez, R. Montenegro and G. Montero
- ECT.52 Automatic Generation of Structured Hexahedral Meshes for Non-Simply Connected Geometries Using Submapping, J. Sarrate and E. Ruiz-Gironés
- ECT.53 Discretization of Multi-Phase Microstructures Using Recursive Subdivision and the Advancing Front Technique, D. Ryppl and Z. Bittnar
- ECT.54 Studying the Quality Measures for Finite Element Meshes with Triangular Elements, J. Radó, F. Hartung and P. Iványi

10.30-11.00: Coffee

11.00-12.30: Chaired by: T.J.R. Hughes

- CLE.7 Strength of Textile Composites in Multiscale Simulation
R. Rolfes, M. Vogler, G. Ernst and C. Hühne
- CLE.9 A Finite Curved-Beam Element for Thermoelastic Buckling Analysis of Elastically Supported Arches
M.A. Bradford and Y.-L. Pi
- CLE.10 Analysis of the Stress Distribution in Adhesive Joints and Optimisation of the Design of Hybrid Bonded Assemblies
J.Y. Cognard, R. Créac'hacdec and L. Sohier

09.45-10.30: Chaired by: Y. Sheng and C. Pearce

MULTI-SCALE NUMERICAL MODELING OF ENGINEERING STRUCTURES

Session organised by J.Q. Ye and Y. Sheng

- CST.16 Three-Dimensional Coupled Discrete Element - Finite Element Model: Parameter Identification and Coupling with Shells
J. Rousseau, E. Frangin, P. Marin, L. Daudeville and S. Potapov
- CST.17 Distinct Element Modelling of Masonry Wall Panels with Openings
V. Sarhosis, S.W. Garrity and Y. Sheng
- CST.18 A Numerical Study of the Elastic Behaviors of Carbon-Epoxy Lamina under Uni-Axial Compression Using the Discrete Element Method
D.M. Yang, Y.Q. Tan, J.Q. Ye and Y. Sheng

10.30-11.00: Coffee

11.00-12.30: Chaired by: J. Brozovský and R.C. Barros

MASONRY STRUCTURES

- CST.235 Analysis of Homogenized Structural Models with Input Uncertainties
A. Materna, L. Kalocova, L. Lausova and J. Brozovský
- CST.236 Seismic Behaviour of an Unreinforced Masonry Building with Various Floor Systems, M.E. Stavroulaki and Ch.K. Amanatidou
- CST.237 Static Analysis of Masonry Structures Based on Chen Criteria
J. Brozovský and O. Sucharda
- CST.238 Modelling the Seismic Behaviour of a Historical Masonry Building with Internal Wooden Structure, A.J. Morais and J.V. Lemos
- CST.239 Masonry Bridge Finite Element Modelling Based on Digital Photogrammetry and Ground Penetrating Radar Tests
I. Lubowiecka, J. Armesto, F.I. Rial and P. Arias
- CST.240 Stability of Double-Hinged Nonlinear Masonry Members under Combined Load, I. Mura

Day 1: Wednesday 3 September 2008: AM
Room Ypsilon 3

09.00-10.30: Chaired by: C.A. Papadopoulos and Z.Q. Lang

DAMAGE IDENTIFICATION

Session organised by C.A. Papadopoulos

- CST.113 A Coherence Analysis Based Approach for Locating Nonlinear Components in Multi-Degree of Freedom Systems, Z.Q. Lang and Z.K. Peng
- CST.114 Damage Identification Using Uniform Random Load Surface Spectral Strain Energy, W.L. Bayissa and N. Haritos
- CST.115 Damping Associated with Porosity in Porous Rectangular Plates
K.M. Stamatopoulos, I.T. Chondrou and S.D. Panteliou
- CST.116 Inverse Problem Sensitivity to System Uncertainties for Damage Detection in Piezoelectrics, G. Rus, R. Palma, R. Gallego and J.L. Pérez-Aparicio
- CST.117 Damage Analysis of Metallic Open-Lattice Cellular Cores Under Static and Dynamic Loading, G.N. Labeas, M.M. Sunaric and V.P. Ptochos
- CST.118 Fault Diagnosis of Journal Bearings Based on Artificial Neural Networks and Measurements of Bearing Performance Characteristics
K.M. Saridakis, P.G. Nikolakopoulos, C.A. Papadopoulos and A.J. Dentsoras

10.30-11.00: Coffee

11.00-12.30: Chaired by: C.A. Papadopoulos and T.G. Chondros

- CST.119 Applying External Excitation to a Rotor for Wear Identification of the Non-Linear Fluid-Film Bearings
P.G. Nikolakopoulos, A.C. Chasalevris and C.A. Papadopoulos
- CST.120 Wear Identification in Rotor-Bearing Systems by Volumetric and Bearing Performance Characteristics Measurements
K.P. Gertzos, P.G. Nikolakopoulos, A.C. Chasalevris and C.A. Papadopoulos
- CST.121 Cracked and Unbalanced Rotating Shaft Behaviour During Start Up: Analyzing the Response by Conventional Fourier Transform and Wavelets
J.C. Gómez-Mancilla and J.A. Meda-Campaña
- CST.122 Crack Identification Using External Excitation and Coupled Response of a Continuously Modeled Rotor with Internal Damping, Mounted on Nonlinear Fluid Film Bearings, A.C. Chasalevris and C.A. Papadopoulos
- CST.123 Non-Linear Vibration Technique for Crack Detection in Beam Structures Using Frequency Mixing
K. Zacharias, E. Douka, L.J. Hadjileontiadis and A. Trochidis
- CST.124 Crack Identification in Vibrating Beams and Fracture Mechanics Applications
T.G. Chondros

Day 1: Wednesday 3 September 2008: AM
Room Omega

09.15-10.30: Chaired by: E. Douka and A. Eriksson

NEW METHODS OF CHARACTERISATION OF BONE QUALITY

Session organised by L. Hadjileontiadis

- ECT.55 Microdamage Evaluation in Human Trabecular Bone Using Non-Linear Ultrasound, K. Zacharias, E. Balabanidou, I. Hatzokos, L.J. Hadjileontiadis, E. Douka, I. Rekanos and A. Trochidis
- ECT.56 A Dual Energy X-ray Absorptiometry Validation of a Bone Remodelling Model for the Assessment of Osteoporotic Bone Quality
L. Santos, P.G. Coelho, J.E. Fonseca, H.C. Rodrigues and P.R. Fernandes
- ECT.57 Stress Distribution in the Mandible influenced by Nobel Biocare, 3i and Neoss Implant Thread Designs
H. Guan, R. van Staden, Y.C. Loo, N.W. Johnson and N. Meredith
- ECT.58 Microstructural Finite Element Models for the Assessment of Overall Mechanical Properties of Trabecular Bone, O. Jirousek and J. Nemecek
- ECT.59 The Influence of the Pelvic Bone on the Acetabular Component Analysis
S. Barreto, J. Folgado, J. Monteiro and P.R. Fernandes

10.30-11.00: Coffee

11.00-11.45: Chaired by: R.I. Mackie and J. Duane

BIOMEDICAL ENGINEERING

- ECT.156 An Engineered System of Care: Development of the Body Mass Distribution Index, J. Duane
- ECT.157 An Engineered System of Care: Body Mass Index and Body Mass Distribution Index Changes with Scaled Activity Plan
J. DeGroat, J. Duane, J. Moeller and W. Conway

DATA COLLECTION

- ECT.154 Mobile Measurement of Rut Depth Using Close Range Photogrammetry
M.A. Saif and A.M. Ibrahim

Day 1: Wednesday 3 September 2008: AM
Room Lambda

09.00-10.30: Chaired by: P.K. Jimack and A.K. Slone

ELECTRODYNAMIC PROBLEMS

ECT.125 Order Reduction of Linear Time-Invariant Finite Integration Technique
Discretized Structures with Length and Frequency Parameterization
K.S. Stavrakakis, T. Wittig, W. Ackermann and T. Weiland

MODELLING MULTI-PHYSICS PROBLEMS

ECT.111 Prediction of the Thermal Spalling Risk of Concrete Structures During Fire
by Means of a Finite Element Model
F. Pesavento, B.A. Schrefler, D. Gawin and J. Principe

COUPLED PROBLEMS

ECT.112 Aeroelastic Tailoring of a Formula One Car Rear Wing
G.A.A. Thuwis, R. De Breuker and M.M. Abdalla

MULTI-GRID METHODS

ECT.114 A Local Adaptive Grid Refinement Strategy for Block-Structured
Finite-Volume Solvers, F. Gauß and M. Schäfer

CELLULAR AUTOMATA

ECT.155 Heat Conduction Analysis Using Cellular Automata
W.F. Yuan and K.H. Tan

FINITE ELEMENT SOLVER TECHNOLOGY

ECT.132 Coarsening Finite Element Meshes for a Multifrontal Solver
M.E. Guney and K. Will

10.30-11.00: Coffee

11.00-12.30: Chaired by: S. De and L. Damkilde

THE EXTENDED FINITE ELEMENT METHOD

ECT.126 The Extended Finite Element Method: A Review
L. Cahill, C. McCarthy and S. Bordas

MESHLESS METHODS

ECT.127 Calculation of Elastic Stresses and Strains inside a Medium with Multiple
Isolated Inclusions, J. Novák

ECT.128 Differential Reproducing Kernel Particle Methods
Y.M. Wang, C.P. Wu, P.W. Chen and K.H. Chiu

FINITE ELEMENT METHODS

CST.134 A New Triangular Flat Shell Element with Drilling Rotations
L. Damkilde

CST.135 The Wavelet-Based Theory of Spatial Naturally Curved and Twisted Linear
Beams, E. Zupan, D. Zupan and M. Saje

FINITE ELEMENTS: PLASTICITY

CST.136 Strict Bounds for Quantities of Interest for Plasticity Problems
M. Wynant, P. Ladevèze and E. Florentin

Day 1: Wednesday 3 September 2008: AM
Room VIP Lounge

09.00-10.30: Chaired by: N.F. Pan and W.C. Wang

DECISION MAKING IN ENGINEERING MANAGEMENT

Session organised by N.F. Pan

- ECT.25 A Construction Influence Information Management System for Coastal Engineering, Y.C. Shiau, C.T. Lian, D.H. Chu and D.J. Chu
- ECT.26 A Study for the Establishment of a Knowledge Base for Innovative Building Materials, Y.C. Shiau, L.T. Lu, C.C. Ko and S.C. Yang
- ECT.27 A Development Planner for Resort Investment
R.J. Dzung, N.F. Pan and H.Y. Lee
- ECT.28 On Landslides of the Shihmen Reservoir Watershed and the Development of its Management System, Y.C. Shiau, C.S. Huang, C.A. Lin and D.J. Chu
- ECT.29 Factors Affecting Engineering Decision Making in the International Environment, N.S. Al-Kaabi
- ECT.30 The “Qualified Lowest Bid” Award Mechanism in the Electronic Tendering Age, R.Y. Huang

10.30-11.00: Coffee

11.00-12.30: Chaired by: N.F. Pan and W.D. Yu

- ECT.31 Construction Technological Strategy Planning Based on Patent Analysis
W.D. Yu, S.S. Lo and T.M. Cheng
- ECT.32 Evaluating the Effect of Multiple Factors on Unit Prices for Supporting Bid Price Decisions, W.C. Wang, C.H. Hsu, S.S. Wang and C.C. Lin
- ECT.33 Analysis of Maintenance Cost for Large Hospital Buildings in Taiwan
S.J. Guo and T.P. Lo
- ECT.34 Knowledge Value Adding Model for Quantitative Performance Evaluation of the Community of Practice in a Consulting Firm
W.D. Yu, H.H. Yao, S.J. Liu and P.L. Chang
- ECT.35 Mining Association Rules in a Bridge Deterioration Database
N.F. Pan, R.J. Dzung and H.H. Chang
- ECT.36 Estimating Bridge Performance Using Time Series Analysis
N.F. Pan, H.H. Chang and T.C. Lin

**Day 1: Wednesday 3 September 2008: AM
Room Delta**

09.30-10.30: Chaired by: J.R. Arruda and U. Lee

**SPECTRAL AND WAVE ELEMENT METHODS FOR STRUCTURAL
RESPONSE PREDICTION AND DAMAGE DETECTION**

Session organised by J.R. Arruda

- CST.46 On the Forced Response of Multi-Layered Systems Using the Modified Wave Finite Element Method, J.-M. Mencik
- CST.43 Spectral Element Modeling for the Dynamics of Flexible Rotor Systems
J. Lee and U. Lee
- CST.44 Wave Finite Element Method for Modelling of Constrained Layer Damping Treatment in Laminated Plates, E. Manconi and B.R. Mace
- CST.40 Modelling Wave Propagation in Laminated Composite Structures
G. Inqui  t  , P. Saad, B. Petitjean, B. Troclet, M.N. Ichchou and L. Jezequel

10.30-11.00: Coffee

11.00-12.30: Chaired by: J.R. Arruda and R.A. Tenenbaum

- CST.45 A Wave Based Prediction Technique for the Dynamic Response Analysis of Plates with Random Point Mass Distributions
K. Vergote, B. Van Genechten, B. Pluymers, D. Vandepitte and W. Desmet
- CST.41 Building Spectral Elements from Finite Element Models of Waveguide Slices
J.R.F. Arruda and R.F. Nascimento
- CST.37 Models of Space Energetics of Coupled Plates for High Frequency Vibrations
V.S. Pereira and J.M.C. Dos Santos
- CST.38 Vibration and Wave Propagation Approaches Applied to Assess Damage Influence on the Behavior of Euler-Bernoulli Beams: Part I Direct Problem
K.M. Fernandes, L.T. Stutz, R.A. Tenenbaum and A.J. Silva Neto
- CST.39 Vibration and Wave Propagation Approaches Applied to Assess Damage Influence on the Behavior of Euler-Bernoulli Beams: Part II Inverse Problem
K.M. Fernandes, L.T. Stutz, R.A. Tenenbaum and A.J. Silva Neto
- CST.42 Dynamic Stiffness Matrix of an Axisymmetric Shell and Distributed Loads
M.A. Khadimallah, J.B. Casimir, M. Chafra and H. Smaoui

Day 1: Wednesday 3 September 2008: PM
Room Omikron I

14.00-15.45: M. Amabili, R.C. Barros and I. Doltsinis

ELE.15 Thermomechanical Deformation Processes of Rate Sensitive Solids: Material Issues and Stability
I. Doltsinis

CLE.13 Non-Linear Vibrations of Shells
M. Amabili

NON-LINEAR DYNAMICS

Session organised by M. Amabili

CST.131 Nonlinear Vibrations of Plates with Fluid-Structure Interaction
M. Amabili and S. Carra

CST.132 The Dynamic Analysis of Beams Subjected to Large Amplitude Transverse Vibrations, F.Q. Melo, R. Valente and R.C. Barros

CST.133 Nonlinear Stability of Shells Conveying Fluid Flow
M. Amabili, K. Karagiozis and M.P. Païdoussis

15.45-16.15: Coffee

16.15-18.00: Chaired by: M.Y. Hussaini and S.V. Poroseva

QUANTIFICATION OF UNCERTAINTY IN SIMULATIONS

Session organised by M.Y. Hussaini and S.V. Poroseva

ECT.11 Assessment of Imprecise Probability Using Efficient Probabilistic Re-Analysis, F. Farizal and E. Nikolaidis

ECT.12 Deterministic Propagation of Model Parameter Uncertainties in Compressible Navier-Stokes Calculations, T.J. Barth

ECT.13 A Multimodel Approach Based on Evidence Theory for Reducing Uncertainty in Simulations, S.V. Poroseva

ECT.14 Quantification of Uncertainty Associated with Low-Fidelity Simulations
G. Klopfer, M.Y. Hussaini, P. Ngnepieba and A. Zatezalo

ECT.15 Uncertainty Quantification with Adaptive Mesh Refinement in a Chemical System, L. Mathelin and O.P. Le Maître

ECT.16 Unsteady Adaptive Stochastic Finite Elements for Quantification of Uncertainty in Time-Dependent Simulations
J.A.S. Witteveen and H. Bijl

ECT.17 Multirate Sampled Data System Robustness: Frequency Analysis
J. Salt, P. Albertos, C. Camiña and J. Sandoval

14.00-15.30: Chaired by: A.Y.T. Leung and C.M. Mota Soares

**MODELING AND SIMULATION OF
COMPOSITE AND ADAPTIVE STRUCTURES**

Session organised by C.M. Mota Soares

- CLE.1 Structural Damage Identification: A Survey
J.V. Araújo dos Santos, N.M.M. Maia, C.M. Mota Soares and
C.A. Mota Soares
- CST.1 The Finite Spectral method for Composite Structures
A.Y.T. Leung
- CST.2 Development of Latticed Towers Using Advanced Composite Materials
A. Ochonski, D.J. Polyzois and I.G. Raftoyiannis
- CST.5 A Layerwise Mixed Least-Squares Finite Element Model for Static Analysis
of Multilayered Composite Plates
F. Moleiro, C.M. Mota Soares, C.A. Mota Soares and J.N. Reddy
- CST.10 Effect of the Failure Criterion on the Minimum Weight of Laminated Com
posites, R.H. Lopez, M.A. Luersen and E.S. Cursi

15.30-16.00: Coffee

16.00-18.00: C.M. Mota Soares and A.Y.T. Leung

- CST.3 Simulation of Fluid-Structure Interaction Phenomena of a Composite Rocket
Nozzle, J.F.P. Pitot de la Beaujardiere, E.V. Morozov and G. Bright
- CST.4 Damping Optimisation of Sandwich Composite Structures
A.L. Araújo, P. Martins, C.M. Mota Soares and C.A. Mota Soares
- CST.6 Optimisation of Composite Adaptive Response with Experimental Validation
N.L. Mulcahy, G. Prusty and C.P. Gardiner
- CST.7 Buckling of Ageing Elastic and Viscoelastic Beam-Columns of Composite
Material, B.F. Oliveira and G.J. Creus
- CST.8 Adaptive Methods for Analysis of Composite Beams and Plates with Radial
Basis Functions, A.M.A. Neves, A.R.H. Heryudono, T.A. Driscoll,
A.J.M. Ferreira and C.M.M. Soares
- CST.9 Analysis of Laminated Plates with Third Order Plate Theory and with the
Natural Neighbour Radial Point Interpolation Method
L.M.J.S. Dinis, R.M. Natal Jorge and J. Belinha
- CST.11 Active-Passive Damping Treatment for Elastoacoustic Problems
J.F. Deü, W. Larbi and R. Ohayon
- CST.12 Environmental Effects on the Mechanical Properties of a Graphite Plate as
Related to Applications in a Fuel Cell
B. Kim, Y.H. Lee, Y.M. Kim, H.S. Lee, S.M. Yang and S.H. Ahn

Day 1: Wednesday 3 September 2008: PM
Room Ypsilon 1

14.00-15.30: Chaired by: B. Patzak and D. Rypł

MATERIALS MODELLING: CONCRETE

- CST.259 Micromechanical Modelling and Optimisation on Cement Paste Performance
V. Smilauer, Z. Vittingerová and M. Leps
- CST.260 Two Scale Modelling of Internally Cured Concrete by Means of Porous
Media Mechanics, D. Gawin, M. Wyrzykowski and F. Pesavento
- CST.261 Numerical Simulation of Textile Reinforced Concrete Using a Microplane-
Type Model with Initial Anisotropy, A. Scholzen, R. Chudoba and J. Hegger
- CST.262 A Comparison of Computational Strategies for Two-Dimensional Analysis of
Concrete Specimens, P. Konečný, M. Mynarz and J. Brozovský
- CST.263 Modelling the Effect of Chloride Binding on Chloride Diffusion in Concrete
Structures, A.H. Al-Gadhib, I.A. Mahmoud, M.A. Shazali and M.H. Baluch
- CST.264 Confluence of Chloride Diffusivity Influence Functions in Unsaturated
Concrete, M.A. Shazali, A.H. Al-Gadhib, M.K. Rahman and M.H. Baluch

15.30-16.00: Coffee

16.00-18.00: Chaired by: A. Elhami and K. Ikeda

**PROBABILISTIC APPROACHES AND OPTIMISATION FOR STRUCTURAL
MECHANICS**

Session organised by A. Elhami and M. Karama

- CST.105 Topology Optimization Based on the Level-Set Method for Passive Damping
of Structures, S. Bouzidi, M.L. Bouazizi, M. Guedri and N. Bouhaddi
- CST.106 Towards Efficient Reliability Methods with Applications to Industrial
Problems, I. Papaioannou, H. Heidkamp, A. Düster, E. Rank and C. Katz
- CST.107 Reliability Based Design Optimisation of Laminated Composite Plates
R.H. Lopez, J.E. Rojas, E.S. Cursi and A. El Hami
- CST.108 A Hybrid Method for Reliability and Redundancy Allocation in a Complex
System, W. Elalem, A. El Hami, R. Ellaia and M. Souissi
- CST.110 Structural Optimization Using a Stochastic Method
W. Elalem, A. El Hami and R. Ellaia
- CST.109 Probabilistic Analysis of Buckling Loads of Bridges
K. Ikeda
- CST.111 Acceleration-Based Optimum Design of Offshore Platforms Subjected to Ice
Loading, G. Li, X. Liu and G.D. Cheng
- CST.112 Convergence Control of Structural Optimization and Reliability Analysis
Algorithms Based on Chaos Theory
D.X. Yang and G.D. Cheng

Day 1: Wednesday 3 September 2008: PM
Room Ypsilon 2

14.00-15.30: Chaired by: M. Matos Neves and J.P. Arenas

**STRUCTURAL ANALYSIS AND OPTIMIZATION IN
ACOUSTICS AND VIBRATIONS**

Session organised by M. Matos Neves and J.F. Aguilar Madeira

Applications

- CST.99 Analysis and Optimization of Acoustic Transmission Loss of Double Glazing Windows on a Maglev Transrapid Vehicle, W.K. Jiang, Q.G. Liu and Q. Wan
- CST.100 Modal Identification and Vibration Analyses for Noise Reduction in the CUORE Cryogenic Experiment
R. Ardito, C. Brofferio, C. Gargiulo and S. Morganti
- CST.101 Monitoring Pumping Systems Using Vibration Signal Analysis, S. Al-hashmi
- CST.102 Dynamic Properties of a Tooling Structure: Hydraulic Clamping versus Standard Screw Clamping in a Lathe Application
H. Åkesson, T. Smirnova, L. Håkansson, I. Claesson and T. Lagö
- CST.103 The Wake Influence on the Vibration Behaviour of a Ship Structure
L. Moraru, I. Bosoanca and R. Pirvulescu
- CST.104 Thermal Vibrational Convection and Applications
V.A. Demin, I.A. Babushkin and A.F. Glukhov

15.30-16.00: Coffee

16.00-18.15: J.S. Jensen and J.F. Aguilar Madeira

Design Optimization

- CST.72 Time-Space Topology Optimization, J.S. Jensen
- CST.73 Plate Eigenfrequency Optimization with Genetic Algorithms and Random Keys, J.F. Aguilar Madeira, H.L. Pina and H.C. Rodrigues
- CST.74 Attenuation of the Flow Induced Vibration of a Plate by Topology Optimization of the Properties of the Supports, F.J.P. Lau and A.A. Gomes
- CST.75 Transient Topology Optimization of Two-Dimensional Elastic Wave Propagation, R. Matzen, J.S. Jensen and O. Sigmund
- CST.76 Detection of an Inclusion in a Membrane Using a Genetic Algorithm
D. Rabinovich, D. Givoli and S. Vigdergauz
- CST.77 Design of New Materials for Passive Vibration Control
T. Lopes, Z. Dimitrovová, L. Faria and H.C. Rodrigues
- CST.78 Optimization of H infinity Controller with Preview for Semi-active Magnetorheological Suspension Systems
R.S. Prabakar, S. Narayanan and C. Sujatha
- CST.79 On the Optimal Block Length of a Frequency Domain Adaptive Algorithm for an Active Noise Control System Using a Simultaneous Equations Method
K. Fujii, Y. Iwamatsu, T. Ujino and M. Muneyasu
- CST.80 Optimal Acoustic Design of Floors Subjected to Impact Forces
A. Neves e Sousa

14.00-15.30: Chaired by: F.G. Rammerstorfer and M. Cuomo

COMPOSITES: DAMAGE MODELLING

- CST.305 A Three-Dimensional Damage Model for Composites with Non-linear Shear Behaviour, C.T. McCarthy and R. O'Higgins
CST.306 A Stochastic Approach to the Damage Resistance Analysis of Stiffened Composite Panels, C. Sellitto, A. Riccio and D. Tescione
CST.307 A Novel Directional Damage Model for Composites
J.L. Curiel Sosa

COMPOSITE STRUCTURES

- CST.301 Vibration of an Axisymmetric Laminated Cylinder
P.P. Prochazka, A.E. Yiakoumi and S. Peskova
CST.302 The Effect of Shear Connectors on the Behaviour of Steel Concrete Composite Beams, Y.A. Daou and O.M. Baalbaki
CST.303 Numerical Modelling of Shear Connections for Composite Slabs
N. Seres, A.L. Joó and L. Dunai

15.30-16.00: Coffee

16.00-17.45: Chaired by: F. Lebon and M. Buonsanti

ADVANCES IN MODELLING AND COMPUTATION OF INTERFACES

Session organised by F. Lebon

- ECT.18 Modelling of the Energy Dissipation Generated by Friction in Granular Flow Using the Discrete Element Method
V.D. Nguyen, J. Fortin, M. Guessasma, E. Bellenger and P. Coorevits
ECT.19 Stabilized Finite Elements for Elastohydrodynamic Lubrication Problems
W. Habchi, D. Eyheramendy, P. Vergne and G. Morales-Espejel
ECT.20 The Smoothed Extended Finite Element Method
S. Natarajan, S. Bordas, Q.D. Minh, H.X. Nguyen, T. Rabczuk, L. Cahill and C. McCarthy
ECT.21 Microstructure Interaction in Biological Tissue
M. Buonsanti and A. Pontari
ECT.22 Homogenization Methods for Interface Modelling in Damaged Masonry
A. Rezik and F. Lebon
ECT.23 External Fluid Pressure Effects on the Contact Conditions of a Mechanical Seal, H. Kawashima
ECT.24 The Element Embedded Interfaces Approach for Modelling Damaged Interfaces, M. Cuomo and L. Contrafatto

14.15-15.30: Chaired by: O.S. Hopperstad and B. Stok

CONSTITUTIVE MODELLING

CST.256 A New Efficient Explicit Numerical Integration of Constitutive Equations:
Application to Sheet Metal Forming Simulations
M. Halilovic, M. Vrh and B. Stok

NUMERICAL DESIGN OF PROTECTIVE STRUCTURES

Session organised by N. Gebbeken

CST.19 Architectural Concepts to Reduce the Effects of Explosions
N. Gebbeken and T. Döge

CST.20 Ballistic Resistance of Double-Layered Metal Plates
T. Børvik, S. Dey, O.S. Hopperstad, T. Wierzbicki and X. Teng

CST.21 Numerical Safety Assessment of a Transport and Storage Cask for
Radioactive Materials without Impact Limiters by the 0.3m Drop Test onto an
Unyielding Target, L. Qiao, U. Zencker, G. Wieser and H. Völzke

CST.22 Simulation of the Crushing of Wood Filled Impact Limiters for Packages of
Radioactive Material, M. Neumann and F. Wille

15.30-16.00: Coffee

16.00-18.00: Chaired by: G. Muscolino and Y.W. Kwon

DAMAGE AND IDENTIFICATION PROBLEMS

CST.151 An Approach to Automated Modal Parameter Identification for Structural
Health Monitoring Applications, C. Rainieri, G. Fabbrocino and E. Cosenza

CST.152 Finite Element Analysis of Periodic Structures and their Application for
Structural Health Monitoring, W.J. Zhou and M.N. Ichchou

CST.153 Anisotropic and Unilateral Damage: Application to Concrete
O. Bélaidi Chabane Chaouche, Y. Labadi and N.E. Hannachi

CST.154 Inference Models for Structural Systems Integrity Monitoring: Neural
Networks and Bayesian Enhancements, S. Arangio

CST.155 A Method for the Deterministic and Stochastic Time Domain Identification of
Structures, P. Cacciola, N. Maugeri and G. Muscolino

CST.156 Modal Material Identification Method Using a Dissipative Finite Element
Model, M. Matter, Th. Gmür, J. Cugnoni and A. Schorderet

CST.157 An Anisotropic Damage Model for Concrete in Coupled Problems
T. Koudelka and T. Krejci

CST.158 Structural Analysis of Corroded Pipelines Containing Complex Defects
R.D. Machado, J.E. Abdalla Filho and H.Y. Shang

Day 1: Wednesday 3 September 2008: PM
Room Lambda

14.15-15.30: Chaired by: M. Domaszewski and D. Chamoret

**EVOLUTIONARY AND NON-DETERMINISTIC METHODS IN
STRUCTURAL OPTIMIZATION**

Session organised by M. Domaszewski

- CST.47 Evolutionary Computation Based Optimum Design for Non-Linear Elastic Steel Frames, G. Sánchez and P. Martí
- CST.48 Optimum Design of Unbraced Steel Frames to the LRFD-AISC Code Using Particle Swarm Optimization, E. Dogan and M.P. Saka
- CST.49 An Evolutionary Approach for the Topology Synthesis of Compliant Mechanisms, E. Veguería, O. Oyarzabal, R. Ansola, J. Santamaría, A. Maturana, E. García and J. Canales
- CST.50 A Harmony Search Algorithm for Optimum Topology Design of Single Layer Lamella Domes, S. Carbas and M.P. Saka
- CST.51 Optimization of Truss and Grillage Structures by a Non-Deterministic Method, D. Chamoret, K. Qiu, N. Labeled and M. Domaszewski

15.30-16.00: Coffee

16.00-18.00: Chaired by: G. Venter and J. Sienz

STRUCTURAL OPTIMIZATION

- CST.170 Response Surface Based Structural Optimization with Single-Cut Strategy for Fuzzy Limit Problems, C.J. Shih and H.W. Lee
- CST.171 Optimisation of the Computational Dimensioning Process with Consideration of Manufacturing Aspects, K. Thielemann

SHAPE AND TOPOLOGY OPTIMIZATION

- CST.172 Shape and Size Optimisation of Concrete Shells Respecting the Original Design Form, A. Tomás and P. Martí
- CST.173 Numerical Design Optimisation for the Karoo Array Telescope
N.J.D. Joubert and G. Venter
- CST.174 Topology Optimization of Trusses Modeled Similar to Truss-like Structures
V. Pomezanski
- CST.175 Three-Dimensional Structural Shape Optimisation Incorporating Surface Point Mapping, G. Baylor and D. Kelliher
- CST.176 Topology Optimization Using the Optimality Criterion Method
M.A. Hendel and K.Z. Truman
- CST.177 Optimization of Contact Problems Using a Topology Derivative Method
A. Myslinski

Day 1: Wednesday 3 September 2008: PM
Room VIP Lounge

13.45-15.30: Chaired by: W.B. Kraetzig and A. Tessler

PLATE PROBLEMS

- CST.148 Elasto-Plastic Post-Buckling Strength of Uniformly Compressed Plates
M. Rosmanit
- CST.149 A Refined Five-Node Transition Plate Bending Element Based on Kirchhoff
Plate Theory, H. Gedikli and H. Sofuoglu
- CST.150 On the Spurious Mechanisms of an Eight-Node Mindlin Plate Finite Element
Model, J.E. Abdalla Filho, I.M. Belo and R.D. Machado

SHELL STRUCTURES

- CST.231 An Application of Probabilistic Methods for Estimation of Optimal Factors of
Building Structures Found by Empirical Methods, M.A. Danieli
- CST.232 A Study of the Effect of Three-Dimensional Imperfections on the Nonlinear
Behaviour of Hyperboloid Reinforced Concrete Cooling Towers, A. Mutoh
- CST.233 Buckling Analysis of Shells of Revolution Under Bending Loads
P. Jasion and K. Magnucki
- CST.234 Safety of Storm-Stressed Thin Reinforced Concrete Shells in Power
Industries, W.B. Krätzig, M. Graffmann, R. Harte and U. Montag

15.30-16.00: Coffee

16.00-18.15: Chaired by: T. Kant and A.V. Singh

MECHANICS OF COMPOSITES, FUNCTIONALLY GRADED AND PIEZO-ELECTRIC MATERIALS

Session organised by T. Kant

- CST.28 Axisymmetric Bending of Thick Functionally Graded Circular Plates Using
Fourth-Order Shear Deformation Theory, S. Sahraee and A.R. Saidi
- CST.29 On Non-Linear Vibration of Laminated Composite Piezoelectric Plates
M. Tanveer and A.V. Singh
- CST.30 A Shear-Deformation Theory for Composite and Sandwich Plates Using
Improved Zigzag Kinematics, A. Tessler, M. Di Sciuva and M. Gherlone
- CST.31 Electromechanical Response of Piezoelectric, Functionally Graded and
Layered Composite Cylinders, T. Kant and P. Desai
- CST.32 Thermal Buckling Analysis of Thick Functionally Graded Circular Plates
Using Unconstrained Third-Order Shear Deformation Plate Theory
A.R. Saidi and S. Sahraee
- CST.33 Material Forces for Simulation of Brittle Crack Propagation in Functionally
Graded Materials, R. Mahnken
- CST.34 Finite Element Analysis of Crack Initiation in PZT Transducers
J. Novak
- CST.35 Modeling with Uncertainty and Robust Control of Smart Beams
A. Moutsopoulou, A. Pouliezios and G.E. Stavroulakis
- CST.36 Mesh Generation for Cavity Damage Identification in Piezoelectrics
R. Palma, G. Rus, J.L. Pérez-Aparicio and R. Gallego

Day 1: Wednesday 3 September 2008: PM
Room Delta

14.00-15.30: Chaired by: H.B. Coda and E.J. Sapountzakis

BOUNDARY ELEMENT METHODS

- CST.144 Prediction of Low Frequency Sound Transmission by a Vibrating Single Structure, P. Santos and D. Mateus
- CST.145 Nonlinear Elastic Nonuniform Torsion of Bars of Arbitrary Cross Section Using the Boundary Element Method, E.J. Sapountzakis and V.J. Tsipiras
- CST.146 Elastoplastic Boundary Element Method Formulation for Plates with Geometrical Non-Linearity, L. Waidemam, W.S. Venturini and H.B. Coda
- CST.147 A Boundary Element - Differential Equation Method Coupling for Plate-Beam Interaction, J.B. Paiva and A.V. Mendonça
- ECT.135 Analyzing Infinite Three-Dimensional Problems with an Alternative Non-Homogeneous BEM Technique, D.B. Ribeiro and J.B. Paiva
- ECT.136 Evaluation of Singular Integrals in the Two-Dimensional Symmetric Galerkin Boundary Element Method, W.F. Yuan

15.30-16.00: Coffee

16.00-16.45: Chaired by: H.M. Al-humaidi and F.C. Hadipriono

**ANALYSES OF PERFORMANCE AND FAILURES OF
CONSTRUCTED FACILITIES**

Session organised by H.M. Al-humaidi and F.C. Hadipriono

- ECT.60 Bridge Failure Analysis Using Fuzzy Fault Tree Methods
H.M. Al-Humaidi and F. Hadipriono Tan
- ECT.61 Database Design on International Classification of Building Diseases
C.Y. Chang, C.P. Huang and C.Y. Lin
- ECT.62 Construction Project Delay Analysis Using Fuzzy Sets
H.M. Al-Humaidi and F. Hadipriono Tan

16.45-18.15: Chaired by: Q.V. Chen and F.C. Hadipriono

**INFORMATION MODELING AND
TECHNOLOGY APPLICATIONS FOR CONSTRUCTION**

Session organised by Q.V. Chen and F.C. Hadipriono

- ECT.63 A Decision Support System for Planning Highway Life Cycle Investments
A.P. Chassiakos, D.D. Theodorakopoulos and E. Kokoli
- ECT.64 Physical Interface Object Modelling in Construction
Q. Chen and G. Reichard
- ECT.65 Measuring the Impact Cost of Work Disruption
W. Lo, Y.T. Chen and W.S. Lin
- ECT.66 Cost Optimization of Projects with Repetitive Activities Using Genetic Algorithms, E. Elbeltagi and E.M. ElKassas
- ECT.67 An Evolutionary Algorithm for the Resource Constrained Project Scheduling Problem, J. Magalhães-Mendes
- ECT.68 To Integrate or Not to Integrate: Software for Mobile Computing Devices
Q. Chen and T. Mills

08.45-10.45: Chaired by: H. Bijl and H. Voss

**PARTITIONED METHODS FOR THE COMPUTATION OF
FLUID-STRUCTURE INTERACTIONS**

Session organised by H. Bijl

- ECT.8 Fluid-Structure Interaction Coupling Techniques Based on Sensitivities
J. Degroote, P. Bruggeman, R. Haelterman and J. Vierendeels
- ECT.9 A Modular and Efficient Simulation Environment for Fluid-Structure
Interactions with Large Domain Deformation
M. Mehl, M. Brenk, I.L. Muntean, T. Neckel and T. Weinzierl
- ECT.10 Dynamic Fluid Structure Interaction on Parallel Clusters
A.K. Slone, A.J. Williams, T.N. Croft and M. Cross

FLUID-STRUCTURE INTERACTION

- ECT.106 An Energy Model for Mid-High Frequency Elasto-Acoustic Problems Using
the Finite Element Method,
M. de Rochambeau, M. Ichchou, L. Jezequel and B. Troclet
- ECT.107 Reducing a Rational Eigenproblem in Fluid-Solid Vibration by Automated
Multi-Level Substructuring, H. Voss
- ECT.108 Examples of Problems in Fluid-Structure Interaction Based on the Fluid
Velocity Potential, S.M. Souza, A.N. Barbosa and L.J. Pedroso
- ECT.109 Dynamic Behaviour Analysis of a Cylindrical Rod Bundle Structure by
Considering the Fluid-Structure Interaction
K.H. Yoon, J.Y. Kim, K.H. Lee, Y.H. Lee and H.K. Kim
- ECT.110 A Study of Static and Dynamic Coupling of Structures Through an Acoustic
Medium, A.N. Barbosa and L.J. Pedroso

10.45-11.15: Coffee

11.15-12.15: Chaired by: P. Iványi and M. Malafaya-Baptista

PARTICLE THERMODYNAMICS

- ECT.145 Microscopic Derivation of the Equation of State for Perfect Crystals
V.A. Kuzkin and A.M. Krivtsov

HYSTERESIS COMPUTATIONS

- ECT.146 Magnetic Field Computation with Stress Dependent Hysteresis
A. Sipeky and A. Iványi

MODELLING STEAM AND WATER NETWORKS

- ECT.193 Entropic Flow Patterns and Partially Double Pipe Methodology in Looped
Systems Design, M. Malafaya-Baptista
- ECT.194 Measurement Based Flow Regime and Velocity Profile Calculation of a High
Pressure Steam Network in a Saturated State
L. Szakonyi, P. Iványi and Z. Sari

09.30-10.30: Chaired by: V. Gattulli

CLE.6 Dynamic Analysis of Vehicle-Bridge Interaction Using the Substructure Approach, G. Muscolino and A. Sofi

BRIDGE ENGINEERING

CST.281 Determination of Bridge Natural Frequencies Using a Moving Vehicle Instrumented with Accelerometers and a Geographical Positioning System
A. González, E. Covián and J. Madera

CST.282 The Behaviour of a Long Span Suspension Bridge under the Action of Low Frequency Earthquakes, L. Bahbouh, H. Yamada, H. Katsuchi and E. Sasaki

10.30-11.00: Coffee

11.00-12.30: Chaired by: G. Muscolino

CLE.5 Enhanced Modelling of Cable-Stayed Bridge Dynamics
V. Gattulli

BRIDGE ENGINEERING

CST.283 Dynamic Response of a Multi-Span Continuous Bridge with a Damper Settled on a Bridge Abutment, T. Mazda, H. Miyamoto and Y. Taniguchi

CST.284 The Old Steel Bridge: Dynamic Analysis Utilization for Estimating the Bridge Structure Ultimate Capacity, J. Bencat and D. Papán

CST.285 Improved Modal Pushover Analysis of Multi-Span Continuous Bridges
H.G. Kwak and D.K. Shin

CST.286 Finite Element Analysis of a Composite Steel-Concrete Bridge
T. Chaisomphob, J. Sa-nguanmanasak and E. Yamaguchi

09.15-10.30: Chaired by: J. Murin and E.J. Sapountzakis

MODELLING OF COMPOSITE BEAMS

Session organised by J. Murin

- CST.24 An Effective Multiphysical Functionally Graded Material Beam-Link Finite Element with Transversal Symmetric and Longitudinal Continuous Variation of Material Properties, J. Murín, V. Kutis and M. Masný
- CST.25 Stability of a Composite Beam-Column with Transversal and Longitudinal Variation of Material Properties, V. Kutis and J. Murín
- CST.26 Analytical Calculation of Composite Beams According to Second Order Theory, M. Aminbaghai and R. Binder
- CST.27 The Shear Deformation Effect in the Flexural-Torsional Vibration of Composite Beams Using the Boundary Element Method
E.J. Sapountzakis and J.A. Dourakopoulos
- CST.23 A Geometric Nonlinear Sandwich Composite Bar Finite Element with Transversal and Longitudinal Variation of Material Properties
R. Duris and V. Goga

10.30-11.00: Coffee

11.00-12.30: Chaired by: A.S.K. Kwan and Z. Dimitrova

- CLE.11 On the Large Deformation Finite Element Formulations of Beam Elements
A.A. Shabana, L.G. Maqueda and B.A. Hussein

MULTI-BODY SYSTEMS AND DYNAMICS

- ECT.116 Automatically Generated Parallel Robot System Equations Based on a Hierarchical Software Architecture
M. Rose, S. Algermissen and R. Keimer
- ECT.115 Mathematical Modelling and Simulation of a Washing Machine: A Robotic Approach, M.P. Lazarevic and V. Vasic

COMPUTATIONAL SIMULATION AND OPTIMIZATION

- ECT.123 Simulation and Optimization of a Chain Conveyor
V.S. Siromiatnikov, M.G. Ortega, E. Podzharov, J.M. García and L.A. Zamora
- ECT.124 Optimal Design of Dynamic Vibration Neutralizers on Rotating Systems
C.A. Bavastrri and F.J. Doubrava F.

09.00-10.30: Chaired by: L.M.C. Godinho and J.P. Arenas

**STRUCTURAL ANALYSIS AND OPTIMIZATION IN
ACOUSTICS AND VIBRATIONS**

Session organised by M. Matos Neves and J.F. Aguilar Madeira

Sound Modelling

- CST.81 Simulation of Sound Propagation between Two Closed Spaces Using the Method of Fundamental Solutions,
L.M.C. Godinho, F.G. Branco and P. Amado Mendes
- CST.82 An Adaptive Method for State Estimation of a Sound Environment System with Unknown Structure and Fuzzy Observation, H. Masuike and A. Ikuta
- CST.83 Sound Power Radiated from Rectangular Plates with Unconstrained Damping Layers, J.P. Arenas and K.H. Hornig
- CST.84 Modelling Wave Propagation Problems in Acoustics and Vibrations Using the Boundary Element Method, P. Santos
- CST.85 Modeling of the Human Cochlea using the Finite Element Method
T. Koike, T. Yamamoto, S. Murakami and K. Homma
- CST.86 A Robust Component Mode Synthesis Method for Stochastic Vibroacoustic Problem, Q.H. Tran, M. Ouisse and N. Bouhaddi

10.30-11.00: Coffee

11.00-12.30: Chaired by: M.B. Dühring and M. Matos Neves

Wave Propagation

- CST.87 Modeling a Class of Mechanical Complementary-Slackness Systems
Q. Feng and R.Y. Shen
- CST.88 A Cancellation Method of Background Noise for a Sound Environment System with Unknown Structural Characteristics
A. Ikuta and H. Masuike
- CST.89 Comparison Between Local Wall Impedance and More Refined Poroelastic Models in Vibroacoustics, W. Larbi, J.F. Deü and R. Ohayon
- CST.90 Finite Element Analysis of Surface Acoustic Waves in High Aspect Ratio Electrodes, M.B. Dühring, V. Laude and A. Khelif
- CST.91 Ultrasound Propagation in Asphalt
I. Chilibon and S. Velizar
- CST.92 Multiscale Characterisation of Urban Acoustic Diffusion Processes
P. Woloszyn

09.00-10.30: Chaired by: K. Marti and L.A.C. Neves

CLE.3 Optimization of Life-Cycle Maintenance Strategies under Uncertainties: Role of Inspections
D.M. Frangopol and L.A.C. Neves

CLE.2 Computational Tools for Structural Analysis with Uncertainties: Software Technology and Large-Scale Applications
G.I. Schuëller and M.F. Pellisetti

STOCHASTIC OPTIMIZATION METHODS IN STRUCTURAL ANALYSIS AND OPTIMAL DESIGN

Session organised by K. Marti and G.I. Schuëller

CST.52 Approximative Solutions of Stochastic Control Problems by Means of Convex Approximation, K. Marti

CST.53 Optimal Design of Trusses Considering Uncertainty: A Comparison of Two Approaches, S. Zier

10.30-11.00: Coffee

11.00-12.15: Chaired by: K. Marti and L.A.C. Neves

CST.54 Fuzzy Probabilistic Models in Structural Reliability
A. Omishore, Z. Kala and L. Puklický

CST.55 Sensitivity Analysis of Computer Models of Structures with Green's Functions, F. Hartmann and T. Kunow

CST.56 Optimal Control of Robots in the Case of Random Initial Conditions
M. Schacher

CST.57 Efficient Strategies for Solving Reliability-Based Optimization Problems
M.A. Valdebenito and G.I. Schuëller

STOCHASTIC FINITE ELEMENT METHODS

ECT.134 Bayesian Emulators and the Stochastic Finite Element Method
F.A. Díaz De la O and S. Adhikari

09.00-10.30: Chaired by: N.T.K. Lam and T.J. McCarthy

**COMPUTATIONAL TOOLS FOR EARTHQUAKE AND
STRUCTURAL DYNAMICS**

Session organised by S.H. Lo

- CST.125 Open Issues in Retaining Wall-Soil-Structure Dynamic Interaction
G. Papazafeiropoulos, Y. Tsompanakis and P.N. Psarropoulos
- CST.126 GENQKE: A Computer Program for Generating Artificial Earthquake
Accelerograms and Elastic Response Spectra
H.H. Tsang and N.T.K. Lam
- CST.127 Computational Tools for Analysis of Responses to Transient Loading
N.T.K. Lam and H.H. Tsang
- CST.128 Finite Element Modelling of a New Earthquake Protection Method Involving
Soil-Structure Interaction
S.H. Lo, X. Xu, H.H. Tsang and M.N. Sheikh
- CST.129 Yield Curvature for the Design of Normal- and High- Strength Circular
Reinforced Concrete Columns, M.N. Sheikh, H.H. Tsang and T.J. McCarthy
- CST.130 Implementation of a Low-Cost Structural Dynamics Investigative System
N. Haritos

10.30-11.00: Coffee

11.00-12.30: Chaired by: Z.W. Guan and R. Mahnken

MICROSTRUCTURES: ANALYSIS AND MODELLING

- CST.252 On the Dynamics of Multifield Structured Continua
M. Bruggi, C. Cini and P. Venini
- CST.253 Numerical Solutions for some Axisymmetric Elastic Micropolar Orthotropic
Bodies, A. Talierecio, D. Veber and A. Mola

POLYETHYLENE MATERIALS

- CST.254 Ring-Stiffness Evaluation and Optimization of Structured-Wall Polyethylene
Pipes, F. Fuerle, J. Sieng, M. Innocente, J.F.T. Pittman, V. Samaras and
S. Thomas
- CST.255 Creep Properties of Medium Density Polyethylene and High Performance
Polyethylene, Z.W. Guan and J.C. Boot

MATERIALS MODELLING

- CST.257 Macro Modeling and Homogenization for Identification of Material
Parameters to Simulate Phase Transformations
R. Mahnken, A. Schneidt and T. Andretter
- CST.258 On the Correlation of Theory and Experiment for Transversely Isotropic
Nonlinear Incompressible Solids
M.H.B.M. Shariff, B.A. Mahad and A.A. Zainal

Day 2: Thursday 4 September 2008: AM
Room Lambda

09.00-10.45: Chaired by: J.J. Fang and F.G. Rammerstorfer

ELE.16 Computational Biomechanics of Sensory Organs in Spiders
F.G. Rammerstorfer, B. Höbl, H.-E. Dechant, H.J. Böhm and F.G. Barth

BIOMECHANICS

ECT.162 Mathematical Modeling of Human Skin Using a Fractional Derivative Model and the Frequency Domain

Z. Vosika, J. Simic, D. Koruga and M.P. Lazarevic

ECT.158 Denture Crown Modelling for Customized Dental Fabrication

T.H. Kuo and J.J. Fang

ECT.159 Numerical Simulation of Hodgkin-Huxley Model on Stochastic Resonance in Tactile Sensing

M. Ohka, C. Abdullah and S. Kondo

ECT.160 Two Different Approaches to Hip Joint Reconstruction

D. Kytýr, J. Vycíchl, J. Jirova and J. Jira

ECT.161 Computational Biomechanics, Stochastic Motion and Team Sports

E. Grimpampi, A. Pasculli and A. Sacripanti

10.45-11.15: Coffee

11.15-12.30: Chaired by: Y. Tsompanakis and G.E. Stavroulakis

SOFT COMPUTING AND STRUCTURAL ENGINEERING

Session organised by Y. Tsompanakis and N. Lagaros

CST.58 Seismic Safety Assessment of the Tower of the S. Maria Maggiore Cathedral in Guardiagrele, Italy

G. Camata, L. Cifelli, E. Spacone, J. Conte, M. Loi and P. Torrese

CST.59 Assessment of Design Recommendations for Torsionally Unbalanced Structures Using Structural Optimization

N. Bakas, N.D. Lagaros and M. Papadrakakis

CST.60 Optimum Design of Arch Dams Including Hydrodynamic Effects for Earthquake Loading Using the Simultaneous Perturbation Stochastic Approximation Method

J. Salajegheh, E. Salajegheh, S.M. Seyedpoor and S. Gholizadeh

CST.61 Multi-Objective Seismic Design of Reinforced Concrete Buildings

St. Tsivouraki, N.D. Lagaros and M. Papadrakakis

CST.62 Artificial Intelligence Techniques in the Simulation of Viscoplasticity of Polymeric Composites, M.S. Al-Haik, M.Y. Hussaini and C.S. Rogan

Day 2: Thursday 4 September 2008: AM
Room VIP Lounge

09.00-10.30: Chaired by: G. Venter and A.S.K. Kwan

ELE.6 Particle Swarm Optimization: Fundamental Study and its Application to Optimization and to Jetty Scheduling Problems
J. Sienz and M.S. Innocente

GENETIC ALGORITHMS AND NEURAL NETWORKS IN ENGINEERING

Session organised by B.H.V. Topping

ECT.77 CardiffGA: A New Genetic Algorithm Framework
H. Chen, J.C. Miles and A.S.K. Kwan

ECT.78 Real-Coded Genetic Algorithms Enhanced Using a Niching Strategy for Solving Multi-Modal Problems
A. Kucerová and M. Leps

ECT.79 Constrained Particle Swarm Optimisation Using a Multi-Objective Formulation
G. Venter and R.T. Haftka

ECT.80 Particle Swarm Optimization Approach for Fuzzy Control of Smart Structures
Y. Marinakis, M. Marinaki and G.E. Stavroulakis

10.30-11.00: Coffee

11.00-12.30: Chaired by: A. Csébfalvi and F. Gonzalez-Vidosá

ECT.81 Optimum Design of Cellular Beams Using the Harmony Search Method
F. Erdal and M.P. Saka

ECT.82 Computational Heuristics and their Use in Optimisation of Two-Dimensional Trusses
G.F. Moita and J.P.G. Pereira

ECT.83 An ANGEL Heuristic Method for Combined Shaping and Sizing Optimization of Bridges
A. Csébfalvi

ECT.84 Autonomous Behaviour Acquisition Method Using Multi-Agents Equipped with Integrated Sensors
N. Hoshikawa and M. Ohka

ECT.85 Heuristic Optimization of Reinforced Concrete Road Vault Underpasses
A. Carbonell, V. Yepes and F. Gonzalez-Vidosá

ECT.86 Soft Computing Based Approaches for High Performance Concrete
A.H. Alavi, A.A. Heshmati, H. Salehzadeh, A.H. Gandomi and A. Askarinejad

09.15-10.30: Chaired by: K. Davey and R. Mahnken

COMPUTATIONAL MODELLING, ANALYSIS AND SIMULATION

- ECT.117 A Finite Element Model of Drilling
W. Mieszczak and J. Kosmol
- ECT.119 Coupling Optimization to the Algorithm for a Mixer-Settler System
E.F. Gomes, G.A. Pinto, M.M.L. Guimarães and L.M. Ribeiro
- ECT.120 Thermo Mechanical Characterisation of an Epoxy Resin Bounded Sand
I. Caylak and R. Mahnken
- ECT.121 Residual Stress in Thermally Sprayed Coatings
A.M. Kamara and K. Davey
- ECT.122 Creation of Periodically Poled Lithium Niobate by Domain Structure
Inversion with a Scanning Electron Microscope
A. Nagyváradi and G. Almási

10.30-11.00: Coffee

11.00-12.30: Chaired by: C.N. Chen and E. Bellenger

DIFFERENTIAL QUADRATURE, GENERALIZED METHODS AND RELATED DISCRETE ELEMENT ANALYSIS METHODS

Session organised by C.N. Chen

- CST.63 Plastic Collapse Analysis of Arch Structures by Using the Differential
Quadrature Element Method with a Global Secant Relaxation-Based
Accelerated Iteration Procedure, C.N. Chen
- CST.64 Timoshenko Beam Structures Resting on a Two-Parameter Elastic
Foundation Solved by the Differential Quadrature Element Method
C.N. Chen
- CST.65 Time Domain Analysis of Dam Reservoir Foundation Interaction Using the
Differential Quadrature and Finite Difference Methods
M.R. Koohkan, R. Attarnejad and S. Aliamiri

DISCRETE FINITE ELEMENT METHODS

- ECT.129 Development of a Continuum-Consistent Discrete Element Model for Solids
Using the Triangle Finite Element, V. Vadluga and R. Kacianauskas
- ECT.130 Discrete Modelling of the Fragmentation of Granular Media under
Compressive Forces: Application to the Grinding Process
A. Kimbonguila, M. Guessasma, P. Coorevits, J. Fortin and E. Bellenger
- ECT.131 The Failure Mechanism of a Concrete Cube
C.C. Yu, S.H. Tung and M.C. Weng

14.00-15.30: Chaired by: N.C. Markatos and K. Pericleous

COMPUTATIONAL FLUID MECHANICS

Session organised by N.C. Markatos

- ECT.45 Computational Fluid Dynamics Based Shape Optimization of a Metal-Organic Chemical Vapor Deposition System Using Evolutionary Algorithms
T.C. Xenidou, A.G. Boudouvis and N.C. Markatos
- ECT.46 The Effects of Thermo-Electrically Induced Convection in Alloy Solidification, A. Kao, K. Pericleous, M. Patel and V. Voller
- ECT.47 Modelling the Behaviour of an Oil Spill in Marine Environments
N.C. Markatos and M.G. Psaltaki
- ECT.48 Numerical Fluid-Structure Interaction Study of a Cantilevered Pipe Discharging or Aspirating Fluid via a Computational Fluid Dynamics and Finite Element Analysis Model
D.B. Giacobbi, C. Semler and M.P. Païdoussis
- ECT.49 Numerical Simulation of the Dispersion of Toxic Pollutants from Large Tank Fires, C.D. Argiropoulos, M.N. Christolis, Z. Nivolianitou and N.C. Markatos
- ECT.50 Turbulence Model Performance in Continuous Casting Simulations
K. Pericleous, G. Djambazov, J.F. Domgin and P. Gardin

15.30-16.00: Coffee

16.00-18.00: Chaired by: F.T. Pinho and M.H. Chung

COMPUTATIONAL FLUID DYNAMICS: ANALYSIS, SIMULATION AND OPTIMIZATION

- ECT.96 Numerical Study of a New Model for the Magneto-hydrodynamic Flow of Micropolar Magnetic Fluids in Straight Square Ducts
P.K. Papadopoulos, P. Vafeas and P.M. Hatzikonstantinou
- ECT.98 Viscoelastic Low-Reynolds-Number Flows in Mixing-Separating Cells
A. Afonso, M.A. Alves, R.J. Poole, P.J. Oliveira and F.T. Pinho
- ECT.99 An Integrated Gradient Scheme for the Preservation of Symmetry in Lagrangian Hydrodynamics, H. Yong
- ECT.100 Comparison and Development of Mesh Motion Using Radial Basis Functions
T.C.S. Rendall and C.B. Allen
- ECT.102 Aerodynamic Wing Optimisation Using Domain Element Parameterisation
A.M. Morris, C.B. Allen and T.C.S. Rendall
- ECT.103 Hydrodynamics and Energetic Advantages of Burst-and-Coast Swimming by Undulatory Propulsion, M.H. Chung
- ECT.104 A Detailed Study of the Plenum and Discharge Jet Produced by Air Curtains
J.E. Jaramillo, C.D. Perez-Segarra and A. Oliva
- ECT.105 A Numerical Study of the Flow Structure in a Gravel River Bed
X.Y. Wang, W.Z. Lu, Q.Y. Yang and X.K. Wang

14.00-15.30: Chaired by: C.M. Mota Soares and D. Kennedy

MODELING & SIMULATION OF COMPOSITE & ADAPTIVE STRUCTURES

Session organised by C.M. Mota Soares

- CST.14 Cost-Weight Trades for Stiffened Composite Panels Under Compression
P. Apostolopoulos and C. Kassapoglou
- CST.15 An Improved Numerical-Experimental Method for Damage Location in Structures, H.M.R. Lopes, J.V. Araújo dos Santos, C.M. Mota Soares, R.M. Guedes and M.A. Vaz

COMPOSITE MATERIALS

- CST.308 The Out-Of-Plane Natural Frequencies of Curved Composite Beams Including the Effect of the Rotary Inertia and Shear Deformation
B. Ayhan and F. Kadioglu
- CST.309 Critical Buckling of Delaminated Composite Plates Using Exact Stiffness Analysis, M. Damghani, C.A. Featherston and D. Kennedy
- CST.310 A Random Unit Cell Finite Element Model for the Elastic Modulus of Concrete Composites with Interfacial Transition Zone
S. Abdelmoumen, E. Bellenger, B. Lyngø and M. Quéneudec-t'Kint
- CST.311 Development of a Statistically Equivalent Representative Volume Element for a Fibre Reinforced Composite, T. Vaughan, C.T. McCarthy and C. Soutis

15.30-16.00: Coffee

16.00-18.00: Chaired by: G.J. Creus and E. Spacone

- CST.312 The Effect of Matrix Non-linearity on the Properties of Unidirectional Composite Materials for Multi-Scale Analysis
A. Keane, C.T. McCarthy and N.P. O'Dowd
- CST.313 Modelling Brittle Failure of Glass Fibre Composites Subjected to Static Loading, J. Fan, Z.W. Guan and W.J. Cantwell
- CST.314 Optimal Design of Laminated Plates with Central Circular Holes
M. Walker and M. Ndebele
- CST.315 A Numerical Model for the Bending Fatigue Behaviour of Composite Materials, E. Akay and H.S. Türkmen
- CST.316 Finite Element Modelling of Phenolic Resin Impregnated Aramid Paper Adopted in Foldcore Sandwich Cores
S. Kilchert, A.F. Johnson and H. Voggenreiter
- CST.317 Compressional Stability Behaviour of Composite Plates with Multiple Through-the-Width Delaminations by Using First Order Shear Deformation Theory, H.R. Ovesy and M. Kharazi
- CST.319 Simulation of Three-Dimensional Interlock Composite Preforming
E. De Luycker, P. Boisse, F. Morestin and D. Marsal
- CST.320 Response of Circular GLARE Fiber-Metal Laminates under Lateral Indentation, G.J. Tsamasphyros and G.S. Bikakis

14.45-15.30: Chaired by: A. Kaveh and J. Lógó

SHAKEDOWN ANALYSIS AND DESIGN

- CST.159 Optimal Shakedown Design of Frames Under Stability Conditions
J. Atkociunas and A. Venskus
- CST.160 A Static Shakedown Theorem for Materials with Temperature-Dependent
Elastic Modulus, A. Oueslati and G. de Saxcé
- CST.161 Reliability Based Limit Analysis and Shakedown of Framed Structures with
Limited Residual Strain Energy Capacity
J. Lógó, M. Movahedi Rad, J. Knabel and Z. Hortobágyi

15.30-16.00: Coffee

16.00-18.00: Chaired by: A.S.K. Kwan and H.B. Coda

ANALYSIS OF TRUSSES, FRAMES AND SPACE STRUCTURES

- CST.162 Displacement and Force Control in Pin-Jointed Assemblies
A.S.K. Kwan
- CST.163 Planar Truss Structures with Multi-Symmetry
A. Kaveh and L. Shahryari
- CST.164 A New Approach for the Analysis of Bending Elements with Variable
Thickness, R. Attarnejad and S. Aliamiri
- CST.165 Coupling Dynamic Buckling Analysis of Framed Structures Using a Spline
Finite Element, H. Yang and A.Y.T. Leung
- CST.166 Interrelation of Group Products and Graph Products in Configuration
Processing of Symmetric Structures, A. Kaveh and M. Nikbakht
- CST.167 The Nonlinear Analysis of Frames with Semi-Rigid Connections and Shear
Deformations, H. Görgün and S. Yilmaz
- CST.168 An Enhanced Positional Finite Element Formulation for Geometrical
Non-Linear Analysis of Three-Dimensional Laminate Frames, H.B. Coda
- CST.169 Estimation of Critical Flutter Load of a Cracked Shaft Simultaneously
Subjected to a Follower Force with an Axial Force, I. Takahashi

14.00-15.30: Chaired by: M. Matos Neves and J.S. Jensen

**STRUCTURAL ANALYSIS AND OPTIMIZATION IN
ACOUSTICS AND VIBRATIONS**

Session organised by M. Matos Neves and J.F. Aguilar Madeira

Computational Models for Vibration Analysis

- CST.93 Micro-polar Continuum Modelling of a Lattice Structure: Theory and Experiment, A. Salehian and D.J. Inman
- CST.94 Free Vibration Analysis of Open Conical and Spherical Shells Supported on Parts of the Edges, S. Kandasamy and A.V. Singh
- CST.95 On Computational Issues for Free Vibration Response Using the Constant Hysteretic Damping Model, M.M. Neves and N. Maia
- CST.96 The Timoshenko Beam: State-of-the-Art
M.P. Coleman
- CST.97 Vibration Amplitude Maps Obtained by Non-Contact Measurement Techniques: A Survey, D.N. Borza and I. Nistea
- CST.98 A Design Method for a Cluster Control System Using a Cluster Vector Strategy, N. Tanaka

15.30-15.45: Coffee

15.45-18.00: Chaired by: R.G. Beale and M.A. Barkhordari

STEEL STRUCTURES

- CST.212 Restraining Progressive Collapse of Pallet Rack Structures
A.L.Y. Ng, R.G. Beale and M.H.R. Godley
- CST.213 Performance Assessment of Steel Structures Subject to Fire Action
C. Crosti and F. Bontempi
- CST.214 On Welded Rail and Temperature Stressing for the Taiwan High Speed Railway, Y.C. Shiau, L.T. Lu, C.M. Huang and T.T. Yao
- CST.215 Effect of Support Stiffeners on Columns Strengthened by Plates in Rigid Connections, M. Foroughi and M.A. Barkhordari
- CST.216 A Finite Element Model for Three-Dimensional Steel Beam-to-Column Joints
A. Moreno, A. Loureiro, R. Gutiérrez and J.M. Reinoso
- CST.217 Stress State and Displacements of Cold Formed Thin Walled Channel Beams
P. Paczos, P. Zawodny and K. Magnucki
- CST.218 Sensitivity Analysis of Stability Problems with Steel Plane Frames
Z. Kala, A. Omishore and L. Puklický
- CST.219 Buckling Behaviour of Steel Columns Subjected to Fire
T. Hozjan, I. Planinc, M. Saje and S. Srpčič
- CST.220 Analytical Evaluation of Local Buckling Behaviour in Square Steel Tube Members, T. Ohtsuka and S. Motoyui

Day 2: Thursday 4 September 2008: PM
Room Ypsilon 3

14.00-15.30: Chaired by: J.Y. Cognard and T.G. Chondros

RELIABILITY DESIGN

- CST.178 Road Tankers Load Distribution Design and Rollover Stability Simulation
A.S. Papadogiannis, P. Michaelides, G. Michalos and T.G. Chondros
- CST.179 Probabilistic Parametric Analysis of the Thermal Conducting LTCC Substrate
for an LED Lamp, S.C. Lin, R.F. Huang, C.C. Lin and Y.T. Lin

RELIABILITY ANALYSIS AND MODELLING

- CST.180 Stochastic Finite Element Stability Analysis of Shells with Non-Gaussian
Material and Thickness Properties
G. Stefanou, V. Papadopoulos and M. Papadrakakis
- CST.181 Solving the Dynamic Reliability Equations of the Theory of Stimulated
Dynamics, I. Cañamón and J.M. Izquierdo
- CST.182 A Time-Variant Reliability Approach for Ageing Marine Structures with
Non-Linear Behaviour, J.Y. Cognard, M. Mejri and M. Cazuguel

PROBABILISTIC ENGINEERING PROBLEMS

- CST.183 Numerical Structural Monitoring for Textile Strengthened Reinforced
Concrete Structures, F. Steinigen, W. Graf, M. Kaliske and J.-U. Sickert

15.30-16.00: Coffee

16.00-18.00: Chaired by: A. Shabana and R. Ardito

DYNAMICS AND VIBRATION

- CST.184 Computational Modelling of the Static and Dynamic Behaviour of Wind
Turbine Tower Structures, A. da S. Sirqueira, P.C.G. da S. Vellasco,
J.G.S. da Silva, L.R.O. de Lima and S.A.L. de Andrade
- CST.185 Model Reduction in Finite Element Analysis for a Fluid Filled Pipe Using an
Orthogonal Vector Set,
R.J. Alkhoury, M.H. Chikhalsouk, R.B. Bhat and K.D.P. Nigam
- CST.186 Dynamic Analysis of the High Speed Steel Bars Cutting Structure
J. Bencat and D. Papán
- CST.187 Estimation of the Dynamic Validity Range of Linearised Structural
Mechanical Models
M. Lazanowski, H. Kärcher, H. Li, S. Kern and M. Schäfer
- CST.188 Validation of Simulation Approaches for Catenary-Pantograph Dynamics
J.R. Jimenez-Octavio, M. Such, A. Carnicero and O. Lopez-Garcia
- CST.189 Estimation of an Active Boring Bar's Control Path Frequency Response
Functions by Means of its Three-Dimensional Model with Coulomb Friction
T. Smirnova, H. Åkesson, L. Håkansson, I. Claesson and T. Lagö
- CST.190 Analytical Solutions for Vibrating Fractal Rods
M.T. Alonso Rasgado and K. Davey
- CST.191 The Fractal Generalized Finite Difference Method in Elastodynamics
G.M. Cocchi and P. Tiriaca

Day 2: Thursday 4 September 2008: PM
Room Omega

14.00-15.30: Chaired by: H.A. Mang

ELE.13 Atoms, Molecules and Flows: Recent Advances and New Challenges in their Multi-Scale Numerical Modeling at the Beginning of the Third Millenium
F. Chinesta, A. Ammar, H. Lamari and N. Ranc

ELE.9 An Enrichment-Based Multiscale Partition of Unity Method
M. Macri and S. De

CLE.4 Multi-Scale and Multi-Grid Finite Element Analysis of Concrete
C.J. Pearce and Ł. Kaczmarczyk

15.30-16.00: Coffee

16.00-18.00: Chaired by: D. Roose and F. Chinesta

MULTISCALE SIMULATION

Session organised by D. Roose

ECT.39 Coupled Discrete and Continuum Approach to the Behaviour of Ballast
M. Hammoud, D. Duhamel, K. Sab and F. Legoll

ECT.38 A Hybrid Molecular Continuum Method Using Point Wise Coupling
N. Asproulis, M. Kalweit and D. Drikakis

ECT.41 Computational Homogenization of Perfused Deforming Tissues
E. Rohan, R. Cimirman and V. Lukes

ECT.37 A Micro-Macro Method for the Simulation of Plant Tissue Deformation
P. Ghysels, G. Samaey, B. Tjjskens, H. Ramon and D. Roose

ECT.44 Parallel Computing Features of a Multiscale Strategy with Space and Time Homogenization
J.C. Passieux, P. Ladevèze and D. Néron

ECT.43 Extension of the LaTIn Framework for Multi-Scale Computation of Fluid-Structure Interaction
E. Vergnault, O. Allix and S. Maison-Le-Poëc

ECT.40 A Multiscale Method for Transient Dynamic Analysis of Assemblies with Friction
D. Odièvre, P.A. Boucard and F. Gatuingt

ECT.42 Development of Multiscale Modeling Techniques for Composite Scarf Joints
Y.W. Kwon, T.R. Greene and S. Bartlett

Day 2: Thursday 4 September 2008: PM
Room Lambda

14.00-15.45: Chaired by: H. Askes

CLE.8 The Implications of the Brittle Behaviour of Concrete for Finite-Element Analysis, M.D. Kotsovos

REINFORCED CONCRETE: ANALYSIS

CST.226 Modelling of Concrete Fracture and Damage Due to High Temperatures
J. Cervenka, L. Jendele and J. Surovec

CST.227 The Influence of Elevated Temperatures on Tunnel Linings
P.P. Prochazka and S. Peskova

CST.228 Non-Linear Bond Modelling for Reinforced Concrete
M.F.E. Eltayeb and C.T. Morley

FIBRE REINFORCED CONCRETE

CST.229 Computational Verification of Experimental Research on Fibre Reinforced Concrete, J.R. Cigánek and A. Materna

CST.230 Computational Research on Fibre Reinforced Concrete
J.R. Cigánek and A. Materna

15.45-16.15: Coffee

16.15-18.00: Chaired by: H.G. Kwak and R.C. Barros

CLE.12 Numerical Validation of the Experimental Cyclic Response of Reinforced Concrete Frames
M.T. Braz-Cesar, D.V. Oliveira and R.C. Barros

REINFORCED CONCRETE STRUCTURES: DESIGN

CST.221 A Study on the Application of Expansion Anchor Reinforcement in Construction Engineering, Y.C. Shiau, C.S. Huang and P.L. Yen

CST.222 Stress-Strain Material Diagrams for Profiled Steel Sheeting Reinforcement for In-Situ Cast Concrete Slabs, E. Chaparanga

CST.223 The Stress-Strain Material Deformation Model Based Calculation Method for Normal Composite Cross-Sections, E. Chaparanga

CST.224 A Hybrid Approach for the Non-Linear Analysis of Reinforced Concrete Cross Sections, T. Löhning, J. Schenk and U. Starossek

CST.225 Two-Layer Pre-Stressed Beams Consisting of Normal and High Strength Steel Fibred Concrete, I. Iskhakov and Y. Ribakov

Day 2: Thursday 4 September 2008: PM
Room VIP Lounge

14.00-15.30: Chaired by: R. Lewandowski and R.C. Silva

PASSIVE DAMPING SYSTEMS

- CST.192 Rheological-Dynamical Theory of Vibrations of Multi-Degree-of-Freedom Structures: Design of Viscoelastoplastic Dampers
D.D. Milasinovic and A. Borkovic
- CST.193 Optimization of the Location and Damping Constants of Viscous Dampers
R. Lewandowski
- CST.194 A New Bidirectional Rolling Tuned Mass Damper for the Wind Control of Tall Buildings, E. Matta

SEISMIC ENGINEERING

- CST.195 Contribution to Reliability Assessment of Concrete Dams under Dynamic Effects, R.C. Silva and L.J. Pedroso
- CST.196 Seismic Analysis of Plane Frame Structures
D. Mestrovic and L. Miculinic
- CST.197 Automated Baseline Correction, Fling and Displacement Estimates from the Chi-Chi Earthquake using the Wavelet Transform
A.A. Chanerley and N. Alexander

15.30-16.00: Coffee

16.00-18.00: Chaired by: A. Liolios and A.A. Chanerley

- CST.198 Optimization of Masonry Infilled Reinforced Concrete Buildings
I.A. Naziris, N.D. Lagaros and M. Papadrakakis
- CST.199 Fragility Based Critical Assessment of Design Codes
Ch.Ch. Mitropoulou, N.D. Lagaros and M. Papadrakakis
- CST.200 Dynamic Analysis of Cylindrical Roof Shells for Earthquake Resistant Design, S. Ostovari Dailamani and J.G.A. Croll
- CST.201 Minimizing the Uncertainties of Seismological-Geotechnical Source Parameters using a Genetic Algorithm Approach
A. Nicknam, R. Abbasnia, M. Bozorgnasab, Y. Eslamian and A. Nicknam
- CST.202 High Performance Computing Applied to the Seismic Finite Element Analysis of an Historic Structure: The Temple of Athena in Paestum
G. Zaccone and L. Stendardo
- CST.203 Estimating the Seismological Source Parameters of the 2006 Silakhor Earthquake, Iran, Using a Genetic Algorithm
A. Nicknam, R. Abbasnia, Y. Eslamian, M. Bozorgnasab and A. Nicknam
- CST.204 Roof-Garden Tuned Mass Dampers for Seismic Mitigation: The Translational and the Pendulum Alternatives, E. Matta and A. De Stefano
- CST.205 The Dynamic Response of Seismic Intensity Indicators
C.S. Belsham

Day 2: Thursday 4 September 2008: PM

Room Delta

14.00-15.30: Chaired by: R. Harte and C. Navarro

- ECT.190 A Study of Foundations in Low Bearing Capacity Soil Using a Hyperbolic Paraboloid Shell
C.J. Martins, O.S. Figueiredo, R.A.F. Peixoto and L.A. Martins

SOIL-STRUCTURE INTERACTION

- ECT.166 Analysis of Explosion Induced Shock Waves Interaction with an Underground Lined Tunnel by the Coupled Godunov-Variational Difference Approach, Y.S. Karinski, V.R. Feldgun and D.Z. Yankelevsky
- ECT.167 Numerical Simulation of Soil-Structure-Interaction of Towers and Tanks via Finite and Infinite Elements, R. Harte and E. Mahran
- ECT.168 Simplified Three-Dimensional Models for Twin Tunnels to Account for the Seismic Interaction Caused by Surface Waves
A.L. Sánchez-Merino and C. Navarro
- ECT.169 Transverse Seismic Analysis of Twin Lined Tunnels
A.L. Sánchez-Merino and C. Navarro
- ECT.171 Equivalent Linear Soil Approximation in Soil-Foundation-Structure Interaction, D. Pitilakis

15.30-16.00: Coffee

16.00-18.00: Chaired by: J. Blachut and C.T.F. Ross

FINITE ELEMENTS: MODELLING AND DESIGN

- CST.137 A Study of the Dynamic Behaviour of a Typical Indian Railway Track System, K. Ganesh Babu and C. Sujatha
- CST.138 Strength Shaping of Dished Heads of Pressure Cylindrical Vessels
L. Wittenbeck and K. Magnucki
- CST.139 Inelastic Buckling of Geometrically Imperfect Tubes under External Hydrostatic Pressure, A.P.F. Little, C.T.F. Ross, D. Short and G.X. Brown
- CST.140 Numerical and Experimental Study into Behaviour of Cylinders Under Edge Shear Force and External Pressure
J. Blachut and O.R. Jaiswal
- CST.141 Plastic General Instability of Ring-Stiffened Conical Shells under External Pressure, C.T.F. Ross, A.P.F. Little and G. Andriopoulos
- CST.142 Structural Behaviour of Expanded Metal Sheets
G. Martínez, C. Graciano, E. Casanova and O. Pelliccioni
- CST.143 Collapse of Carbon-Glass Composite Tubes under Uniform External Pressure
C.T.F. Ross, A.P.F. Little, Y. Haidar and A. Al Waheeb

FINITE ELEMENT METHODS

- ECT.133 A Theory of Finite Elements with Axisymmetric Spherical Shell Examples
P.O. Tuominen

Day 3: Friday 5 September 2008: AM
Room Omikron I

09.00-10.00: Chaired by: R. Montenegro and J. Kruis

ELE.2 Object-Oriented Finite Elements: From Smalltalk to Java
D. Eyheramendy and F. Oudin-Dardun

ELE.3 Finite Element Software Design for Today's Computers
R.I. Mackie

10.00-10.30: Chaired by: D. Eyheramendy and G.A. Gravvanis

**HIGH PERFORMANCE COMPUTING:
NOVEL ARCHITECTURES AND APPLICATIONS**

Session organised by G.A. Gravvanis

ECT.1 Parallel Iterative Methods Based on Finite Element Approximate Inverses on
Uniprocessor and Multicomputer Systems

K.M. Giannoutakis and G.A. Gravvanis

ECT.2 Acceleration of an Element-by-Element Preconditioned Conjugate Gradient
Solver for Three-Dimensional Tetrahedral Finite Elements using Field
Programmable Gate Arrays

J. Hu, S.F. Quigley and A.H.C. Chan

10.30-11.00: Coffee

11.00-12.45: Chaired by: G.A. Gravvanis and R.I. Mackie

ECT.3 WebComV: A Framework to Virtualise Parallel Computing Resources
T. Enright, J.P. Morrison and I. Banicescu

ECT.4 Reliable Performance Prediction for Parallel Scientific Software in a
Multi-Cluster Grid Environment

G. Romanazzi, P.K. Jimack and C.E. Goodyer

ECT.5 Supporting MiG and WebCom Interaction

R. Andersen, B. Vinter, D.A. Power and J.P. Morrison

ECT.6 A Parallel Implementation for Finding the Longest Common Subsequence
P.D. Michailidis and K.G. Margaritis

PARALLEL COMPUTATIONS

ECT.87 Non-Linear Dual Domain Decomposition Method for Multiscale Analysis of
Structures, J. Pebre, P. Gosselet and C. Rey

ECT.88 Evaluation of Different OpenMP-Oriented Implementations for the Wave
Model WAM Cycle 4.5, S. Moghimi, M.F. Doustar and A. Behrens

ECT.89 FETI-DP for Variational Inequalities with Corners on the Contact Interface,
D. Horák and Z. Dostál

09.00-10.30: Chaired by: D.S. Jeng and R. Pusch

GEOMECHANICS AND GEOTECHNICAL ENGINEERING

- ECT.173 Non-Linear Wave-Induced Pore Pressure Accumulations in a Porous Seabed
D.S. Jeng
- ECT.174 Creep-Generated Settlement of Canisters with Highly Radioactive Waste
R. Pusch, L. Zhang, R. Adey and J. Kasbohm
- ECT.175 Utilisation of Computational Intelligence Techniques for Stabilised Soil
A.H. Alavi, A.A. Heshmati, A.H. Gandomi, A. Askarinejad and M. Mirjalili
- ECT.176 Vibrations Due to Moving Harmonic Loads on a Porous Multilayered Ground
G. Lefeuve-Mesgouez and A. Mesgouez
- ECT.177 Modeling of Landslides with the Material Point Method
S. Andersen and L. Andersen
- ECT.179 Effects of Fault Rupture Propagation on Earth Structures
V. Zania, Y. Tsompanakis and P.N. Psarropoulos

10.30-11.00: Coffee

11.00-12.30: Chaired by: R. Pusch and A.H.C. Chan

- ELE.17 Three-Dimensional Numerical Analysis of a Dynamic Structure, Saturated
Soil and Pore Fluid Interaction Problem
A.H.C. Chan and J. Ou

GEOMECHANICS AND GEOTECHNICAL ENGINEERING

- ECT.180 Optimum Design of Pile Foundations
Ch. Letsios, N.D. Lagaros and M. Papadarakakis
- ECT.181 Three-Dimensional Numerical Investigation of the Efficiency of Piled Rafts
with a Central Pile Group
A.A. Hemada and A.Y. Akl
- ECT.182 Three-Dimensional Finite-Element Analysis of Large Piled Rafts: A Proposed
Simplified Modelling
A.A. Hemada, T.T. Abdel-Fattah and A.Y. Akl
- ECT.178 Three-Dimensional Poro-Elastoplastic Model for Wave-Induced Pore
Pressure in a Porous Seabed around Breakwater Heads
J. Ou, D.S. Jeng and A.H.C. Chan

Day 3: Friday 5 September 2008: AM
Room Ypsilon 1

09.00-10.30: Chaired by: B. Picoux and (to be decided)

OFFSHORE STRUCTURES

CST.275 Offshore wind turbines: Basis of Structural Design
K. Gkoumas, F. Petrini, S. Manenti and F. Bontempi

AUTOMOTIVE ENGINEERING

CST.276 Validation Study of Failure Prediction in Crash Analysis, A. Reyes,
C. Dørum, O.S. Hopperstad, M. Langseth, O.-G. Lademo and M. Eriksson
CST.277 Development of a Granular-Medium-Based Energy Management System for
Automotive Bumper Applications, F.-M. Mwangi and K. Kanny

PAVEMENT ANALYSIS AND DESIGN

CST.278 Dynamic Analysis of a Damaged Flexible Pavement Using the Falling
Weight Deflectometer Technique, A. El Ayadi, B. Picoux and C. Petit

FIRE SAFETY ENGINEERING

CST.279 Safety Performance Evaluation of Steel Structures Subject to Fire Action
Using Non-Linear Analysis, C. Crosti and F. Bontempi
CST.280 Risk Analysis and Modelling Techniques for Structural Fire Safety
K. Gkoumas, C. Crosti and F. Bontempi

10.30-11.00: Coffee

11.00-12.30: Chaired by: E.S. Mistakidis and M. Buonsanti

**APPLICATION OF FINITE ELEMENT METHODS FOR THE ANALYSIS AND
DESIGN OF STEEL AND CONCRETE STRUCTURES**

Session organised by E.S. Mistakidis

- CST.66 Numerical Simulation of Bending Response of Reinforced Concrete and
Fibre-Reinforced Concrete Beams
K.A. Georgiadi-Stefanidi, E.S. Mistakidis and P.C. Perdikaris
- CST.67 Flange and Web-Triggered Local-Distortional Mode Interaction in
Cold-Formed Steel Lipped Channel Beams: Finite Element Analysis
P.B. Dinis and D. Camotim
- CST.68 A Rotating Magnetic Field for Detection of Cracks in Metal Welded Joints
and Quality Control, M. Buonsanti, M. Cacciola, G. Megali, F.C. Morabito,
D. Pellicanò and M. Versaci
- CST.69 Buckling Behaviour of Thin-Walled Cold Formed Steel Platforms Subjected
to Bending, K.A. Tzaros and E.S. Mistakidis
- CST.70 A Crack Model with Delayed Embedded Discontinuities for the Numerical
Prediction of Crack Widths in Concrete Structures
Y. Theiner and G. Hofstetter
- CST.71 The Application of an Exact Finite Strip for Calculation of Initial
Post-buckling Stiffness of Channel Section Struts
H.R. Ovesy and S.A.M. Ghannadpour

09.00-10.45: Chaired by: Z.J. Yang and C.A. Papadopoulos

CRACK PROPAGATION: MODELLING

- CST.241 Numerical Modelling of Crack Growth in Concrete Gravity Dams Based on the Discrete Crack Method, A.R. Lohrasbi and R. Attarnejad
- CST.242 An Efficient Computational Algorithm to Evaluate Fatigue Crack Growth under Variable Amplitude Loading from Strain-Life Data
J.T.P. Castro, M.A. Meggiolaro and A.C.O. Miranda
- CST.243 Practical Aspects Concerning the Numerical Implementation of the Fatigue Growth of Curved Cracks
M.A. Meggiolaro, A.C.O. Miranda, L.F. Martha and J.T.P. Castro
- CST.244 A Novel Implementation Strategy for Cohesive Crack Propagation
G. Geißler and M. Kaliske
- CST.245 A Heterogeneous Cohesive Crack Model for Quasi-brittle Materials Considering Spatially Varying Random Fracture Properties
Z.J. Yang and X.F. Xu

MICROSTRUCTURES: ANALYSIS AND MODELLING

- CST.250 Simulation of Fragile Structures Using the Mechanics of Continuous Damage
O. Bélaïdi Chabane Chaouche, M. Almansba, Y. Labadi and N.E. Hannachi
- CST.251 Crystal Plasticity Finite Element Modelling of Compression of Pure Aluminum, Z.Y. Jiang, H.J. Li, J.T. Han, D.B. Wei, H.C. Pi and A.K. Tieu

10.45-11.00: Coffee

11.00-12.15: Chaired by: J.Y. Cognard and G.E. Stavroulakis

WAVE PROPAGATION PROBLEMS

- CST.206 A New Consistent Mass Matrix for Timoshenko's Flexural Model
J.E. Laier and C.C. Noronha

CONTACT-IMPACT PROBLEMS

- CST.208 Simulation of a Foreign Object Damage Test on a Silicon Nitride Specimen
R. Dotoli, D. Lisi, D. Bardaro and O. Manni
- CST.209 Modelling of Glass Fibre Composites Subjected to Low Velocity Impact
J. Fan, Z.W. Guan and W.J. Cantwell
- CST.210 Equilibrium Configurations of Heavy Elastica Beams Under Unilateral Contact Constraints
M. Abdel-Jaber, S. Al-Sadder, A. Shatnawi and M. Mahdi
- CST.211 Simulation of Contact Among Rigid Surfaces by Using Short Range Force Fields, A. Contento, A. Di Egidio and A. Tatone

Day 3: Friday 5 September 2008: AM
Room Ypsilon 3

09.45-10.30: Chaired by: R. Bru and J.R. Torregrosa

NUMERICAL METHODS

ECT.137 The Influence of Parametrization on Integrating Rotations from Angular Velocities, E. Zupan and M. Saje

NUMERICAL AND COMPUTATIONAL LINEAR ALGEBRA

Session organised by R. Bru

ECT.69 Strategies for Improving Automated Multi-Level Sub-Structuring
T. Hilgert and H. Voss

ECT.70 Incomplete Factorization for Preconditioning Shifted Linear Systems Arising in Wind Modelling, E. Flórez, M.D. García, E. Rodríguez-Jiménez, H. Sarmiento, A. Suárez and G. Montero

10.30-11.00: Coffee

11.00-12.30: Chaired by: R. Bru and J. Marin

ECT.71 Spectral Low Rank Preconditioning for Computational Electromagnetics Applications, J. Marin, N. Malla and E. Pascual

ECT.72 A Numerical Study of Newton-Like Methods for Nonlinear Systems with a Singular Jacobian, J.L. Hueso, E. Martínez and J.R. Torregrosa

ECT.73 Two-Stage Methods Based on ILU Factorizations for Mildly Nonlinear Systems, H. Migallón, V. Migallón and J. Penadés

ECT.74 Generalized Top and Bottom Binary n -Tuples
L. González

ECT.75 Quasi-Newton Preconditioners for the Solution of Large Nonlinear Systems in Porous Media, L. Bergamaschi, R. Bru, A. Martínez and M. Putti

ECT.76 Preconditioning of Iterative Methods Based on an Aggregation Algorithm
J. Kruis and P. Mayer

09.00-10.45: Chaired by: C.T.F. Ross and E. Barkanov

COMPOSITE STRUCTURES

- CST.295 Optimal Design of Composite Lateral Wing Upper Covers Based on Non-Linear Buckling Analysis
E. Barkanov, S. Gluhic, O. Ozolins, E. Eglitis, F. Almeida, M.C. Bowering and G. Watson
- CST.296 Optimization of Multi-Functional Sandwich Panels Using Genetic Algorithms
X.H. Tan and A.K. Soh
- CST.297 Numerical Simulations of Ultra-Lightweight Steel-Concrete-Steel Sandwich Composite Panels Subjected to Impact,
S.C. Lee, K.M.A. Sohel and J.Y.R. Liew
- CST.298 A Global Bolted Joint Model for Finite Element Simulations of Large-scale Composite Structures, P.J. Gray and C.T. McCarthy
- CST.299 Analysis of Two-Layer Elastic Beams Considering Interlayer Slip and Uplift
A. Kroflic, I. Planinc, M. Saje and B. Cas
- CST.300 Buckling by General Instability of Cylindrical Components of Deep Sea Submersibles, C.T.F. Ross, K.O. Okoto and A.P.F. Little
- CST.304 Vibration Analysis of Long Span Joist Floors Submitted to Dynamic Loads from Human Activities, J.G.S. da Silva, P.C.G. da S. Vellasco, S.A.L. de Andrade, L.R.O. de Lima and R.R. de Almeida

10.45-11.00: Coffee

09.00-10.30: Chaired by: P.H. Kirkegaard and Z.W. Guan

TIMBER STRUCTURES

- CST.246 Lateral Buckling of Timber Arches
U. Rodman, I. Planinc, M. Saje and D. Zupan
- CST.247 Collapse Analysis of Timber Structures
P.H. Kirkegaard and J.D. Sørensen
- CST.248 Sensitivity Analysis of the Behaviour of Wood Joints Made with Double-Sided Punched Metal Plate Fasteners, T. Zhu and Z.W. Guan
- CST.249 Seismic Behaviour of Lightweight Structures
D. Mestrovic, V. Rajci, D. Cizmar, M. Stepinac and L. Miculinic

SPACE STRUCTURES

- CST.266 Generating Geometric Configurations of Varax Domes Using Formian
U.A. Girhammar and D.H. Pan
- CST.267 Feasibility Study of a Large Span Tensegrity Spline Arch Supported Membrane, S. Adriaenssens

10.30-11.00: Coffee

11.00-12.45: Chaired by: V.K. Koumousis and S. Adriaenssens

CABLE-NET, CABLE AND TENSION STRUCTURES

- CST.268 Limit Analysis of Inflatable Beams
J.C. Thomas, M. Chevreuil and C. Wielgosz
- CST.269 Bimodal Planar Galloping of Suspended Cables in 1:1 Internal Resonance
D. Zulli, A. Luongo and G. Piccardo
- CST.270 Simplified Numerical Experiments on the Effect of Hysteretic Damping of Cross-Ties on Cable Oscillations, P.G. Papadopoulos, A. Diamantopoulos, P. Lazaridis, H. Xenidis, C. Karayannis and S. Kyrgidis
- CST.271 Form Finding and Structural Optimization of Tension Structures Using Multi-Objective Genetic Algorithms, S.P. Triantafillou and V.K. Koumousis
- CST.272 Parameters to be Considered in the Analysis and Design of Cable Nets
H.A. Zien-ElDin, F.A. Fathelbab, E.A. Elkordy and E.E. Hendy
- CST.273 The Series Iterative Method for Planar Rectangular Prestressed Cable Nets
R.J. Shang, Z.Q. Wu and J.L. Liu
- CST.274 Post-Elastic Analysis of Prestressed Cable Trusses
S. Kmet and M. Tomko

14.00-15.30: Chaired by: G. Molnárka and M. Dolenc

PARALLEL COMPUTATIONS

- ECT.90 A High Performance Strategy for the Simulation of Composites at the Mesoscale, F. Bordeu, P.A. Boucard, G. Lubineau and H. Leclerc
ECT.91 Solving Contact Problems Using the Domain Decomposition Method with an Interface Preconditioner
A. Lotfi and G. Molnárka

DISTRIBUTED COMPUTING

- ECT.92 On the Use of a Service Oriented Architecture for Web Mining Systems
T.M.R. Dias and G.F. Moita
ECT.93 Component-Oriented Distributed Finite Element Analysis
R.I. Mackie
ECT.94 High-Throughput Computing in Engineering
M. Dolenc and M. Dolsek
ECT.95 An Approach to Distributed Simulations with SystemC
V. Galiano, H. Migallón, D. Pérez-Caparrós, M. Martínez and J.A. Palomino

15.30-16.00: Coffee

14.00-15.00: Chaired by: S.K. Sharan and M.C. Weng

GEOPHYSICS

ECT.172 A Numerical Study of the Richtmyer-Meshkov Instability and Mixing in Stratified Cylindrical Shells, L. Wang

ROCK MECHANICS

ECT.163 Damage-Plastic Model for Numerical Simulation of Rock Fracture in Dynamic Loading, T. Saksala

ECT.164 Prediction of Rock Burst in Elastic-Brittle-Plastic Rock
S.K. Sharan

ECT.165 Characterizing the Deformation Behavior of Weak Sandstone from Micro-Vision, M.C. Weng, S.H. Tung, M.H. Shih, C.C. Yu and Y.T. Huang

15.00-15.30: Coffee

Day 3: Friday 5 September 2008: PM
Room Ypsilon 1

14.00-16.00: Chaired by: A.A. Liolios and L. Palizzolo

BUILDING ANALYSIS AND DESIGN

- CST.287 On the Modern Use of the B'ovedas Tabicadas
S. Benfratello, A. Caffarelli, L. Palizzolo, F. Giambanco and R. Urso
- CST.288 Normal Flow Algorithm Method for Modal Adaptive Pushover Analysis of Buildings, R. Tabatabaei, H. Saffari and M.J. Fadaee
- CST.289 Application of the Digital-Image-Correlation Technique to Measure the Deformation of a Seismic Retrofitted Column for a Two-Storey Building
S.H. Tung, M.H. Shih and Y.S. Yang
- CST.290 Non-Planar Coupled Shear Walls with Stiffening Beams
E. Emsen, O. Aksogan, R. Resatoglu, M. Bikçe, H.M. Arslan and H. Görgün
- CST.291 Modeling for Progressive Collapse Mitigation Using Nonlinear Static Analysis Procedures
O.A. Mohamed and M.S. Keshawarz

MODELLING RETROFITTED AND REPAIRED STRUCTURES

- CST.292 Finite Element Simulation of Reinforced Concrete Beams Strengthened with Externally Bonded Carbon Fibre Reinforced Polymer
C.A. Issa and G.A. Saad
- CST.293 Computational Analysis for Cable Supported Structures
N. Kiraç and M. Dogan
- CST.294 A Computational Stiffness Approach for Environmentally Damaged and Cable-Strengthened Metal Structures
K.A. Liolios and A.A. Liolios

16.00-16.30: Coffee

14.00-15.45: Chaired by: J.J. Fang and J.B. Paiva

COMPUTER AIDED ENGINEERING

- ECT.147 Information Modelling for Configurable Components
K.A. Jørgensen
- ECT.148 DUTOGL: A User-Friendly Environment for Duct Analysis
R.M. Júnior, A.V. Mendonça and J.B. Paiva
- ECT.149 A New Sketch-Based Computer Aided Engineering Pre-Processor
P. Company, N. Aleixos, F. Naya, P.A.C. Varley, M. Contero and
D.G. Fernández-Pacheco
- ECT.150 Application of Binary Spatial Partitioning to Computer Aided Design
A.A. Stamos
- ECT.151 A Spatial Model for Multi-Scale Product Design and Simulation
K. Sakita

COMPUTER VISION

- ECT.152 Registration and Assisted Segmentation for Stereo Images of Planar
Piecewise Environments
J.-F. Vigueras and M. Rivera
- ECT.153 Correction of the Effects of the Light Source on Quasi-Spherical Objects:
Application to Modelling Spherical Fruits
J. Gómez-Sanchis, E. Moltó, N. Aleixos, G. Camps-Valls, L. Gómez-Chova
and J. Blasco

15.45-16.15: Coffee

14.00-15.45: Chaired by: H.-P. Cheng and D.S. Jeng

**GEOTECHNICAL ENGINEERING:
SEEPAGE, GROUNDWATER AND WATERSHED PROBLEMS**

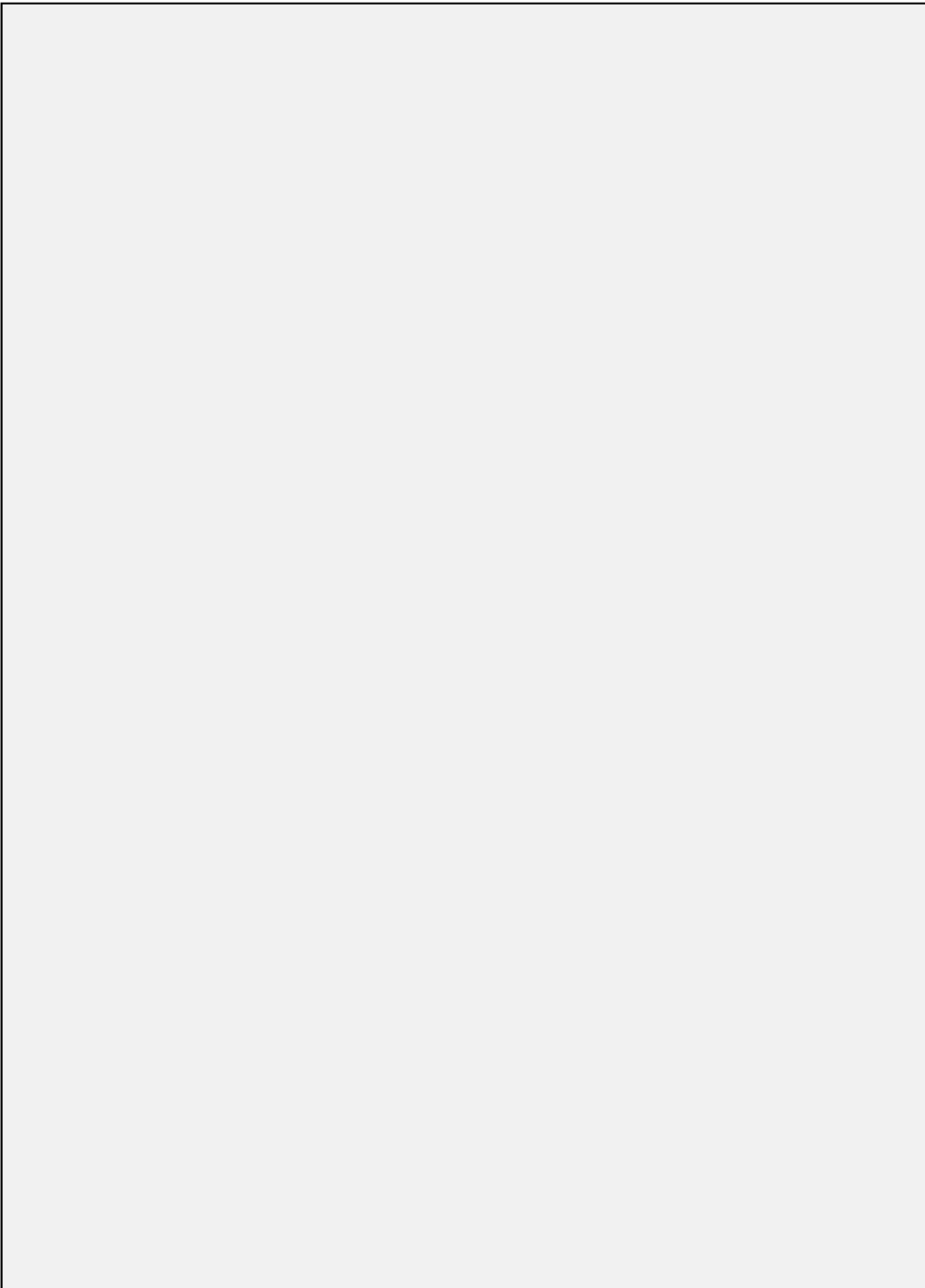
- ECT.183 Herbert Hoover Dike Phase 1A Groundwater Modelling
H.-P. Cheng, B.P. Donnell, S.M. England, H.-C. Lin, E.V. Edris and
R. Weeks
- ECT.184 Seepage Analysis of Soil-Bentonite Cutoff Wall through Landfill
A.F. Branch
- ECT.185 Research Demonstration of a Decomposition Approach for Large-Scale,
Coupled Surface-Subsurface Watershed Model Calibration and Validation
H.-P. Cheng, S.M. England, H.-C. Lin, J.-R.C. Cheng, E.V. Edris, S.L. Ashby
and D.R. Richards
- ECT.186 A Feasibility Study of the Air Lifting Method for a Mineral Spring Water
Pump, Y.C. Shiau, L.T. Lu, Y.C. Lin and S.C. Yang

GEOTECHNICAL ENGINEERING: FOUNDATIONS

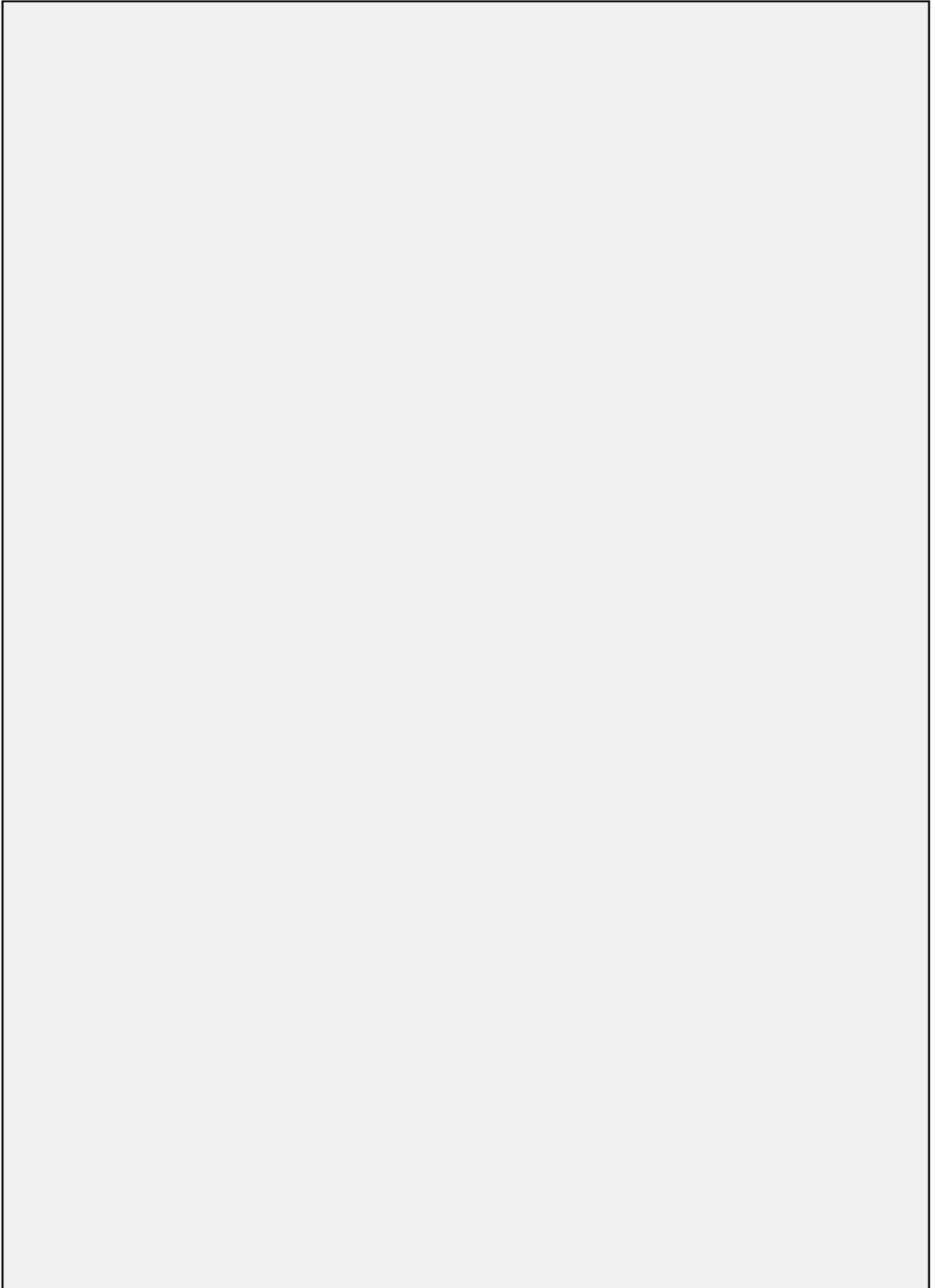
- ECT.188 Numerical Analysis of Deep Beams on Non-Uniform Elastic Compressional
and Frictional Winkler Foundations
A.A. Al-Azzawi
- ECT.189 Impedance of Bucket Foundations: Torsional, Horizontal and Rocking
Motion
L. Andersen, L.B. Ibsen and M.A. Liingaard
- ECT.191 Large Deflection of Rectangular Plates on Elastic Foundations
A.A. Al-Azzawi and B. Mohsen

15.45-16.15: Coffee

Conference venue layout



Conference venue layout



List of Participants

List of Participants

| |
|--|
| |
|--|

List of Participants

List of Participants

| |
|--|
| |
|--|

List of Participants

| |
|--|
| |
|--|

