

CONFERENCE PROGRAMME



37th International Conference on
Boundary Elements and other
Mesh Reduction Methods



BEM/MRM 37

NOTES TO CHAIRMEN AND PRESENTERS

Chairmen must be in their respective rooms 10 minutes before the start of their session to meet with the presenting authors.

Authors must meet with the Chairman of their session
10 minutes before the start of the session.

Authors must keep strictly to the time allocated for their presentation
to ensure the smooth running of the programme.

This programme is subject to last-minute alterations, please refer to the
conference noticeboard for the most up-to-date information.

8 – 10 September 2014

New Forest, UK

Organised by:

Wessex Institute, UK

University of Mississippi, USA

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WIT Transactions on Modelling and Simulation

Supported by:

International Journal of Engineering Analysis with boundary Elements
(EABE)

CONFERENCE PROGRAMME



BEM/MRM 37

8 – 10 September 2014, New Forest, UK



Monday, 8th September 2014

09.00 **Opening Addresses by C. Brebbia and A. Cheng**
Presentation of Green Medal by A. Cheng

Page number in
the proceedings

Session 1
Chairman: C. Brebbia

09.40 **Invited:**
Collocation and optimization initialization
E. J. Kansa & L. Ling

55

REFRESHMENT BREAK

Session 2
Chairman: A. Cheng

10.40 **Invited:**
The study of porous elastic plates by mesh-free methods
V. Sladek, J. Sladek, B. Musil & L. Sator

63

11.10 **Invited:**
A Kansa-RBF method for Poisson problems in annular domains
A. Karageorghis & C. S. Chen

77

LUNCH BREAK EXCURSION TO MINSTEAD

Minstead is one of the most picturesque villages of the New Forest. Mostly known in the area for its Church, All Saints, the burial place of Sir Arthur Conan Doyle and its I and II World War memorial, Minstead offers a view of how is life in the New Forest.

Delegates will have time to have a look at the town and its church before having lunch at the local pub.

After lunch delegates will visit the town of Lyndhurst.

Session 3: Advanced formulations

Chairman: E. J. Kansa

- | | | |
|-------|---|----|
| 15.00 | Invited:
A BEM and FEM analysis of fluid–structure interaction in a double tank
<i>J. Ravnik, E. Strelnikova, V. Gnitko & U. Ogorodnyk</i> | 13 |
| 15.30 | Invited:
The hypersingular boundary element method revisited
<i>N. A. Dumont</i> | 27 |

REFRESHMENT BREAK

- | | | |
|-------|--|----|
| 16.30 | Topological sensitivity of the objective function defined on morphing boundaries of two-dimensional heat conduction problems
<i>G. Jing, H. Isakari, T. Matsumoto, T. Yamada & T. Takahashi</i> | 3 |
| 16.50 | An adaptive element subdivision technique for evaluating 3D weakly singular boundary integrals
<i>J. Zhang, C. Lu, Y. Zhong, G. Xie & Y. Dong</i> | 41 |
| 17.10 | A meshless stress analysis of nonhomogeneous materials using the triple-reciprocity boundary element method
<i>Y. Ochiai</i> | 85 |

END OF DAY 1

EABE MEETING AND DINNER

Session 4: Electrical engineering and electromagnetics (I)

Chairman: N. A Dumont

- | | | |
|-------|--|-----|
| 09.00 | <p>Invited:
Surface integral equation analysis of the electromagnetic Interference (EMI) impact of wind turbines on radar systems
<i>D. Poljak, V. Dorić & D. Čavka</i></p> | 103 |
| 09.30 | <p>Boundary element method application for the impressed current cathodic protection of an offshore platform
<i>X. Wang, B. Hou & Z. Lan</i></p> | 113 |
| 09.50 | <p>The meshfree computation of stationary electric current densities in complex shaped conductors using 3D boundary element methods
<i>A. Buchau & W. M. Rucker</i></p> | 121 |

REFRESHMENT BREAK

Session 5: Electrical engineering and electromagnetics (II)

Chairman: D. Poljak

- | | | |
|-------|---|------|
| 10.40 | <p>A voxel-based electrostatic field analysis for the virtual-human model Duke using the indirect boundary element method With a GPU-accelerated fast multipole method
<i>S. Hamada</i></p> | 135 |
| 11.00 | <p>Reconstruction of the eddy current profile on the vacuum vessel In a nuclear fusion device using only external magnetic sensor signals
<i>M. Itagaki, A. Sanpei, S. Masamune & K. Watanabe</i></p> | 149 |
| 11.20 | <p>Application of the boundary element method in the oil and gas industry
<i>R. A. Adey</i></p> | ORAL |

LUNCH TIME BBQ AT ASHURST LODGE

Session 6

Chairman: J. Ravnik

Part 1

14.00

Invited:

On modification of the method of mechanical quadrature for SIE
in crack problems under step-like loads

A. N. Galybin

203

Part 2: Dynamics and vibrations (I)

14.30

Invited:

An efficient MFS model for the analysis of sonic crystals including
fluid–solid interaction

P. G. Santos, J. Carbajo, L. Godinho & J. Ramis

231

15.00

Invited:

On the harmonic solution for plate bending: considering the effects
of shear deformation and forces in the middle plane

L. Palermo Jr.

241

REFRESHMENT BREAK

Session 7: Dynamics and vibrations (II)

Chairman: L. Palermo Jr.

16.00

BEM modeling of wave diffraction in an elastic matrix
with nano-heterogeneities

S. L. Parvanova, G. D. Manolis & P. S. Dineva

251

16.20

The synthesis of seismic signals for laterally inhomogeneous
geological media via BIEM

I.-K. Fontara, S. Parvanova, P. Dineva, T. Rangelov & F. Wuttke

265

END OF DAY 2

CONFERENCE DINNER— See Conference secretary for details

Session 8: Heat and mass transfer

Chairman: A. Cheng

- 09.00 **Invited:**
Wavelet compression of parabolic diffusion integral kernels
J. Ravnik & L Škerget 165
- 09.30 Transient simulation of very large scale models using Krylov
subspace-based model order reduction
O. Macchion, A. Suleng, M. Mork & J. Sindler 177
- 09.50 A new method for the numerical evaluation of domain integrals
in a 3D boundary element method for transient heat conduction
Y. Dong, J. Zhang, G. Xie, C. Lu, L. Han & P. Wang 189

REFRESHMENT BREAK

Session 9: Fluid flow modelling

Chairman: C. Brebbia

- 10.40 A direct boundary element approach for the numerical simulation
of finite mobility ratio immiscible displacement in a Hele-Shaw cell
S. Jackson, D. Stevens, H. Power & D. Giddings 279
- 11.00 The indirect boundary element method for the two-dimensional
pressure- and gravity-driven free surface Stokes flow
M. A. Ponomareva, M. P. Filina & V. A. Yakutenok 289

Additional presentation:

- 11.20 **Invited:**
The interface integral BEM for solving general non-homogeneous and
non-linear mechanics problems
X. W. Gao, J. Liu, W. Z. Feng & K. Yang ORAL

END OF BEM/MRM 37

We hope you have enjoyed the conference and look forward to seeing you at
the next meeting in the series, have a safe and pleasant journey home.