



**ICCM2014
Conference Handbook**

**5th International Conference
on
Computational Methods
(ICCM2014)**

**28th -30th July 2014
Fitzwilliam College
Cambridge, England**

1. PREFACE

Dear Colleagues

On behalf of the organising committees, I am delighted to welcome you to the 5th International Conference on Computational Methods (ICCM2014) at Cambridge, England.

The ICCM2014 is an international conference that provides an international forum for the exchange of ideas on recent advances in areas related to computational methods, numerical modelling & simulation, as well as their applications in engineering and science field. It will accommodate presentations on a wide range of topics to facilitate inter-disciplinary exchange of ideas in science, engineering and related disciplines, and foster various types of academic collaborations internationally. All papers accepted for publication in the proceedings have been peer reviewed. Papers may also be selected and invited to be developed into a full journal paper for publication in special issues of the selected journals.

The conference series originated in Singapore in 2004 by Professor GR Liu, followed by ICCM2007 in Hiroshima, Japan, ICCM2010 in Zhangjiajie, China, and ICCM2012 in Golden Coast, Australia. This year, the ICCM2014 conference programme includes over 270 oral presentations from more than 35 countries scheduled in 47 technical sessions. There are 3 Plenary lectures, 9 Thematic Plenary lectures, and a number of Keynote speaks and Invited talks in technical sessions. These presentations cover a broad range of topics related to computational mechanics, including formulation theory, computational methods and techniques, modelling techniques and procedures, materials, deformation processing, materials removal processes, processing of new and advanced materials, welding and joining, surface engineering and other related processes.

I would like to express my gratitude to all the members of the Local Organizing Committee, International Scientific and Organization Committee, Honorary Chairmen and Co-Chairmen, who have provided advices and guidance timely in planning and executing this conference. I also would like to use this opportunity to express my gratitude to the School of Engineering of the University of Liverpool, and to colleagues for their strong support and encouragement. My sincere thanks and appreciation go to some 100 international reviewers for their prompt review reports on the abstracts and papers submitted. Our appreciation goes also to all the Mini-Symposium Organizers for their efforts and contributions in the organization. We must single out some members involved in the planning and preparation of this conference, Ms. Joanne Wang and her team. A vote of thanks also goes to members at the Scienteck Publisher USA for their professional services and management of the conference website and timely coordination with our participants.

I hope that this conference will provide a great venue of presenting and exchanging information for your scientific work and wish all of you have a great time in one of the old universities in the world, Cambridge.

Dr Zhongwei Guan

Conference Chairman, ICCM2014
Centre for Materials and Structures, School of Engineering,
University of Liverpool, UK

2. CITATION OF PAPERS PRESENTED IN THIS CONFERENCE

Papers in this proceeding may be identically cited in the following manner:

Author names, Paper title, *Proceedings of the 5th International Conference on Computational Methods*, 28th – 30th July 2014, Cambridge, ScienTech Publisher, Paper ID.

3. CONFERENCE HOURKEEPING

Conference venue

Fitzwilliam College, Storey's Way, Cambridge CB3 0DG, T: 01223 332040, Registered Charity No: 1137496

Catering

Coffee breaks for all mornings and 28th and 29th afternoons, buffet lunches for all 3 conference days, simple reception on pre-conference day 27th, dinner on 28th, and banquet on 29th are included and provided to all registered participants.

Instructions for chairs and presenters

Timeslots: Plenary Lecture 40 minutes; Thematic Plenary Lecture 30 minutes; All other presentations: 20 minutes. The timeslots include presentation and Q&A. It is advisable to give 5 minutes for Q&A. The conference program is fully packed. Please stick to the program to facilitate movements between the sessions.

Instructions for oral presenters

Only ppt projector and one computer are provided in each room. Please bring your file on a USB stick to the room of your presentation during the break before your session, or 20 minutes before the start of the day's presentations. A volunteer in the room will help you to load the ppt.

Name tags: Name tags are your entry to conference events. Please wear them at all times to avoid unnecessary misunderstanding.

Registration/Information desk

Auditorium Foyer. Open 16:00 - 19:00 on 27th (Sun) July 2014, and 07:30 -18:00 on 28th (Mon) July 2014.

Welcome reception

A welcome reception will be held in Auditorium Foyer from 19:00 to 20:30 on 27th July to provide a platform for colleagues to meet with each other and have some pre-conference chat.

Conference Banquet

The Banquet (with waitress service) 19:45 – 22:00 on 29th July is within the College Dining Hall (No. 3 in the College Map).

4. ORGANIZATION COMMITTEE (in an alphabetic order of surname)**Local Organization Committee**

Chairmen: Zhongwei Guan (University of Liverpool)

Co-Chairmen: Ivan Au (University of Liverpool), Michael Beer (University of Liverpool), Shuguang Li (University of Nottingham), Carlo Sansour (University of Nottingham), Jianqiao Ye (University of Lancaster)

Jiye Chen (University of Portsmouth), Steve Jones (University of Liverpool), Ioannis Kougioumtzoglou (University of Liverpool), Ming Li (University of Liverpool), Alex Diaz De La O (Secretary, University of Liverpool), Edoardo Patelli (University of Liverpool), Jianguo Zhou (University of Liverpool)

Honorary Chairmen

Gui Rong Liu (USA) Andy Long (UK) Dai Ning Fang (China) Mingwu Yuan (China)

International Organization Committee

Chairman: Zhongwei Guan (UK)

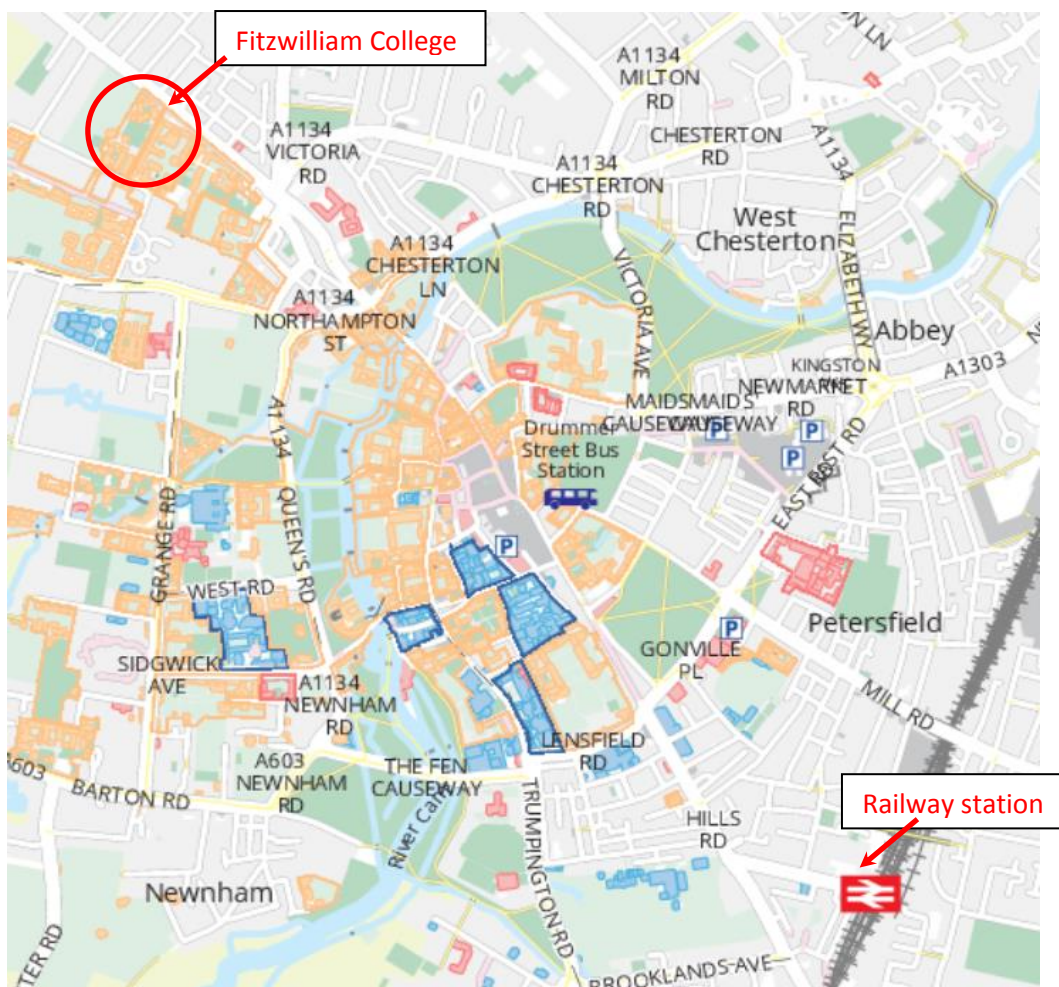
Co-Chairmen

Xi-Qiao Feng (China)	Hiroshi Okada (Japan)	Ming Li (China)	Sung-Kie Youn (Korea)
Yuantong Gu (Australia)	Carlo Sansour (UK)	Jinsong Leng (China)	Weihong Zhang (China)

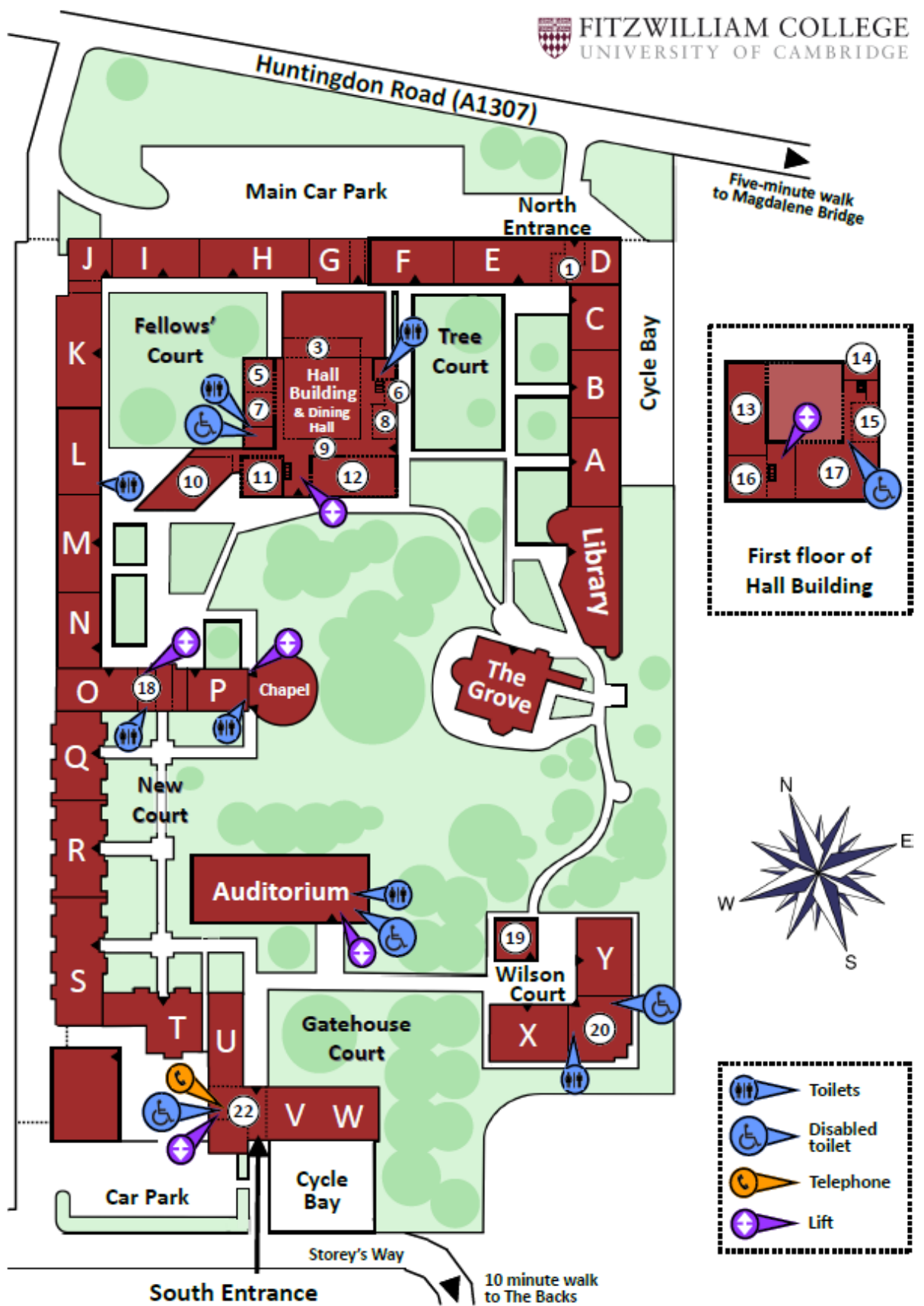
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|-----------------------------------|----------------------------|---------------------------------|
| • Leonardo Alves (Brazil) | • Alexander Korsunsky (UK) | • Nasser Hassan Sweilam (Egypt) |
| • Jorge A. C. Ambrósio (Portugal) | • S. Koshizuka (Japan) | • Yuichi Tadano (Japan) |
| • Soowon Chae (Korea) | • Oh Joon Kwon (Korea) | • Shintaro Takeuchi (Japan) |
| • Jiye Chen (UK) | • Ik-Jin Lee (Korea) | • Y. Cengiz Toklu (Turkey) |
| • Weiqiu Chen (China) | • Chenfeng Li (UK) | • Biao Wang (China) |
| • Changzheng Cheng (China) | • San-Yih Lin (Taiwan) | • Jizeng Wang (China) |
| • Maeng Hyo Cho (Korea) | • Moubin Liu (China) | • Yue-Sheng Wang (China) |
| • Marcelo Colaco (Brazil) | • Yijun Liu (USA) | • Hengan Wu (China) |
| • Roberto Contro (Italy) | • Yinghua Liu (China) | • Mao S. Wu (Singapore) |
| | • Zhaomiao Liu (China) | • Yang Xiang (Australia) |

- Fangsen Cui (Singapore)
- Guangze Dai (China)
- Raj Das (New Zealand)
- George S. Dulikravich (USA)
- Xu Guo (China)
- Wanlin Guo (China)
- Wei Guo (Australia)
- Zaoyang Guo (China)
- S. Hagihara (Japan)
- Xu Han (China)
- Annette Harte (Ireland)
- Muneo Hori (Japan)
- Ning Hu (China)
- Zheng-Ming Huang (China)
- Hung Nguyen Xuan (Vietnam)
- Chao Jiang (China)
- Hiroshi Kanayama (Japan)
- H. Kawai (Japan)
- Cheol Kim (Korea)
- Moon Ki Kim (Korea)
- Yoon Young Kim (Korea)
- Yun-jae Kim (Korea)
- Lianchun Long (China)
- Ping Lu (USA)
- Hitoshi Matsubara (Japan)
- Karol Miller (Australia)
- Toshio Nagashima (Japan)
- Yuji Nakasone (Japan)
- Perumal Nithiarasu (UK)
- Yang-Yao Niu (Taiwan)
- Zhongrong Niu (China)
- Masao Ogino (Japan)
- Makoto Ohsaki (Japan)
- Takeshi Omori (Japan)
- Marc Oudjene (France)
- Joe Petrolito (Australia)
- Dong Qian (USA)
- Qinghua Qin (Australia)
- Alessandro Reali (Italy)
- Božidar Šarler (Slovenia)
- Sandeep M Shiyekar (India)
- Leandro Alcoforado Sphaier (Brazil)
- Yoshio Suzuki (Japan)
- Yi-Min (Mike) Xie (Australia)
- Qing-sheng Yang (China)
- Weian Yao (China)
- Zhenjun Yang (China)
- K Yashiro (Japan)
- Hongling Ye (China)
- Yongjin Yoon (Singapore)
- S. Yoshimura (Japan)
- Rena C. Yu (Spain)
- Julien Yvonnet (France)
- Kang Zhan (China)
- Xiong Zhang (China)
- Qing Zhang (China)
- Lihai Zhang (Australia)
- Xianfeng Zhang (China)
- Zhiqian Zhang (Singapore)
- Ya-Pu Zhao (China)
- Zheng Zhong (China)
- Huanlin Zhou (China)
- Kun Zhou (Singapore)
- Yufeng Zhou (Singapore)
- Jihong Zhu (China)

5. CAMBRIDGE MAP



6. FLOOR PLAN OF CONFERENCE VENUE



Rooms

Gaskoin Room (15)
Gordon Cameron Lecture Theatre (19)
Old Senior Common Room (10)
Reddaway Room (17)
Stretton Room (O)
Trust Room (L)
Walker Rooms 1 & 2 (21)
Walter Grave Room (11)
William Thatcher Room (20)
Wilson Court common room (20)
Wilson Court seminar rooms (20)

Facilities

Café Bar (12)
Catering & Conferences (G)
Dining Hall / Buttery (3)
Domestic Office (K)
Laundry (F)
Porters Lodge (22)
Screens / notice boards (9)

Accommodation

Tree Court (standard) Staircases A, B, C
Tree Court (semi-ensuite) Staircases E, F
Fellows' Court (standard) Staircase P
Fellows' Court (semi-ensuite) Staircases M, N
New Court (ensuite) Staircases Q, R, S, T
Gatehouse Court (ensuite) Staircases T, U, V, W
Wilson Court (ensuite) Staircases X, Y

7. PROGRAM OVERVIEW

Programme at a glance

ICCM2014, Fitzwilliam College, University of Cambridge, England

Time		Conference Program (Rooms)
July 27 (Sun)	16:00-19:00	Registration (Auditorium Foyer)
	19:30-20:30	Welcome reception (The Grove Lawn)
July 28, 29, 30	08:00-18:00	Registration (Auditorium Foyer)
	08:20-08:30 (Only for Day 1)	Opening Session (Auditorium)
Day 1 July 28 (Mon)	Session 1 08:30-9:10	Plenary Lectures (Auditorium)
	Session 2 09:10-09:40	Thematic Plenary Lectures (Auditorium, Reddaway, Trust)
	09:40-10:00	Coffee/Tea (Auditorium Foyer, Upper Hall 1&2)
Day 2 July 29 (Tue)	Session 3 10:00-13:00	Parallel Sessions (Auditorium, Reddaway, Trust, Gordon Cameron, Old SCR)
	13:00-14:00	Lunch (Auditorium Foyer, Upper Hall 1&2)
Day 3 July 30 (Wed)	Session 4 14:00-16:00	Parallel Sessions (Auditorium, Reddaway, Trust, Gordon Cameron, Old SCR)
	16:00-16:20	Coffee/Tea
	Session 5 16:20-18:40	Parallel Sessions (Auditorium, Reddaway, Trust, Gordon Cameron, Old SCR)
July 28	19:30-20:15 (can stay until 21:00)	Dinner (Self Service Buttery Dinner)
July 29	19:45-22:00 (be ready at 19:35)	Banquet (Waitress Service Dinner)
July 31 (Thurs)	08:00-12:00	Free discussions and social meetings/visits

Conference Banquet: 19:45 – 22:00 on 29th July 2014. **All delegates must enter the Banquet Hall at 19:35.**

8. DETAILED PROGRAM FOR PLENARY AND PARALLEL SESSIONS

Plenary Lecture (PL)

- Modelling for design and manufacture of textile composites by **Andy Long** (University of Nottingham UK)
 Image Analysis of Full-Field Vibration and Strain Data by **John E Mottershead** (University of Liverpool UK)
 Weak Galerkin Finite Element Methods: Algorithm and Theory by **Junping Wang** (National Science Foundation USA)

Thematic Plenary Lecture (TPL)

- A multiscale boundary integral formulation for modelling damage, by **Ferri M H Aliabadi** (Imperial College London)
 Using CFD for Aircraft Aeroelastic and Flight Dynamics Analysis, by **Ken Badcock** (University of Liverpool UK)
 Explosive interactions of granular media with structures, by **Vikram Deshpande** (University of Cambridge UK)
 Experimental and Numerical Investigations on Mechanical and Thermal Properties of Low Dimensional Nanomaterials, by **Yuantong Gu** (Queensland University of Technology Australia)
 An Industrial Application of Thermal Convection Analysis, by **Hiroshi Kanayama** (Japan Women's University)
 Computational Otolaryngology – Modeling and Simulations of Nasal Airflows, by **Heow Pueh Lee** (National University of Singapore)
 Soft Active Polymer and their Composites: Recent Progress and Future Applications, by **Jinsong Leng** (Harbin Institute of Technology China)
 Beyond finite element method: towards robust and accurate meshless method for computational biomechanics for Medicine, by **Karol Miller** (Cardiff University UK)
 Using backbone curves to model the response of weakly coupled nonlinear oscillators, by **David Wagg** (University of Sheffield UK)

Parallel Session Titles and Mini-symposium (MS) Organizers

- MS-0: Theory of computational methods, by Guirong Liu
 MS-1: Computational Mechanics for Solids and Structures, by Zheng-Ming Huang (Tongji University)
 MS-2: Optimization Design of Complex Structure Systems, by Weihong Zhang and Jihong Zhu (Northwestern Polytechnical University)
 MS-3: Particle Based Methods, by Xiong Zhang (Tsinghua University), Zhen Chen (University of Missouri), Yuntian Feng (Swansea University) and Moubin Liu (Institute of Mechanics, CAS)
 MS-4: Structural Integrity – Fracture Mechanics, by Hiroshi Kawai and Hiroshi Okada (Tokyo University of Science)
 MS-6: Numerical Methods for Two-Phase Flow and Fluid-Structure Interaction, by San-Yih Lin (National Cheng Kung University) and Niu Yang-Yao (Tamkang University)
 MS-7: Modeling and Simulation of Functional Materials and Structures, by Weiqiu Chen and Jie Wang (Zhejiang University)
 MS-8: Smart and Multifunctional Composites, by Jinsong Leng (Harbin Institute of Technology)
 MS-10: Numerical Methods for Damage and Fracture Analyses in Composites, by Toshio Nagashima (Sophia University)
 MS-11: Large Scale Coupled Problems and Related Topics, by Hiroshi Kanayama (Japan Women's University), Masao Ogino (Nagoya University) and Ryuji Shioya (Toyo University)
 MS-12: Stochastic Modelling and Probabilistic Engineering, by Chenfeng Li (Swansea University)
 MS-13: Atomistic and Continuum Simulations on Materials Strength and Properties, by Kisaragi Yashiro (Kobe University), Tomohiro Takaki (Kyoto Institute of Technology)
 MS-14: Structural and Material Optimization, by Xu Guo (Dalian University of Technology)
 MS-15: Regularization Algorithms in BEM, by Huanlin Zhou (Hefei University of Technology)
 MS-17: Analytical and Numerical Analysis of Electro- and Magnetomechanical Systems, by Zheng Zhong (Tongji University)
 MS-18: Computational and Theoretical Biomechanics, by Moon Ki Kim (Sungkyunkwan University)
 MS-19: Modelling and Simulating Multifield Coupling Behaviour of Smart Materials and Structures, By Qingsheng Yang (Beijing University of Technology)
 MS-20: Engineering Inverse Problems, by Xu Han (Hunan University)
 MS-21: Modelling and Simulation of Fiber-Reinforced Composites, by Xiongqi Peng (Shanghai Jiao Tong University) and Woong-Ryeol Yu (Seoul National University)
 MS-22: Uncertainty Modeling & Reliability Analysis, by Chao Jiang (Hunan University) and Wei Gao (The University of New South Wales)
 MS-23: Computational Mechanics Of Cells and Biomaterials, by Xi-Qiao Feng (Tsinghua University) and Yuantong Gu (Queensland University of Technology)

- MS-24: Atomic and Multiscale Modelling and Simulation, by: Yuantong Gu (Queensland University of Technology) and Yong-Gang Zheng (Dalian University of Technology)
- MS-25: Recent Advances In Meshfree and Particle Methods, by Seiya Hagihara (Saga University), Seiichi Koshizuka (University of Tokyo), Minoru Shirazaki (Yokohama National University)
- MS-26: Soft Matter Mechanics, by Mao S. Wu (Nanyang Technology University)
- MS-27: Computational Fracture Mechanics for Quasi-Brittle Materials, by Rena C. Yu (University of Castilla-La Mancha)
- MS-28: Computational Materials Design, by George S. Dulikravich (Florida International University)
- MS-29: Computational Biomedical Engineering, by Heow Pueh Lee (National University of Singapore) and Denis Doorly (Imperial College London)
- MS-30: Numerical Methods for Engineering Problems with Strong Nonlinearity, by Jizeng Wang (Lanzhou University)
- MS-31: Development and Application of High-order Methods for Compressible and Incompressible Flows, by Ping Lu (University of Texas Arlington)
- MS-32: Molecular Dynamics Simulations on Nanomechanics, by Hengan Wu (University of Science and Technology of China)
- MS-33: Computational Modelling and Simulation in the Development of Medical Devices, by Fangsen Cui (Institute of High Performance Computing)
- MS-35: Residual Stresses and Eigenstrains, by Alexander Korsunsky (University of Oxford)
- MS-36: Advanced Computational Methods in Limit and Shakedown Analysis of Structures, by Hung Nguyen Xuan (University of Science, Vietnam National University HCMC)
- MS-37: Computational Methods for Tensegrity and Tension Structures, by Makoto Ohsaki (Hiroshima University) and Jingyao Zhang (Nagoya City University)
- MS-38: Mechanics and Biomimetics of Surface and Interface, by Shaohua Chen (Institute of Mechanics, Chinese Academy of Sciences)
- MS-39: Advances in Multi-Physics Modelling and its Applications, by Lei Chen (the Pennsylvania State University)
- MS-40: Advances in Topology and Shape Optimisation, by Qing Li (University of Sydney)
- MS-41: Development and application of smoothed finite element method, by Quan Bing Eric Li (University of Sydney) and Lei Chen (the Pennsylvania State University)
- MS-42: Advanced Computational Methods in Underwater Acoustics, by Wei Li (Huazhong University of Science and Technology)
- MS-43: Hybrid Analytical-Numerical Methods, by Leonardo Alves and Leandro Alcoforado Sphaier (Universidade Federal Fluminense)
- MS-44: Multiscale Modelling of Mechanical Property, by Shan Tang and Ning Hu (Chongqing University)
- MS-47: FE/DE Method and Applications, by Mengyan Zang (South China University of Technology)
- MS-48: Numerical Simulations in Flow Control, by Hui Tang (Nanyang Technological University)
- MS-49: Computational Studies of Heart Functions, by Leo Hwa Liang (National University of Singapore)
- MS-50: Advances in Nanomechanics and Multiscale Mechanics in Complex Materials, by Maenghyo Cho (Seoul National University)
- MS-51: Computational Modelling of Materials with Uncertainty, by Alejandro DiazDelaO, Ioannis Kougoumtzoglou and Michael Beer (University of Liverpool), Erick Saavedra Flores and Paulina González Soto (Universidad de Santiago de Chile)
- MS-52: Efficient Methods for Uncertainty Quantification, by Alejandro DiazDelaO, Michael Beer, Ioannis Kougoumtzoglou, Edoardo Patelli, Siu Kui Au, Konstantin Zuev (University of Liverpool)
- MS-54: Inverse Problems, Design and Optimisation under Uncertainties, by Marcelo J. Colaço and Helcio R. B. Orlande (Federal University of Rio de Janeiro), George S. Dulikravich (Florida International University), Zbigniew Buliński (Silesian University of Technology)
- MS-56: Recent Advances in Multiscale Numerical Methods for Solid Mechanics, by Lars Beex (Cardiff University), St'ephane Bordas (Luxembourg University, Cardiff University) and Pierre Kerfriden (Cardiff University)
- MS-57: Linear and Nonlinear Dynamics, by John Mottershead (University of Liverpool) and Elvio Bonisoli (Politecnico di Torino)
- MS-58: Theoretical and Computational Analyses for Inverse Problems, by Leevan Ling (Hong Kong Baptist University) and Jijun Liu (Southeast University)
- MS-59: Computational Methods and Analysis of Dynamic Phenomena with Contact and Friction Interfaces, by Alexander Fidlin (Karlsruhe Institute of Technology)
- MS-60: Computational Methods for Extra Degrees of Freedom and Higher Gradients, by Carlo Sansour (University of Nottingham) and Sebastian Skatulla (University of Cape Town)
- MS-61: Advanced Computational Methods for Modelling of Fracture and Damage, by Raj Das (University of Auckland)
- MS-62: Advanced Computational Methods and Data Analysis in offshore industry, by Yanling Wu (Lloyd's Register Global Technology Centre Singapore)
- MS-63: Numerical Modelling of Fracture Growth, by Adriana Paluszny (Imperial College London)
- MS-65: Micromechanics, by Kun Zhou (Nanyang Technological University) and Qihong Fang (Hunan University)

Note: PL: Plenary Lecture; TPL: Thematic Plenary Lecture; MS: Mini-Symposium

Day 1 Plenary Lectures: 28th (Mon) July 2014**PL-Auditorium Room, Chairmen: John E Mottershead and Vikram Deshpande**

Time	ID	Presenter and Title
08:20-08:25		Ken Badcock: Welcome Speech
08:25-08:30		Guirong Liu: Speech on ICCM
08:30-09:10	621	Andy Long: Modelling for design and manufacture of textile composites

Time	ID	Presenter and Title
TPL-1 Auditorium Room, Chairmen: John E Mottershead and Junping Wang		
09:10-09:40	618	Ken Badcock: Using CFD for Aircraft Aeroelastic and Flight Dynamics Analysis
TPL-2 Reddaway Room, Chairmen: Karol Miller and Hoew Pueh Lee		
09:10-09:40	620	Jinsong Leng: Soft Active Polymer and their Composites: Recent Progress and Future Applications
TPL-3 Trust Room, Chairmen: Ferri M H Aliabadi and Weihong Zhang		
09:10-09:40	509	David Wagg: Using backbone curves to model the response of weakly coupled nonlinear oscillators
09:40-10:00		Coffee/Tea Break

Day 2 Plenary Lectures: 29th (Tue) July 2014**PL-Auditorium Room, Chairmen: Ken Badcock and Hiroshi Kanayama**

Time	ID	Presenter and Title
08:30-09:10	57	John E Mottershead: Image Analysis of Full-Field Vibration and Strain Data

Time	ID	Presenter and Title
TPL-1 Auditorium Room, Chairmen: Andy Long and David Wagg		
09:10-09:40	619	Vikram Deshpande: Explosive interactions of granular media with structures
TPL-2 Reddaway Room, Chairmen: Junping Wang and Jinsong Leng		
09:10-09:40	617	Ferri M H Aliabadi: A multiscale boundary integral formulation for modelling damage
TPL-3 Trust Room, Chairmen: Karol Miller and YuanTong Gu		
09:10-09:40	224	Hoew Pueh Lee: Computational Otolaryngology – Modeling and Simulations of Nasal Airflows
09:40-10:00		Coffee/Tea Break

Day 3 Plenary Lectures: 30th (Wed) July 2014**PL-Auditorium Room, Chairmen: Mingwu Yuan and Guirong Liu**

Time	ID	Presenter and Title
08:30-09:10	616	Junping Wang: Weak Galerkin Finite Element Methods: Algorithm and Theory

Time	ID	Presenter and Title
TPL-1 Auditorium Room, Chairmen: Guirong Liu and Vikram Deshpande		
09:10-09:40	615	Hiroshi Kanayama: An Industrial Application of Thermal Convection Analysis
TPL-2 Reddaway Room, Chairmen: Xi-Qiao Feng and Ming Li		
09:10-09:40	633	Yuantong Gu: Experimental and Numerical Investigations on Mechanical and Thermal Properties of Low Dimensional Nanomaterials
TPL-3 Trust Room, Chairmen: Xiong Zhang and Jinsong Leng		
09:10-09:40	67	Karol Miller: Beyond finite element method: towards robust and accurate meshless method for computational biomechanics for medicine
09:40-10:00		Coffee/Tea Break

Day 1 Parallel Sessions: 28th (Mon) July 2014, Auditorium**Room 1 : Auditorium****MS-13: Atomistic and Continuum Simulations on Materials Strength and Properties**

Chair: Kisaragi Yashiro and Tomohiro Takaki

Time	ID	Title / Authors
10:00-10:20	417	Keynote: Evaluation of the mechanical property of ferrite lamellar in pearlite microstructure / Tetsuya Ohashi and Yohei Yasuda
10:20-10:40	471	Keynote: Atomistic Fracture Toughness of Magnesium Alloy Mg-Y by Molecular Dynamics Simulations / Yoji Shibutani and Daisuke Matsunaka
10:40-11:00	329	Invited: Study on Mechanical Model of Nafion Membrane / Isamu Riku
11:00-11:20	371	Invited: Influence of Random Nucleation Condition on Transformation Kinetics in Phase Field Simulations / Takuya Uehara
11:20-11:40	388	Invited: A First-principles Study of Twin Boundary and Surface Energies of Magnesium Alloys / Daisuke Matsunaka
11:40-12:00	517	Invited: Lattice Defect Model of Kink Deformation and Configurational Force / Akihiro Nakatani and Xiao-Wen Lei
12:00-12:20	230	Global vs. Local Instabilities of Pure Bcc Iron / Kisaragi Yashiro
12:20-12:40	358	Finite element analysis of frictional properties of hierarchical ramification structure on a flat surface / Xiaoru Wang and Akihiro Nakatani
12:40-13:00	367	Crack propagation simulations in complicated material microstructures by multi-phase-field crack model / Tomohiro Takaki

MS-11: Large Scale Coupled Problems and Related Topics

Chair: Hiroshi Kanayama, Masao Ogino and Ryuji Shioya

Time	ID	Title / Authors
14:00-14:20	313	Keynote: A Balancing Domain Decomposition Method Combined with a Diagonal-Scaling Preconditioning for Multi-Materials / Masao Ogino
14:20-14:40	362	Invited: An Efficient Parallelization and Asymmetric Solver for the FSI Solver based on the SUPG/PSPG Method and the Enriched Free Mesh Method / Yasushi Nakabayashi, Shinsuke Nagaoka, Yoshiaki Tamura and Genki Yagawa
14:40-15:00	613	Invited: Modeling strategies for predicting the behavior of nanocomposites: molecular dynamics, micromechanics, and finite element approaches / H. K. Lee and B. J. Yang
15:00-15:20	501	Comparative Study of Sparse Matrix Storage Schemes in the Finite Element Analysis of Thermal-Structure Coupling Problems / Abul Mukaddes, Ryuji Shioya and Masao Ogino
15:20-15:40	410	A Balancing Domain Decomposition Method with a Multigrid Strategy of Magnetostatic Problems / Daisuke TAGAMI
15:40-16:00	117	Preconditioner Construction for Magnetostatic Domain Decomposition Analysis / Hiroshi Kanayama, Masao Ogino and Shin-ichiro Sugimoto

MS-12: Stochastic Modelling and Probabilistic Engineering

Chair: Chenfeng Li and Hermann Matthies

Time	ID	Title / Authors
16:20-16:40	240	Keynote: Stochastic Models, Uncertainty Quantification, and Inverse Problems with Low-Rank Tensor Approximations / Hermann Matthies
16:40-17:00	386	Keynote: Variational Formulation of Stochastic Dynamics / XI XU
17:00-17:20	241	Invited: Statistical Reconstruction of Multiphase Random Media / Chenfeng Li
17:20-17:40	43	Sample-based Reliability Estimation Method in Computational Mechanics employing Extreme Value Distribution / Chan Kyu Choi, Hong Hee Yoo, Anas Batou and Christian Soize
17:40-18:00	162	Coherent and Compatible Statistical Models in Structural Analysis / Maria Nogal, Enrique Castillo, Aida Calvi o and Alan O'Connor
18:00-18:20	187	Poroelasticity of Polycrystalline Composites and its Relationship to Biopolymer Induced Pore-Clogging Effects for Improving Water-Flood Efficiency / James Berryman
18:20-18:40	246	Spatial and Temporal Variability of a Geo-Structural System / Michael Davidson, Jae Chung and Harald Klammler

Day 1 Parallel Sessions: 28th (Mon) July 2014, Reddaway**Room 2 : Reddaway****MS-2: Optimization Design of Complex Structure Systems**

Chair: Weihong Zhang and Jihong Zhu

MS-21: Modelling and Simulation of Fiber-Reinforced Composites,

Chair: Xiongqi Peng and Woong-Ryeol Yu

Time	ID	Title / Authors
10:00-10:20	100	Keynote: Shape and topology optimization with finite cell method using fixed grids / Weihong Zhang, Shouyu Cai, Liang Meng and Jihong Zhu
10:20-10:40	58	Keynote: Topology optimization of metallic antennas design for radiation energy maximization / Shuitan Liu, Qi Wang, Renjing Gao,
10:40-11:00	151	Modelling compressive crush of composite tube reinforced foam sandwiches / Jin Zhou, Zhongwei Guan and Wesley Cantwell.
11:00-11:20	86	Topology optimization with Shape Preserving Design / Jihong Zhu, Weihong Zhang and Yu Li
11:20-11:40	62	A reduced multiscale model for nonlinear structural topology optimization / Liang Xia, Piotr Breitkopf
11:40-12:00	211	CAD/CAM Concepts of a Sophisticated Geometric Structure / Amit Haldar
12:00-12:20	181	Analysis of the hollow structure with functionally gradient materials of Moso bamboo / Lianchun Long, Kai Chen and Zhaokun Wang
12:20-12:40	346	Modelling structural response of flax-based composite interlocking structures / Mohd Zuhri Mohamed Yusoff
12:40-13:00		

MS-24: Atomic and Multiscale Modelling and Simulation

Chair: Yuantong Gu and Yong-Gang Zheng

Time	ID	Title / Authors
14:00-14:20	138	Keynote: Mechanical Properties and Behaviors of Hierarchically Nanotwinned Materials under Indentation and Scratch / Yonggang Zheng, Haitang He, Hongwu Zhang and Hongfei Ye
14:20-14:40	142	Electric Field-Controlled Performance of Fluid-Filled Carbon Nanotubes / Hongfei Ye, Hongwu Zhang, Zhen Chen and Zhi Zong
14:40-15:00	175	Mechanical properties and deformation mechanisms of collapsed carbon nanotubes fibers by coarse-grain molecular dynamic simulations / Xia Liu, Qing-Sheng Yang
15:00-15:20	278	Engineering the mechanical properties of graphene nanotube hybrid structures through structural modulation / Ye Wei, Haifei ZHAN, Kang Xia and Yuantong Gu
15:20-15:40	306	A molecular dynamic simulation of CO ₂ separation from flue gas with graphyne membranes / Suchitra de Silva, Aijun Du, Wijitha Senadeera and YuanTong Gu
15:40-16:00	324	An analytical mechanics model for the island-bridge structure of stretchable electronics / Rui Li

MS-22: Uncertainty Modeling & Reliability Analysis

Chair: Chao Jiang and Wei Gao

Time	ID	Title / Authors
16:20-16:40	192	Keynote: A reliability analysis method for structures with correlated parameters using vine copula / Chao Jiang, Wang Zhang and Xu Han
16:40-17:00	414	Keynote: Interval long-term analysis of shallow concrete-filled steel tubular arches / Xue Shi, Wei Gao and Yonglin Pi
17:00-17:20	589	Invited: Explicit iteration based-MCS for random vibration of nonlinear systems / Cheng Su, Huan Huang and Haitao Ma
17:20-17:40	178	Uncertain multi-objective optimization using a nonlinear interval number programming method / Xin Liu
17:40-18:00	365	Reliability-based study of well casing strength formulation / Eduardo Lima Junior, Lucas Gouveia, Jo o Paulo Santos and Jorel Anjos
18:00-18:20	404	Long-term analysis of crown-pinned concrete-filled steel tubular arches / Kai Luo
18:20-18:40	205	A New Method for Hybrid of Probability and Interval Uncertainty Analysis / Jinglai Wu

Day 1 Parallel Sessions: 28th (Mon) July 2014, Trust**Room 3 : Trust****MS-14: Structural and material optimization**

Chair: Xu Guo

MS-15: Regularization Algorithms in BEM

Chair: Huanlin Zhou

Time	ID	Title / Authors
10:00-10:20	248	Keynote: BEM Analysis of Actively Cooled Thermal structures / Xiao-Wei Gao
10:20-10:40	71	Keynote: Adaptive Precise Integration BEM for Solving Transient Heat Conduction Problems / Weian Yao and Bo Yu
10:40-11:00	208	Invited: Computing Lipschitz and Calmness Moduli in Linear Optimization / Juan Parra, MarA-a CAinovas, Abderrahim Hantoute and Francisco Toledo
11:00-11:20	237	Invited: Inversion of Temperature-dependent Thermal Conductivity for 2-D Transient Heat Conduction Problems Based on BEM / Huanlin Zhou
11:20-11:40	318	Topology Optimization of Anisotropic Materials under Harmonic Response Based on ICM Method / Hongling Ye
11:40-12:00	622	Form-finding of topologically complex shells using isogeometric analysis and trimmed surfaces / Pilseong Kang and Sung-Kie Youn
12:00-12:20	149	Computational Methods on Tool Forces in Friction Stir Welding / Zhao Zhang
12:20-12:40	256	Analysis of the temperature fields in anisotropic coating-structures with the boundary element method / Changzheng Cheng
12:40-13:00		

MS-35: Residual Stresses and Eigenstrains

Chair: Alexander Korsunsky and Masaru Ogawa

Time	ID	Title / Authors
14:00-14:20	141	Keynote: Three-dimensional Welding Residual Stresses Evaluation Based on the Eigen-strain Methodology via X-ray Measurements on Surface / Masaru Ogawa
14:20-14:40	400	Keynote: Hybrid contour method/eigenstrain model for predicting residual stress in glass / Mithila Achintha, Bogdan Balan
14:40-15:00	215	Multiple Inhomogeneous Inclusions under Mixed Lubricated Contact / Qingbing Dong, Kun Zhou and Leon Keer
15:00-15:20	383	Efficient Prediction of Bending Deformation with Eigenstrain for Laser Peen Forming / Yongxiang Hu
15:20-15:40	513	Investigation of the effect of residual stress on the crack driving force / Xiaobo Ren
15:40-16:00	122	Determining the Residual Stresses of Circular Weld Bead with Eigenstrain BIE as an Inverse Approach / Hang Ma

MS-41: Development and application of smoothed finite element method

Chair: Quan Bing Eric Li and Lei Chen

Time	ID	Title / Authors
16:20-16:40	284	Keynote: Smoothed finite element methods in the determination of composite material properties / Quan Bing Eric Li
16:40-17:00	257	Keynote: Analysis and simulations of a micro-polar elastic beam / Xu Xu and Nan Ding
17:00-17:20	35	Invited: A face-based smoothed XFEM for three-dimensional fracture problems / Yong Jiang
17:20-17:40	220	Invited: Performance Evaluation of the Selective Smoothed Finite Element Method with Deviatoric/Hydrostatic Split / Yuki Onishi
17:40-18:00	197	Asymptotic Behavior of Solutions for Dissipative Wave Equations in Inhomogeneous Media / Shuguan Ji
18:00-18:20	265	Weak-Painleve Property and Integrability of General Dynamical Systems / Shaoyun Shi
18:20-18:40	293	Feature Extraction of Hand-Vein Patterns Based on Ridgelet and Morphing Transform / Xiao Han, Yu Zhang and Siliang Ma
18:40-19:00	326	Free vibration analysis of the functionally graded coated and undercoated plates / Yang Yang

Day 1 Parallel Sessions: 28th (Mon) July 2014, Gordon Cameron**Room 4 : Gordon Cameron****MS-37: Computational Methods for Tensegrity and Tension Structures**

Chair: Makoto Ohsaki and Jingyao Zhang

Time	ID	Title / Authors
10:00-10:20	377	Keynote: The Stiffness of Tensegrity Structures / Simon Guest
10:20-10:40	114	Keynote: Form-finding of Tensegrity Structures by using Non-linear Analysis / Jingyao Zhang and Makoto Ohsaki
10:40-11:00	172	Invited: Dynamic Modeling of Tensegrity Robots Rolling over the Ground / Shinichi Hirai and Ryo Imuta
11:00-11:20	244	Invited: Investigating the influence of bending in the structural behavior of tensegrity modules using dynamic relaxation / Landolf Rhode-Barbarigos and Adriaenssens Sigrđ
11:20-11:40	441	Invited: Design, form-finding and mechanical properties of tensegrities / Xi-Qiao Feng, Li-Yuan Zhang and Yue Li
11:40-12:00	89	Form-Finding and Stability Analysis of Tensegrity Structures using Nonlinear Programming and Fictitious Material Properties / Makoto Ohsaki , Jingyao Zhang and Tetsuto Taguchi
12:00-12:20	116	Self-equilibrium Analysis of Cable Structures based on Isogeometric Analysis / Keigo Harada, Jingyao Zhang and Toshiyuki Ogawa
12:20-12:40	239	Novel algebraic results for tensegrity structures / Franco Maceri, Michele Marino and Giuseppe Vairo
12:40-13:00	438	Large-scale tensegrity assembled from prismatic cells: Design method and mechanical properties / Li-Yuan Zhang and Xi-Qiao Feng

MS-0: Theory of computational methods

Chair: Guirong Liu and Yinghua Liu

MS-36: Advanced Computational Methods in Limit and Shakedown Analysis of Structures

Chair: Yinghua Liu

Time	ID	Title / Authors
14:00-14:20	439	Keynote: Finite integration method for solving multi-dimensional partial differential equations / Pihua Wen
14:20-14:40	165	Keynote: Plastic Limit Analysis of Defective Pipelines under Complex Loads / Yinghua Liu, Xianhe Du
14:40-15:00	258	Invited: A Differential Quadrature Hierarchical Finite Element Method and Its Application to Thickness-shear Vibration Analysis of Rectangular Quartz Plates / Bo Liu
15:00-15:20	542	Application of Lattice Green Function & Lattice Boltzmann Model to Lithosphere-asthenosphere permeability / Bojing Zhu
15:20-15:40	372	Reduced-Order Modeling for Transonic Wing Flutter Analysis Including Effects of Control Surface and Nonzero Angle of Attack / Taehyoun Kim and Kwok Lai
15:40-16:00	210	Mechanical Characterization of novel contour core panels / Amit Haldar

MS-25: Recent Advances In Meshfree and Particle Methods

Chair: Seiya Hagihara, Seiichi Koshizuka, Minoru Shirazaki

MS-26: Soft Matter Mechanics

Chair: Mao S. Wu

Time	ID	Title / Authors
16:20-16:40	170	Keynote: Smoothed particle hydrodynamics method for elastic-plastic structures / Seiya Hagihara, Sho Fumoto, Tomohiro Shirahama and Satoyuki Tanaka
16:40-17:00	221	Keynote: Nonlinear effects in soft cylindrical composites / Dong Wang, Mao See Wu
17:00-17:20	305	Invited: Comparisons of calculation cost and accuracy between the explicit and semi-implicit distributed memory parallel MPS method / KOHEI MUROTANI, Seiichi KOSHIZUKA
17:20-17:40	635	Invited: Relations between the Poynting and axial force-twisting effects / Dong Wang and Mao S. Wu
17:40-18:00	437	An extra dof-free and well-conditioned XFEM / Longfei Wen and Rong Tian
18:00-18:20	90	Soliton Kernels for solving PDEs. / Marjan Uddin
18:20-18:40	251	Surface Wrinkling of a Polymeric Gel During Transient Swelling / Teng Yong Ng, Zishun Liu and William Toh

Day 1 Parallel Sessions: 28th (Mon) July 2014, Old SCR**Room 5 : Old SCR****MS-3: Particle Based Methods**

Chair: Xiong Zhang, Zhen Chen, Yuntian Feng and Moubin Liu

Time	ID	Title / Authors
10:00-10:20	27	Keynote: Particle-Based Multiscale Simulation within the MPM Framework / Zhen Chen, , ,
10:20-10:40	42	Keynote: Tied Interface Grid Material Point Method for Problems with Localized Extreme Deformation / Xiong Zhang and Yanping Lian
10:40-11:00	109	Invited: Investigation of High-velocity Impact Process of Honeycomb Material with Meso-structure-based Simulation / Yan Liu, Ping Liu and Xiong Zhang
11:00-11:20	118	Invited: Numerical Study of Drag Reduction of Flexible Fibers in Viscous Fluid using SPH-EBG method / Xiufeng Yang, Moubin Liu and Shiliu Peng
11:20-11:40	131	Invited: SPH simulation on high velocity impact of C/SiC composite / Fei Xu, Yang yang and Zhongbin Tang
11:40-12:00	97	Self-adaptive Lie Series Method and its Symplecticity / Yufeng Xing
12:00-12:20	113	A Numerical study of the impact resistance of woodpecker's head / Yuzhe Liu, Xinming QIU, Xiong Zhang and Tongxi YU
12:20-12:40	480	Preliminary investigations into progressive failures using the implicit material point method / bin wang, Philip Vardon, Michael Hicks and Zhen Chen
12:40-13:00	345	Numerical Simulation of Drops Impacting on Textured Surfaces / Shuo Chen and Yuxiang Wang

MS-38: Mechanics and biomimetics of surface and interface

Chair: Shaohua Chen and Bin Liu

Time	ID	Title / Authors
14:00-14:20	68	Keynote: The adhesion mechanism of a bio-inspired nano-film / Shaohua Chen
14:20-14:40	74	Keynote: Overall mechanical behavior of nanocrystalline materials accompanied by crack initiations and propagations along grain boundaries / Yueguang Wei
14:40-15:00	119	Invited: Interface dissipation mechanism of nanocrystalline ceramics in thermal shock fracture / Lihong Liang, Xiaona Li and Yueguang Wei
15:00-15:20	462	Invited: Adaptive periodical representative volume element for simulating periodical postbuckling behavior / Bin Liu
15:20-15:40	201	An efficient explicit finite-difference scheme for simulating coupled biomass growth on nutritive substrates / Sun G.F
15:40-16:00	398	Molecular dynamic simulation on collision induced cold welding in ceramic nanoparticles / Zijian Yao, Yonglong Hu, Bing Chen, Jian Lu and Xinrui Niu

MS-59: Computational Methods and Analysis of Dynamic Phenomena with Contact and Friction Interfaces

Chair: Alexander Fidlin and Robin Langley

MS-6: Numerical methods for two-phase flow and fluid-structure interaction

Chair: San-Yih Lin and Niu Yang-Yao

Time	ID	Title / Authors
16:20-16:40	580	Efficient modelling of drillstring dynamics with spatially localised frictional contacts / Tore Butlin and Robin Langley
16:40-17:00	202	Thermo-Mechanical Model for Wheel Rail Contact using Coupled Point Contact Elements / Jan Neuhaus
17:00-17:20	330	Simulation of Flow-accelerated Corrosion based on Wall Shear Stress on Metal Surface / Kazuhiro Suga
17:20-17:40	375	Numerical Investigation of Blade Vibration Coupling Using Fluid-Structure Interaction Approach / Yun Zheng and Lian-jie Yue
17:40-18:00	401	Numerical Simulation on Cavitation in a Vane Pump with Moving Mesh / Qunfeng Zhang and Xiao YUn Xu
18:00-18:20	431	The Robust Godunov type Upwinding Schemes To solve Multiphase Multi-Equation Models / Yang-Yao Niu
18:20-18:40	482	Simulation of Liquid-Solid Interaction using a Phase-Field-Lattice Boltzmann Method / Roberto Rojas Molina and Tomohiro Takaki
18:40-19:00		

Day 2 Parallel Sessions: 29th (Tues) July 2014, Auditorium**Room 1 : Auditorium****MS-1: Computational Mechanics for Solids and Structures**

Chair: Zheng-Ming Huang and Mingwu Yuan

Time	ID	Title / Authors
10:00-10:20	321	Keynote: Stress Concentration Factors of Matrix in a Composite Subjected to Transverse Loads / Zheng-Ming Huang
10:20-10:40	250	Keynote: SAPNOLM - A Software Package for Landslide Simulation / Mingwu Yuan
10:40-11:00	312	Nonlinear finite element analysis of Concrete Filled Steel Tube (CFST) columns under projectile impact loading / Alaa Shakir
11:00-11:20	155	Dynamic analysis of two-dimensional periodic structures based on precise integration method / Qiang Gao and Ying Feng
11:20-11:40	31	ODE-Solver-Oriented Computational Method for the Structural Dynamic Analysis of Super Tall Buildings / Yaoqing Gong and Xiancheng Wang
11:40-12:00	283	Complex modal analysis using undamped modes / Yujin Hu and Li Li
12:00-12:20	136	A Variational approach and finite element implementation for controlled drug delivery / Ali Tabatabaeian Nimavardi
12:20-12:40	314	Modelling of Energy-absorbing Behavior of Polymer Foams Reinforced Metallic Tubes / Alia Ruzanna Aziz
12:40-13:00	328	A nonlinear viscoelastic constitutive model with damage for solid propellant / KyeongSoo Yun

MS-1: Computational Mechanics for Solids and Structures

Chair: Zheng-Ming Huang and Xiaoming Xu

Time	ID	Title / Authors
14:00-14:20	423	Keynote: Convolution Quadrature BEM for Wave Analysis in General Anisotropic Fluid-Saturated Porous Solid and its GPU Acceleration / Akira Furukawa, Takahiro Saitoh, Sohichi Hirose
14:20-14:40	553	Keynote: Finite element analysis of sustainable and deconstructable semi-rigid beam-to-column composite joints / Abdolreza Ataei
14:40-15:00	430	Comparison Between Residual Stress Measurements and Eigenstrain Approach at Round Edges / Stefano Coratella
15:00-15:20	475	A Symplectic Integrator for Rigid Body Dynamics Based on Unit Quaternions / Xiaoming Xu and Wanxie Zhong
15:20-15:40	559	A second-order cell-centered Lagrangian scheme for one-dimensional elastic-plastic problems / Jun Bo Cheng, Eleuterio F. Toro and Song Jiang
15:40-16:00	594	Construction of second order gradient continuous media by the discrete asymptotic homogenization method / Khaled El Nady, FRANCISCO DOS REIS and JEAN FRANCOIS GANGHOFFER

MS-54: Inverse Problems, Design and Optimisation under Uncertainties

Chair: Marcelo J. Colaco, Helcio R.B. Orlando, George S. Dulikravich and Zbigniew Bulinski

MS-65: Micromechanics

Chair: Kun Zhou and Qihong Fang

Time	ID	Title / Authors
16:20-16:40	174	Keynote: Subsurface damage mechanism of high speed grinding process in single crystal silicon revealed by atomistic simulations / Qihong Fang
16:40-17:00	243	Model Reduction and Approximation Errors Applied on damage Identification / Daniel Castello and Jari Kaipio
17:00-17:20	443	Identification of a Position and Time Dependent Heat Flux by Using the Kalman Filter and Improved Lumped Analysis in Heat Conduction / Cesar Pacheco and Marcelo J. Colaco
17:20-17:40	123	Droplets generation in the channel with the side wall deformation / Yan Pang
17:40-18:00	150	Modeling cracks and inclusions near surface under EHL conditions / Qingbing Dong and Kun Zhou
18:00-18:20	295	Nucleation and growth mechanisms of deformation-twin in magnesium / Hui Feng, Hong Fang, Chi Zhang and Wen Liu
18:20-18:40	467	Quantifying uncertainty and imprecise probability in robotics vehicle-machines/ Mustapha F Fofana Skype presentation

Day 2 Parallel Sessions: 29th (Tues) July 2014, Reddaway**Room 2 : Reddaway****MS-10: Numerical Methods for Damage and Fracture Analyses in Composites**

Chair: Toshio Nagashima

MS-20: Engineering Inverse Problems

Chair: Xu Han

MS-23: Computational Mechanics Of Cells and Biomaterials

Chair: Xi-Qiao Feng and Yuantong Gu

Time	ID	Title / Authors
10:00-10:20	315	Keynote: Porohyperelastic finite element model for the kangaroo humeral head cartilage based on experimental study and the consolidation theory / Namal Thibbotuwawa, Tong Li, YuanTong Gu
10:20-10:40	442	Keynote: Mechanics of biological materials with helical structures / Xi-Qiao Feng, , ,
10:40-11:00	73	Keynote: Application of XFEM using CZM to damage propagation analyses of CFRP composite laminate / Toshio Nagashima
11:00-11:20	264	Invited: The effect of stacking sequence on foreign object damage to CFRP laminates / Ryo Higuchi, Tomonaga Okabe
11:20-11:40	69	Numerical modeling of curvilinear corrugated-core sandwich structures subjected to low velocity impact loading / Tawan Boonkong
11:40-12:00	158	Parameter estimation approach for particle flow model of rockfill materials using response surface method / shouju li
12:00-12:20	463	An Inverse Identified Method for the Spatial Distribution of Dynamic Loads / Jie Liu
12:20-12:40	472	Static structural uncertainty analysis based on a modified double Monte Carlo method / Zhao Xiao
12:40-13:00	396	Viscosity related fatigue mechanism of bio-multilayers / Xinrui Niu, Yue Ding and Gangfeng Wang

MS-7: Modeling and simulation of functional materials and structures

Chair: Weiqiu Chen and Jie Wang and Guojun Nie

Time	ID	Title / Authors
14:00-14:20	44	Keynote: Phase field modeling of the magnetization vortex of ferromagnetic materials / Jie Wang and Jianwei Zhang
14:20-14:40	275	Invited: Magnetoelectric Effects in Functionally graded multiferroic laminated plates and shells / Chunli Zhang
14:40-15:00	120	Parameter identification of fluid viscous dampers / Rita Greco
15:00-15:20	125	Material Tailoring in Functionally Graded Hollow Cylinders under Non-axisymmetric Loads / Guojun Nie and Z Zhong
15:20-15:40	132	Theoretical Studies on the Salts Formed by Triazoles with Nitrate and Dinitramide / Xueli Zhang
15:40-16:00	153	Probabilistic structural analysis of the composite crew module- substructuring with high resolution grid /Vinod Nagpal, Shantaram Pai and Ian Miller

MS-7: Modeling and simulation of functional materials and structures

Chair: Weiqiu Chen and Jie Wang

MS-58: Theoretical and Computational Analyses for Inverse Problems

Chair: Leevan Ling and Jijun Liu and Ming Li

Time	ID	Title / Authors
16:20-16:40	213	Keynote: Numerical Caputo differentiation by radial basis functions / Ming Li
16:40-17:00	290	Invited: Cohesive Zone Modeling of Cracking along the Cu/Si Interface in Nanoscale Components / Yabin Yan, Takashi Sumigawa and Takayuki Kitamura
17:00-17:20	176	Invited: Inverse analysis of heat transfer across a multilayer composite wall with Cauchy boundary conditions / Ruiping Niu
17:20-17:40	292	First-principles Calculation on Ferroelectricity of Ultrathin PbTiO ₃ Nanotube / Xiaoyuan Wang, Takahiro Shimada and Takayuki Kitamura
17:40-18:00	308	Analytical investigation of 2D phononic crystals with imperfect interface / Xingyi Zhu
18:00-18:20	565	Transient dynamic crack analysis in multifield coupled smart functional materials by XFEM / Tinh Quoc Bui, Chuangzeng ZHANG and Sohichi HIROSE
18:20-18:40	598	Models for Scattering of Surface Waves from Scratches on a Surface / Haidang Phan, Younho Cho and Jan Achenbach

Day 2 Parallel Sessions: 29th (Tues) July 2014, Trust**Room 3 : Trust****MS-51: Computational Modelling of Materials with Uncertainty**

Chair: Alejandro DiazDeLaO, Erick I. Saavedra Flores, Michael Beer and Ivan Au

MS-52: Efficient Methods for Uncertainty Quantification

Chair: Alejandro DiazDeLaO, Michael Beer, Edoardo Patelli and Ivan Au

MS-61: Advanced Computational Methods for Modelling of Fracture and Damage

Chair: Raj Das

Time	ID	Title / Authors
10:00-10:20	87	Keynote: Interfacial fracture of polymer foam-metal composites at micro-scale using finite element analysis / Raj Das
10:20-10:40	521	Keynote: Probabilistic sensitivity analysis of the extensibility of wood at the ultrastructural scale / Francisco Alejandro Diaz De la O, Erick I. Saavedra Flores
10:40-11:00	88	Invited: Numerical Modeling of Dynamic Anisotropic Damage / Ioan Ionescu and Jia Li
11:00-11:20	121	Invited: Generalized Irwin plastic zone correction of a sub-interface Zener-Stroh crack in a coating-substrate system / Jing Zhuang and Zhongmin Xiao
11:20-11:40	242	A System Reliability Study for Long-span Cable-stayed Bridges Using Updating Least Squares Support Vector Regression / Mohammad Noori
11:40-12:00	339	Scaled boundary finite element analysis for elastic problems with interval parameters / Haitian Yang, Weihong Ma and Yiqian He
12:00-12:20	527	Multi-scale finite element modelling of cross-laminated timber plates and experimental validation / Erick Saavedra Flores, Francisco Alejandro Diaz De la O, Paulina Gonzalez Soto, Eduardo Perez Pulgar
12:20-12:40	419	KL-expansion-based Monte Carlo simulation for dynamic reliability of structures subjected to non-stationary random excitations / Cheng Su, Rui Xu and Huan Huang
12:40-13:00	597	A-Posteriori Error Estimation in CFD using Higher Moments / Stuart Russant

MS-57: Linear and Nonlinear Dynamics

Chair: John Mottershead and Elvio Bonisoli

Time	ID	Title / Authors
14:00-14:20	525	Keynote: Levitron: an exotic toy of nonlinear and linearised dynamics / Elvio Bonisoli,
14:20-14:40	387	Invited: Nonlinear Control of Systems with Non-smooth Nonlinearities / Shakir Jiffri, John Mottershead
14:40-15:00	611	Invited: Active Control and Potential Exploitation of Parametrically Excited Systems / Maryam Ghandchi Tehrani
15:00-15:20	212	Invited: Topology effects on prestrained elastic networks / Paolo Paoletti
15:20-15:40	528	Invited: An overview of recent developments of response averaging for the treatment of complex linear systems / Christophe Lecomte
15:40-16:00	286	Dynamics of a Rotating Triangular Tethered Satellite Formation near Libration Points / Zhiqin Cai, Hong Zhou, Xuefu Li and Ying Feng

MS-57: Linear and Nonlinear Dynamics

Chair: John Mottershead and Elvio Bonisoli

MS-8: Smart and multifunctional composites

Chair: Jinsong Leng and Liwu Liu

Time	ID	Title / Authors
16:20-16:40	194	Keynote: Dynamics, thermodynamics and stability of dielectric elastomer / Liwu Liu, Jinrong Li, Yanju Liu and Jinsong Leng
16:40-17:00	634	Keynote: Topology Optimization of Tissue Scaffolds for Biotransport Criteria / Qing Li
17:00-17:20	638	Keynote: Magnetic Multistable Structures - Experiments and Simulations / Stoyan Smoukov
17:20-17:40	348	Invited: Adaptive polygon scaled boundary finite element method for elastodynamics / Zihua Zhang and Zhenjun Yang
17:40-18:00	390	Improved Element Exchange Method for Topology Optimization / Liang-Jenq Leu, Ko-Wei Shih and Chun-Yu Ke
18:00-18:20	160	Investigation on Elastic Fibers Enforced Shape Memory Polymer Composites / Jian Sun,
18:20-18:40	276	Symplectic Numerical Method for Nonlinear Feedback Optimal Control and Its Application in Tethered Satellite Systems / Haijun Peng
18:40-19:00	369	Design and manufacture smart mandrels using shape memory polymer / Haiyang DU, Liwu Liu, Fanlong Chen and Yanju Liu

Day 2 Parallel Sessions: 29th (Tues) July 2014, Gordon Cameron**Room 4 : Gordon Cameron****MS-47: FE/DE Method and Applications**

Chair: Mengyan Zang

MS-48: Numerical Simulations in Flow Control

Chair: Hui Tang

MS-49: Computational Studies of Heart Functions

Chair: Leo Hwa Liang

Time	ID	Title / Authors
10:00-10:20	34	Keynote: Customized Hip Implant Testing Using Gait Cycle for Normal Walking and Walking Up and Down Stairs. / Abhaykumar Kuthe, Abhaykumar Kuthe and Mangesh Dharme
10:20-10:40	161	Keynote: Alternately Moving Road Method for the FEM/DEM Simulation of Tire-Sand Interactions / Chunlai Zhao and Mengyan Zang
10:40-11:00	145	Invited: Adaptive Combined Discrete and Finite Element Algorithm for Analyzing Brittle Fracture / Mengyan Zang and Wei Xu
11:00-11:20	335	Invited: A temporally-piecewise adaptive algorithm with SBFEM to solve viscoelastic problems / Yiqian He, Haitian Yang and Andrew Deeks
11:20-11:40	157	Effects of working condition on the flow field in a pressure-swirl atomizer / Longxiang Zhang
11:40-12:00	393	Analysis of non-Newtonian fluids parallel flow between the corrugated plates using the method of fundamental solutions and the radial basis functions / Jakub Grabski
12:00-12:20	484	Numerical Study of Supercritical Turbulent Convective Heat Transfer of n-Decane with constant heat flux and Endothermic Pyrolysis / Bo Ruan
12:20-12:40	351	Intra-Ventricular Flow Dynamics Post-Implantation of a Bileaflet Mechanical Heart Valve / Foad Kabinejadian , Boyang Su, and Hwa Liang Leo
12:40-13:00	455	Application of a Meshfree Radial Point Interpolation Method (RPIM) for Quantifying Three-Dimensional Left-Ventricular Regional Strains with Displacement ENcoding with Stimulated Echoes (DENSE) MRI and Validation in Reference to Tagged MRI / Julia Kar, Andrew Knutsen, Brian Cupps and Kathleen Wallace

MS-59: Computational Methods and Analysis of Dynamic Phenomena with Contact and Friction Interfaces

Chair: Alexander Fidlin and Georg Ostermeyer

Time	ID	Title / Authors
14:00-14:40	309	Keynote: Interface Vibrations in Brake pads / Georg Ostermeyer
14:40-15:00	64	Regularization of Nonholonomic Constraints in Multibody Systems / Alexander Fidlin
15:00-15:20	338	Numerical Simulation of Nonlinear Ultrasonic Wave Generation by an Interface Crack of Bi-material / Taizo Maruyama, Takahiro Saitoh and Sohichi Hirose,
15:20-15:40	499	Simplified EHL contact model and its influence on nonlinear vibrations / Benedikt Wiegert
15:40-16:00	518	Assessing the bifurcation behaviour of periodic solutions in finite-element brake squeal models / Nils Graebner, Merten Tiedemann, Utz von Wagner and Norbert Hoffmann

MS-17: Analytical and numerical analysis of electro- and magnetomechanical systems

Chair: Zheng Zhong and Ram Mohan

MS-33: Computational Modelling and Simulation in the Development of Medical Devices

Chair: Fangsen Cui and Hwa Liang Leo

Time	ID	Title / Authors
16:20-16:40	429	Keynote: Simulation Based Design and Evaluation of Carotid Stents and Heart Valves / Fangsen Cui, Gideon Kumar, Foad Kabinejadian and Hwa Liang Leo
16:40-17:00	402	Invited: Molecular Dynamics Based Material Modeling of Cement Paste / Ram Mohan
17:00-17:20	39	Invited: Effect of strut curvature on the crimpability of mitral valve stents / Gideon Praveen Kumar, Hwa Liang Leo and Fangsen Cu
17:20-17:40	485	Invited: Evaluation of Hemodynamic Performance of a Novel Carotid Covered Stent / Foad Kabinejadian , Fangsen Cui, Pei Ho, and Hwa Liang Leo
17:40-18:00	46	Variational bounds for the effective electroelastic moduli of piezoelectric composites with electromechanical coupling spring-type interfaces / Yin Shi, Yongping Wan and Zheng Zhong,
18:00-18:20	516	Torque and Flux Density Optimization of a Small BLDC Motor Using the Electromagnetic FEM / CHEOL KIM
18:20-18:40	557	Investigation of the Structural Integrity of Embedded Device Composites / Yi Xiao, Wenjing Qiao, Hiroshi Fukuda and Hiroshi Hatta

Day 2 Parallel Sessions: 29th (Tues) July 2014, Old SCR**Room 5 : Old SCR****MS-42: Advanced Computational Methods in Underwater Acoustics**

Chair: Wei Li and YongOu Zhang

MS-56: Recent Advances in Multiscale Numerical Methods for Solid Mechanics

Chair: Lars Beex Stéphane Bordas and Pierre Kerfriden

MS-63: Numerical Modelling of Fracture Growth

Chair: Adriana Paluszny

Time	ID	Title / Authors
10:00-10:20	143	Keynote: An edge-based smoothed three-node Mindlin plate element (ES-MIN3) for static and free vibration analyses of plates / Chai Bin
10:20-10:40	490	Keynote: Modelling of dislocation mediated plasticity across the scales / Ron Peerlings, Michael Dogge and Marc Geers
10:40-11:00	91	Invited lecture: SPH Simulation of Sound Propagation and Interference / YongOu Zhang, Tao Zhang and TianYun Li
11:00-11:20	394	Invited: Homogenisation methods with guaranteed accuracy: quantifying the scale separability. / Pierre Kerfriden
11:20-11:40	144	A Couple Cell-/Face-based Smoothed Finite Element Method for Fluid-structure Problems / Zhixiong Gong
11:40-12:00	261	Calculation of underwater acoustic scattering problems in unbounded domain using the alpha finite element method / Yaofei Li
12:00-12:20	356	Computational multiscale modeling of fibrillar adhesives / Janine Mergel and Roger Sauer
12:20-12:40	92	Multiscale Quasicontinuum Approaches for Planar Beam Lattices / Lars Beex
12:40-13:00		

MS-44: Multiscale Modeling of Mechanical Property

Chair: Shan Tang and Ning Hu and Yoshiro Suzuki

Time	ID	Title / Authors
14:00-14:20	188	Keynote: Pull-out Force Predictions of Carbon Nanotubes From Polymer and Ceramic Matrices / Ning Hu, Y. Li and H. Ning,
14:20-14:40	253	Multiscale seamless domain method for linear elastic and steady temperature problems / Yoshiro Suzuki
14:40-15:00	325	Hyperelastic Modeling of Chain-Distributed Particle-Reinforced Composite in Finite Deformation / Xiaohao Shi
15:00-15:20	447	A Cellular Automaton for the Simulation of Dynamics in a Complex System / Weifeng Yuan and Lan Wei
15:20-15:40	449	An Algorithm for the Coupling of BEM and DDA / Yong Cai and Weifeng Yuan
15:40-16:00	450	Cellular Automaton in 2D Elastostatics / Qin Ying and Weifeng Yuan

MS-44: Multiscale Modeling of Mechanical Property

Chair: Shan Tang and Ning Hu

MS-62: Advanced Computational Methods and Data Analysis in offshore industry

Chair: Yanling Wu

Time	ID	Title / Authors
16:20-16:40	427	Keynote: Advance in Computational Hydrodynamics Applied to Wave-in-Deck / Yanling Wu, Graham Stewart, Yu Chen and Johan Gullman-Strand
16:40-17:00	551	Keynote: Challenges in offshore engineering, people and technology in a changing world / Johan Gullman-Strand
17:00-17:20	520	Invited: Challenge of Hydrodynamic Analysis for a Structure in Waves / Frank Lin
17:20-17:40	631	Invited: Uncertainty in modelling for wave energy device design / Rebecca Sykes
17:40-18:00	451	Further Development of Sub-block DDA Fracturing Modelling Method for Rock Fracturing Failure Simulation / Jun Ning
18:00-18:20	378	CFD-based Transient Ignition Modelling of Gas Leaks in Enclosures / Kumaresh Govindan Radhakrishnan, Ingar Fossan, Marutha Muthu Venkatraman, Knut Erik Giljarhus
18:20-18:40	486	Implicit computational method for compressible flows with high and low Mach numbers / Kazuma Aoki, Satoru Ushijima, Daisuke Toriu, Hiroshi Itada

Day 3 Parallel Sessions: 30th (Wed) July 2014, Auditorium**Room 1 : Auditorium****MS-29: Computational Biomedical Engineering**

Chair: Heow Pueh Lee and Denis Doorly

MS-39: Advances in Multi-Physics Modelling and its Applications

Chair: Lei Chen

MS-4: Structural Integrity – Fracture Mechanics

Chair: Hiroshi Kawai and Hiroshi Okada

Time	ID	Title / Authors
10:00-10:20	168	Keynote: An integrated fast Fourier transform-based phase-field and crystal plasticity approach for modeling static recrystallization of three dimensional polycrystals / Lei Chen
10:20-10:40	453	Keynote: Advances in Numerical Methods and algorithms in Computational Geosciences / Chongbin Zhao
10:40-11:00	226	Invited: A Computer Based Objective Grading System for Facial Paralysis / Heow-Pueh LEE, Saurabh Garg and Shu Jin Lee
11:00-11:20	349	Invited: Effect of GPU Communication-Hiding for SpMV Using OpenACC / Olav Fagerlund, Takeshi Kitayama, Gaku Hashimoto and Hiroshi Okada
11:20-11:40	337	Ballistic Impacts of a Full-Metal Jacketed (FMJ) Bullet on a Validated Finite Element (FE) Model of Head-Cushion-Helmet / Kwong Ming Tse
11:40-12:00	353	Airflow Dynamics in a Short Inhalation / Alister Bates, Raul Cetto, Neil Tolley and Robert Schroter
12:00-12:20	366	challenge of visualising large airway flows and particle transport / hadrien calmet, Alberto Gambaruto, Guillaume Houzeaux and Allister Bates
12:20-12:40	352	performance study of iterative solver for incompressible materials / Hiroshi Kawai
12:40-13:00	415	On mixed mode stress intensity factor evaluation using Interaction Integral Method for the tetrahedral finite element (for cracks with kinks) / Yuki Wakashima and Hiroshi Okada

Day 3 Parallel Sessions: 30th (Wed) July 2014, Reddaway**Room 2 : Reddaway****MS-43: Hybrid Analytical-Numerical Methods**

Chair: Leonardo Alves and Leandro Alcoforado Sphaier

MS-18: Computational and Theoretical Biomechanics

Chair: Moon Ki Kim

Time	ID	Title / Authors
10:00-10:20	354	Keynote: Eliminating the Pressure-Velocity Coupling from the Incompressible Navier-Stokes Equations Using Integral Transforms / Leonardo Alves, Daniel Chalhub and Leandro Sphaier
10:20-10:40	70	Keynote: Cyclic Conformational Changes in GPCR Revealed by Normal Mode Analysis / Moon Ki Kim and Min Hyeok Kim
10:40-11:00	399	Keynote: Generalized Integral Transform Solution of Extended Graetz Problems with Axial Diffusion / Leandro Sphaier
11:00-11:20	344	Non-linear stability analysis of a Darcy flow with viscous dissipation / Michele Celli, Leonardo Alves and Antonio Barletta
11:20-11:40	333	Unstable mixed convection in an inclined porous channel with uniform wall heat flux / Antonio Barletta and Michele Celli
11:40-12:00	477	Multi-scale Multiplicative Perturbation Average Method for FPU Equation / Feng Wu, Qiang Gao and Wanxie Zhong
12:00-12:20	360	Simple Matrix Method with Nonhomogeneous Space Increments in Finite Difference Method / Sungki Min, Junghwa Hong and Hunhee Kim
12:20-12:40	200	Semi-analytical integral approach for wave propagation simulation in layered composites with defects / Mikhail Golub, Evgeny Glushkov and Natalia Glushkova
12:40-13:00	179	Solving 2D multi-crack problems with arbitrary distribution by virtual boundary meshless least squares method / Qiang Xu

Day 3 Parallel Sessions: 30th (Wed) July 2014, Trust**Room 3 : Trust****MS-50: Advances in Nanomechanics and Multiscale Mechanics in Complex Materials**

Chair: Maenghyo Cho

MS-32: Molecular Dynamics Simulations on Nanomechanics

Chair: Hengan Wu and Fengchao Wang

Time	ID	Title / Authors
10:00-10:20	515	Keynote: A multiscale/multiphysics platform for analysis and design of photo-responsive polymer / Maenghyo Cho, Jung-Hoon Yun, Joonmyung Choi and Hayoung Chung
10:20-10:40	94	Keynote: Transport of Water and Small Ions through Graphene-Based Membranes / Hengan Wu and Fengchao Wang
10:40-11:00	502	An investigation on disclination defect and nematic order coupled nonlinear behavior of liquid crystal glassy polymer using quasi-soft energy / Hayoung Chung, Jung-Hoon Yun, Joonmyung Choi and Maenghyo Cho
11:00-11:20	505	Opto-mechanical behavior of Azobenzene-doped liquid crystalline polymer: A molecular dynamics study / Joonmyung Choi, Hayoung Chung, Jung-Hoon Yun and Maenghyo Cho
11:20-11:40	508	Design of application-oriented photo responsive polymer devices based on optimization technique / Jaesung Park, Hayoung Chung and Maenghyo Cho
11:40-12:00	511	Photo-thermally induced photoisomerization profile of azobenzene in liquid crystal elastomer / Jung-Hoon Yun, Hayoung Chung, Joonmyung Choi and Maenghyo Cho
12:00-12:20	512	A multiscale study on the interfacial behavior of polymer nanocomposites with inelastic behavior / Hyunseong Shin, Junghyun Ryu, Seunghwa Yang, Seongmin Chang and Maenghyo Cho
12:20-12:40	514	A molecular dynamics study on toughening of thermoplastic modified epoxy / Byungjo Kim, Joonmyung Choi, Hyunseong Shin, Seunghwa Yang and Maenghyo Cho
12:40-13:00	146	Droplet Evaporation on Flexible Nanopillared Surfaces / Feng-Chao Wang

Day 3 Parallel Sessions: 30th (Wed) July 2014, Gordon Cameron**Room 4 :****Gordon Cameron****MS-60: Computational Methods for Extra Degrees of Freedom and Higher Gradients**

Chair: Carlo Sansour and Sebastian Skatulla

MS-27: Computational Fracture Mechanics for Quasi-Brittle Materials

Chair: Zhenjun Yang

Time	ID	Title / Authors
10:00-10:20	608	Keynote: Computational Modelling of Shells with Scale Effects / Sebastian Skatulla, Carlo Sansour
10:20-10:40	602	Keynote: 3D In-situ XCT Image Based Meso-scale Fracture Modelling and Validation of Concrete Using Voxel Hexahedron Meshing and Damage Plasticity Model / Yujie Huang, Zhenjun Yang, Wenyuan Ren, Guohua Liu and Chuanzeng Zhang
10:40-11:00	412	Geometrically exact beam dynamics, with and without rotational degree of freedom / Tien Long Nguyen
11:00-11:20	418	Hyperelastic Fourth-Order Tensor Functions for Orthotropic Continua / David Kellermann
11:20-11:40	446	Triangular and tetrahedral elements for strain-gradient theories / Stefanos Aldo Papanicolopoulos and Antonis Zervos
11:40-12:00	99	An Implicit MRCT Element / Hao Qin
12:00-12:20	231	Riemann Waves and Solitons in Nonlinear Cosserat Medium / Vladimir Erofeev and Alexey Malkhanov,
12:20-12:40	105	Design of new high explosives by introducing N-oxides into 1H-tetrazole / Wu Qiong
12:40-13:00		

Day 3 Parallel Sessions: 30th (Wed) July 2014, Old SCR**Room 5 : Old SCR****MS-19: Modelling and simulating multifield coupling behaviour of smart materials and structures**

Chair: Qingsheng Yang

MS-30: Numerical Methods for Engineering Problems with Strong Nonlinearity

Chair: Jizeng Wang

MS-31: Development and Application of High-order Methods for Compressible and Incompressible Flows

Chair: Ping Lu and Hui Zhang

Time	ID	Title / Authors
10:00-10:20	461	Keynote: THERMO-ELECTRO-CHEMO-MECHANICAL COUPLING PROBLEMS OF SMART SOFT MATERIALS / Qingsheng Yang, Wei Wei and Lianhua Ma
10:20-10:40	169	Keynote: Numerical Simulations Using a Phase-Field Model Describing the Red Blood Cells in a Capillary / Hui Zhang
10:40-11:00	238	Invited: Two computational approaches for the simulation of fluid problems in rotating spherical shells / Ferran Garcia, Emmanuel Dormy, Juan Sanchez and Marta Net
11:00-11:20	473	Invited: Source term and infiltration extension of the shallow water equations derived from incompressible Navier-Stokes / Philip Townsend
11:20-11:40	32	A new multiscale method for geometrically nonlinear shape morphing of fluid actuated cellular structures / Jun Lv, Hui Liu and Wu Zhang
11:40-12:00	217	Thermomechanical analysis of porous SMP plate / Tao Ran
12:00-12:20	460	SIAC Filtering for Boundary Filtering over Nonuniform Mesh Structures / Xiaozhou Li
12:20-12:40	152	Numerical modelling of perforation impact damage of fibre metal laminates / Jin Zhou, Zhongwei Guan and Wesley Cantwell
12:40-13:00		

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