6th International Conference
on
Computational Methods
(ICCM2015)

14-17 July 2015
Auckland, New Zealand

Chair: Raj Das
University of Auckland
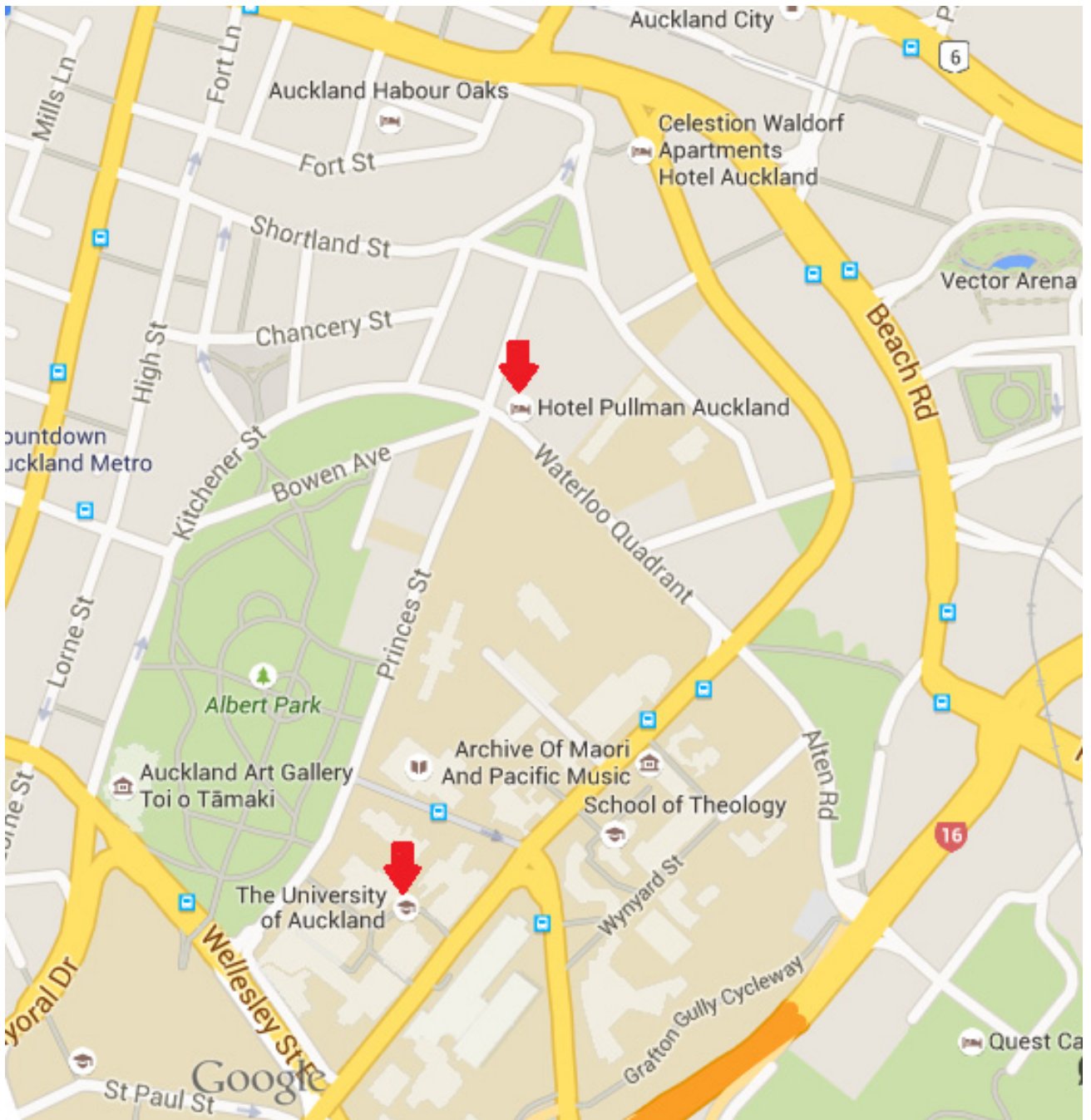
THE UNIVERSITY OF **AUCKLAND**
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND | **ENGINEERING**

ICCM

ST **ScienTech Services**

Location of the Pullman Hotel (Conference Venue) and the University of Auckland (Conference Organiser)

1.   WELCOME MESSAGE

Dear Friends and Colleagues,

On behalf of the organising committee and the co-chairs, I would like to welcome you to the 6th International Conference on Computational Methods (ICCM2015) at Auckland, New Zealand, 14-17 July, 2015. The conference aims to provide an international forum for researchers, industry practitioners, engineers and postgraduate scholars to promote, exchange and disseminate recent findings on contemporary and wide-ranging topics in computational methods, numerical modelling and simulation, and their applications in science and engineering. It accommodates presentations on a wide range of topics to facilitate inter-disciplinary exchange of ideas in science, engineering and allied disciplines, and helps to foster collaborations.

Computational Modelling is a fundamental subject of engineering science. It can be applied to many of the primary engineering disciplines, including Mechanical, Civil, Chemical, and Materials Engineering. Computational Modelling and Simulation address a broad range of areas, from conventional structural and mechanical designs, failure analysis, dynamic and vibration analysis, and fluid mechanics to cutting-edge computational mechanics, nano-micro mechanics, multiscale mechanics, coupled multiphysics problems and novel materials. This is truly reflected in the variety of fields featured in the conference topics.

The genesis of the ICCM series dates back to 2004, when the first ICCM2004 conference was held in Singapore founded and chaired by Professor Gui-Rong Liu, followed by ICCM2007 in Hiroshima, Japan, ICCM2010 in Zhangjiajie, China, ICCM2012 in Golden Coast, Australia, and ICCM2014 in Cambridge, UK. The present ICCM conference in Auckland, New Zealand encompasses over 340 oral presentations in 59 technical sessions, including 2 plenary talks, 9 thematic plenary talks, and a number of keynote talks.

The ICCM conference is unique in that it showcases the current developments and trends in Computational Methods and their relationship to global priorities in science and engineering. The papers scheduled for presentation at ICCM address many grand challenges in modern engineering. All ICCM abstracts and full papers were peer-reviewed by independent reviewers. Selected papers may be invited to be developed into a full journal paper for publication in special issues of some journals. These papers encompass a broad range of topics related to computational mechanics, including formulation theory, computational methods and techniques, modelling techniques and procedures, nano and macro-mechanics of materials, dynamics, manufacturing, biomechanics, processing of advanced materials, welding and joining, surface engineering and other related processes.

I would like to express my gratitude for the contributions of all ICCM2015 participants and presenters at this international event. I gratefully acknowledge the contributions from the Local Organising Committee, International Scientific Committee, Mini-Symposium Organisers, and the expert reviewers and volunteers for their efforts and assistance in the organisation. In particular, I would like to sincerely thank Professor G.R. Liu, Honorary Chairman, for all the guidance and inspiration. Special thanks go to Ms Joanne Wang, Conference Manager, for the management of the entire conference, excellent technical support, and daily communication to all the participants, authors and reviewers.

Finally, I thank you for your contribution to the ICCM2015 conference, and hope you have a wonderful and richly rewarding conference experience in one of the most beautiful cities in the world, Auckland, New Zealand. I look forward to your participation and continued engagement at future ICCM conferences.

Dr Raj Das
Conference Chairman, ICCM2015
Department of Mechanical Engineering
Centre for Advanced Composite Materials
University of Auckland, New Zealand

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 6th International Conference on Computational Methods, 14th – 17th July 2015, Auckland, ScienTech Publisher, Paper ID (ISSN 2374-3948, online).

3.   CONFERENCE DETAILS

Conference venue

Pullman Hotel, CNR Princes St and Waterloo Quadrant, Auckland City, 1010, New Zealand (www.pullmanauckland.co.nz).

Catering

Coffee breaks for all mornings and afternoons, buffet lunches for all the presentation days 15-17 July, a simple reception on the pre-conference day 14 July, and banquet dinner on 16 July are included for all registered participants.

Instructions for chairs and presenters

Timeslots: Plenary Lecture 35 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

A data projector and a 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. You may also use your own laptop. A volunteer in the room will help you to load your presentation file.

Name tags: Name tags are required for entry to conference events. Please wear them at all times.

Registration/Information desk

The registration desk at Pullman Hotel will be open from 16:00-19:00 on Tuesday, 14 July, and 8:30 -17:00 on Wednesday, Thursday and Friday, 15-17 July.

Welcome Reception

All participants are cordially invited to the Welcome Reception hosted by Conference Chair. The Welcome Reception will be held at Pullman Hotel from 18:30 to 20:30 on Tuesday, 14 July. The reception will provide a unique networking opportunity for the participants, and will enable all to become acquainted with colleagues and invited speakers from all around the world.

Conference Banquet

Participants will have the opportunity to feel the warmth of the both local and international food and wine. The banquet dinner will be held between 19:00 – 22:00 on Thursday, 16 July in the Princes Ballroom B&C of the Pullman Hotel.

4.   ORGANIZATION COMMITTEE

Chairman: Raj Das (University of Auckland, New Zealand)

Co-Chairmen:

Anatoly Yagola	Sung-Kie Youn
(Lomonosoy Moscow State University)	(Korea Advanced Institute of Science and Technology)
Carlo Sansour	Weihong Zhang
(The University of Nottingham)	(Northwestern Polytechnical University)
Hiroshi Okada	Xi-Qiao Feng
(Tokyo University of Science)	(Tsinghua University)

Jinsong Leng
(Harbin Institute of Technology)

Yuantong Gu
(Queensland University of Technology,)

Ming Li
(Taiyuan University of Technology)

Zhongwei Guan
(University of Liverpool)

Honorary Chairmen:

Gui-Rong Liu (USA)   Mingwu Yuan (China)

Local Organizing Committee:

Debes Bhattacharyya (NZ)	Martyn Nash (NZ)
Graeme Finch (NZ)	Peng Cao (NZ)
James Lim (NZ)	Piaras Kelly (NZ)
John Cater (NZ)	Raj Das (NZ)
Justin Fernandez (NZ)	Richard Lin (NZ)
Mark Battley (NZ)	Simon Bickerton (NZ)

International Scientific Committee:

Alex Ng (Australia)	Joe Petrolito (Australia)	Sergey Panin (Russia)
Alexander Korsunsky (UK)	Jorge Ambrosio (Portugal)	Shankar Kalyanasundaram (Australia)
Allessandro Reali (Italy)	Julien Yvonnet (France)	Sundararajan Natarajan (India)
Amar Khennane (Australia)	Karol Miller (Australia)	Sung-Kie Youn (South Korea)
Andrei Kotousov (Australia)	Kun Zhou (Singapore)	Tinh Quoc Bui (Germany)
Bhushan L. Karihaloo (UK)	Leonid Antanovskii (Australia)	Tomasz Bednarz (Australia)
Bozidar Sarler (Slovenia)	Lian Shen (USA)	Wei Gao (Australia)
Byeng Dong Youn (Korea)	Liangchi Zhang (Australia)	Weihong Zhang (China)
Chao Jiang (China)	Lihai Zhang (Australia)	Weiqiu Chen (China)
Chao Xu (China)	Maenghyo Cho (South Korea)	Wingkong Chiu (Australia)
Cheng Yuan (Singapore)	Makoto Ohsaki (Japan)	Xi-Qiao Feng (China)
Chengfeng Li (Swansea)	Marcelo Colaco (Brazil)	Xiong Zhang (China)
Chin-Long Lee (New Zealand)	Martin Veidt (Australia)	Xu Guo (China)
Daya Reddy (South Africa)	Mike Xie (Australia)	Xu Han (China)
Ekkehard Ramm (Germany)	Mingwu Yuan (China)	Yusuf C. Toklu (Turkey)
Ernian Pan (USA)	Moubin Liu (China)	Ya-Pu Zhao (China)
Feng Xiao (Japan)	Muneo Hori (Japan)	Yang-Yao Niu (Taiwan)
Francesco Berto (Italy)	Nasr Ghoniem (USA)	Yijun Liu (USA)
Francesco Mammoliti (Italy)	Nasser Hassan Sweilam (Egypt)	Yixiang Gan (Australia)
Francesco Noto (Italy)	Nguyen Xuan Hung (Vietnam)	Yongjin Yoon (Singapore)
George S. Dulikravich (USA)	OhJoon Kwon (South Korea)	Yuantong Gu (Australia)
Grant Steven (Australia)	Perumal Nithiarasu (UK)	Yue-Sheng Wang (China)
Hengan Wu (China)	Prasad Potluri (UK)	Yuichi Tadano (Japan)
Hiroshi Kanayama (Japan)	Qing Li (Australia)	Zbigniew Kowalewski (Poland)
Hongling Ye (China)	Qing Zhang (China)	Zhan Kang (China)
J. N. Reddy (USA)	Qinghua Qin (Australia)	Zhenjun Yang (China)
		Zheng Zhong (China)
Jan Blachut (UK)	Robert O. Richie (USA)	Zheng-Ming Huang (China)
Jihua Guo (USA)	Rooh Khurram (Saudi Arabia)	Zhiqian Zhang (Singapore)
Jizeng Wang (China)	Seiichi Koshizuka (Japan)	Zhongwei Guan (UK)

5.   AUCKLAND CITY

New Zealand is well-known for its magnificent natural beauty. Auckland is the largest city in New Zealand and has been consistently rated as one of most liveable cities in the world. It is well connected to major cities by direct flights. Visiting the beautiful city and surrounding landscape will provide a unique and unforgettable experience. More information can be found at the following links, http://www.aucklandnz.com/, http://www.tourism.net.nz/, and http://www.newzealand.com/.
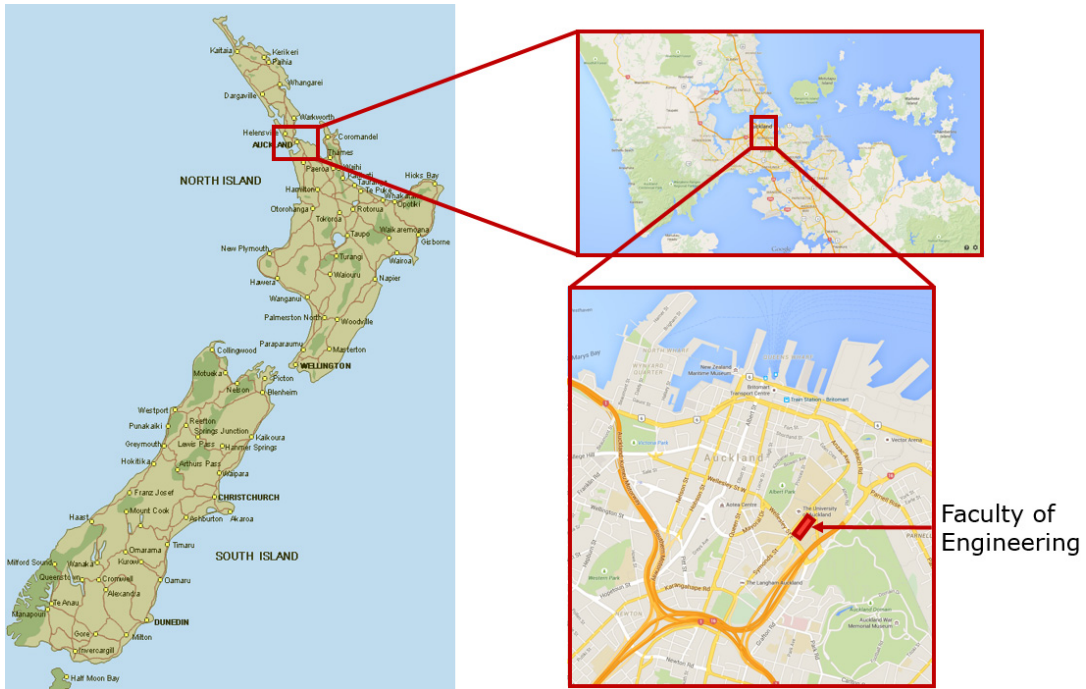

New Zealand map and the location of the Faculty of Engineering, University of Auckland

University of Auckland (Conference Organiser)

The University of Auckland is the largest and a leading university in New Zealand, with five campuses in Auckland and eight faculties representing main disciplines. Established in 1883, it provides world-class education for nearly 40,000 students, including more than 4,700 international students from over 90 countries. The University of Auckland is the New Zealand's world-ranked university, ranked in the top 200 in the 'Times Higher Education World University Rankings' and in the top 100 in the 'QS World University Rankings'. (Source: http://www.auckland.ac.nz).
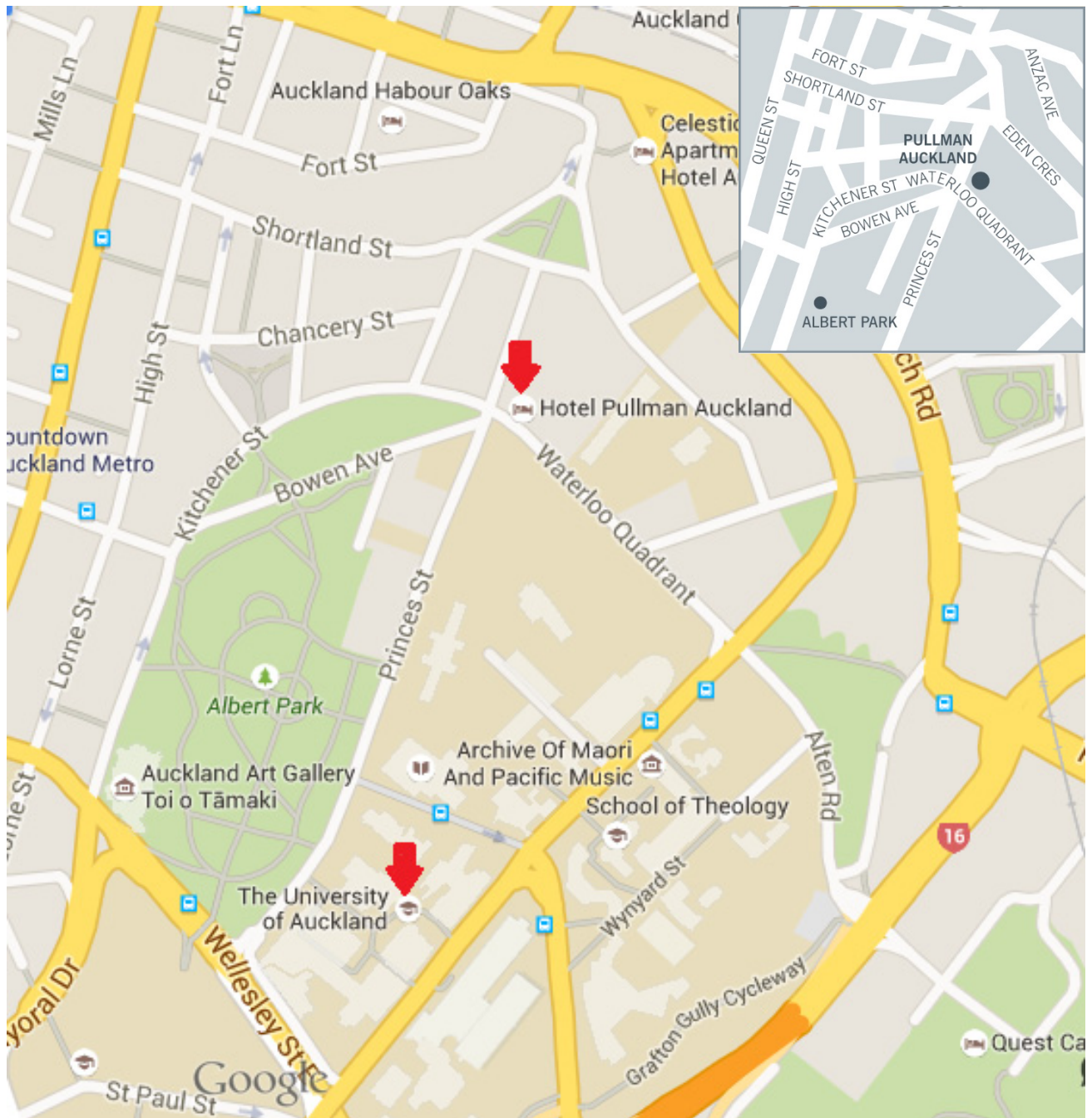
Location of the Pullman Hotel (Conference Venue) and the University of Auckland (Conference Organiser)

6.   FLOOR PLAN OF CONFERENCE VENUE

Princes Ballroom Floorplan- Lobby Level
Pullman-Auckland
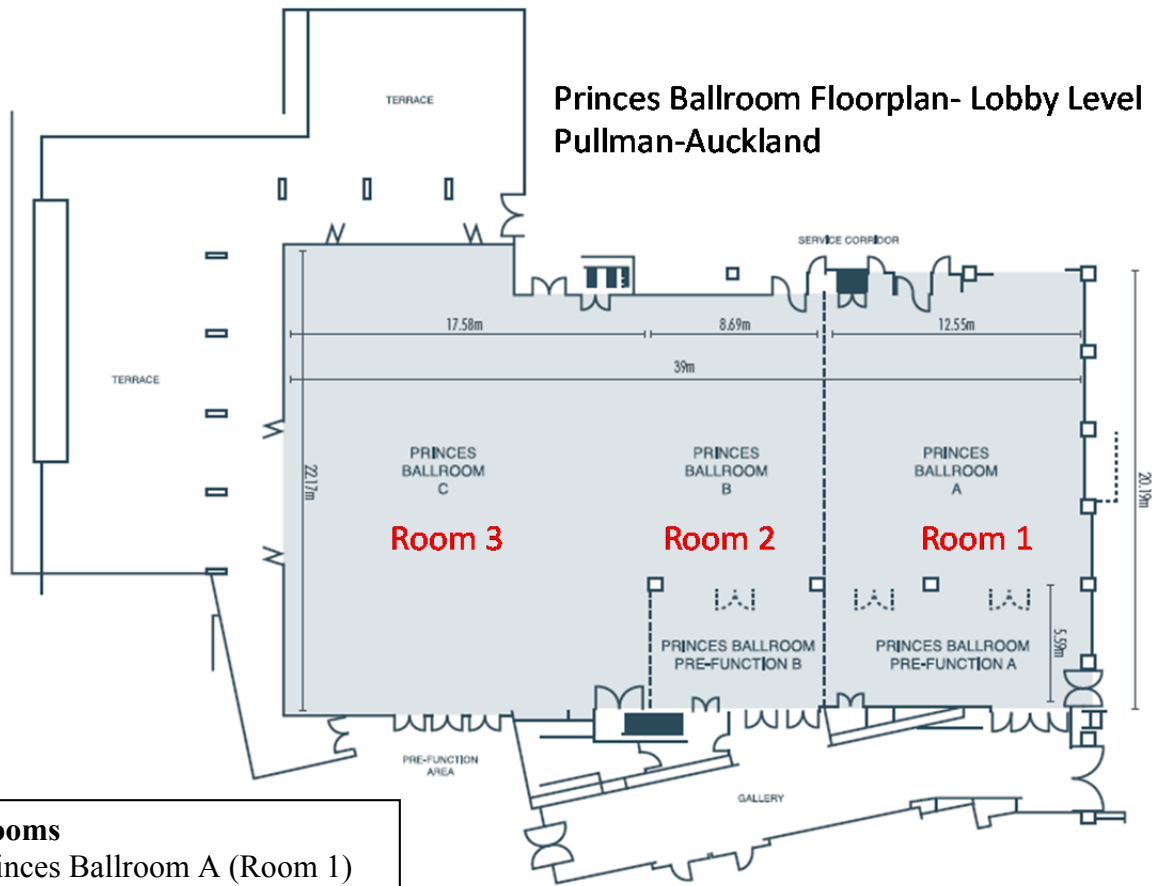
Rooms
Princes Ballroom A (Room 1)
Princes Ballroom B (Room 2)
Princes Ballroom C (Room 3)
Gallery II (Room 4)
Gallery III (Room 5)
Regatta Rooms AD (Coffee breaks and lunch venue)
Princes Ballroom BC (Banquet dinner venue)

Gallery Floorplan- Lower Level
Pullman-Auckland
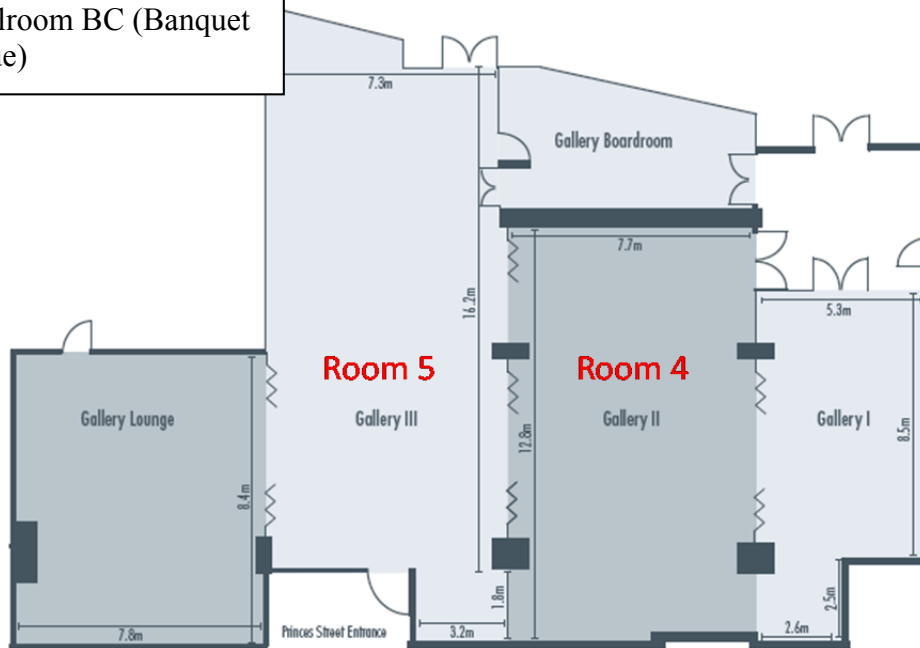
7. PROGRAM OVERVIEW

Overall Conference Program

ICCM2015, 14-17 July, Auckland, New Zealand

Date	Time	Conference Program
Day 0 July 14 (Tuesday)	16:00-18:30	Onsite Registration
	18:30-20:30	Welcome reception
July 15, 16, 17	7:30-17:00	Onsite Registration
Day 1 July 15 (Wednesday)	7:30-8:00	Arrival coffee/tea
	8:00-8:10	**Opening Ceremony**
	8:10-8:45	**Plenary Lecture I**
	8:45-9:20	**Plenary Lecture II**
	9:20-9:40	Morning Coffee/Tea
	9:40-10:10	**Thematic Plenary Lectures**
	10:10-12:50	**Parallel Sessions**
	12:50-13:50	Lunch
	13:50-15:50	**Parallel Sessions**
	15:50-16:00	Afternoon Coffee/Tea
	16:00-18:00	**Parallel Sessions**
Day 2 July 16 (Thursday) & **Day 3** July 17 (Friday)	7:30-8:00	Arrival Coffee/Tea
	8:00-8:30	**Thematic Plenary Lectures**
	8:30-10:30	**Parallel Sessions**
	10:30-10:40	Morning Coffee/Tea
	10:40-12:40	**Parallel Sessions**
	12:40-13:50	Lunch
	13:50-15:50	**Parallel Sessions**
	15:50-16:00	Afternoon Coffee/Tea
	16:00-18:00	**Parallel Sessions**
July 18 (Saturday)	8:00-12:00	Free discussions & meetings

Conference Banquet: 19:00 – 22:00 on Thursday, 16 July 2015

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8.   DETAILED PROGRAM FOR PLENARY AND PARALLEL SESSIONS

Plenary Lecture (PL)
The computational mechanics of the heart
Nic Smith (University of Auckland, New Zealand)
Constrained variation in multiscale modeling and simulation
Shiyi Chen (South University of Science and Technology, China)

Thematic Plenary Lecture (TPL)
Biomechanics of soft tissues using moving particle simulation
Seiichi Koshizuka (University of Tokyo, Japan)
A robust and efficient CFD model for interfacial multiphase flows on arbitrary unstructured grids
Feng Xiao (Tokyo Institute of Technology, Japan)
A unified discrete defect dynamics framework for plasticity and fracture
Nasr Ghoniem (University of California at Los Angeles , USA)
Numerical simulation on collapse behaviors of CTV building caused by the 2011 New Zealand earthquake,
Daigoro Isobe (University of Tsukuba, Japan)
Modelling damage evolution of fibre metal laminates subjected to projectile impact
Zhongwei Guan (University of Liverpool, UK)
XFEM based analysis and optimization of biomedical materials and structures for fracture criteria
Qing Li (University of Sydney, Australia)
Issues and challenges for the visualisation of computed vector fields
Gordon Mallinson (University of Auckland, New Zealand)
Development of multiscale particle discretization within the MPM framework
Zhen Chen (University of Missouri, USA)
Dynamic drape simulation by solid-shell element and rotation-free triangle
K Y Sze (University of Hong Kong, Hong Kong)

Proposed Mini-Symposium (MS) - Titles and Organizers

MS	Title	Organizers
MS-000	General Papers	Raj Das (University of Auckland) and Gui-Rong Liu (University of Cincinnati)
MS-001	Theory and Formulation for Novel Computational Methods	Gui-Rong Liu (University of Cincinnati)
MS-002	Modelling and Simulation on Nanomechanics	Hengan Wu (University of Science and Technology of China), XiaoYi Liu (University of Science and Technology of China) and Jie Chen(University of Science and Technology of China)
MS-003	Smoothed Finite Element Methods	Lei Chen (Pennsylvania State University)
MS-004	Advanced Hydrodynamics Analysis for Offshore Platform	Ping Lu (American Bureau of Shipping)
MS-005	Computational Modeling of Advanced Materials	Haimin Yao (Hong Kong Polytechnic University)
MS-006	Engineering Analysis and Design under Uncertainty	Byeng Youn (Seoul National University)
MS-007	Property Characterization of Nanomaterials through Multi-scale Simulations	Ning Hu (Chiba University)
MS-009	Computational Acoustics and Elastodynamics in Solids and Structures	Weiqiu Chen (Zhejiang University), Yue-Sheng Wang (Beijing Jiaotong University) and Chuanzeng Zhang (Universitat Siegen)
MS-010	Adaptive Numerical Methods	Nguyen-Xuan Hung (Vietnamese-German University)
MS-011	Large Scale Coupled Problems and Related Topics	Hiroshi Kanayama (Japan Women's University), Masao, Ogino (Nagoya University) and Ryuji Shioya(Toyo

		University)
MS-012	Discrete Finite Element Method and Its Applications	Mengyan Zang (South China University of Technology)
MS-013	Numerical Methods and Applications in Reacting Flows	Zhao Tian (University of Adelaide)
MS-014	Advances in Weakened Weak (W2) Formulation Based Numerical Methods	Xu Xu Jilin University) and Guiyong Zhang (Dalian University of Technology)
MS-015	Advanced Computational Methods in Underwater Acoustics	Wei Li (Huazhong University of Science and Technology)
MS-016	Large Deformation Problems of Building Structures	Daigoro Isobe (University of Tsukuba)
MS-017	Inverse Problems, Design and Optimisation under Uncertainties	Zbigniew BuliÅ„ski (Silesian University of Technology), Marcelo ColaÃ§o (Federal University of Rio de Janeiro), Helcio Orlande (Federal University of Rio de Janeiro) and George S Dulikravich(Florida International University)
MS-018	Numerical Modeling of Granular and Multiphase Flows	Shunji Honma (Saitama University) and Mikio Sakai (The University of Tokyo)
MS-019	Particle Based Methods	Zhen Chen (Dalian University of Technology / University of Missour), Dongdong Wang (Xiamen University) and Xiong Zhang (Tsinghua University)
MS-020	Modeling and Simulation of Cellular Migration: from Molecules to Multiple Cells	Hiromi Miyoshi (RIKEN Center for Advanced Photonics), Michiko Sugawara (Chiba University) and Ken-ichi Tsubota (Chiba University)
MS-021	Parallel and Other High Performance Computing in the Solution of Partial Differential Equations	Ismael Herrera (National Autonomous University of Mexico)
MS-022	Multi-scale Computational Mechanics for Heterogeneous Materials	Erick Saavedra Flores (Universidad de Santiago de Chile)
MS-023	Computational Modeling of Human Body Injury	Lixiang Yang (University of Cincinnati)
MS-024	Advanced Computational Modelling of Fracture and Damage	Raj Das (University of Auckland)
MS-025	Orthopaedic Biomechanics and Mechano- Biology	Lihai Zhang (University of Melbourne)
MS-026	Cohesive Fracture Modelling of Quasi-Brittle Materials	Zhenjun Yang (Zhejiang University)
MS-027	Computational Methods in Fluid-Structure Interactions	Zhi-Qian Zhang (Institute of High Performance Computing)
MS-028	Computational Modelling of Bio-related systems and Nanomaterials	Yuan Cheng (Institute of High Performance Computing), Baohua Ji (Beijing Institute of Technology), Yingyan Zhang (University of Western Sydney) and Jingjie Yeo(Institute of High Performance Computing)
MS-029	A Probabilistic Approach in the Numerical Simulation of Deformation and Fracture of Solids	Alexander Gerasimov (Tomsk State University)
MS-030	Confidence and Uncertainty Quantification in Computational Mechanics	Emilie Sauret (Queensland University of Technology)
MS-031	Advanced Computational Modelling & Simulations In Safety	Jerzy Malachowski (Military University of Technology) and Piotr Sielicki (Poznan University of Technology)
MS-038	Structural Health Monitoring and Identification of Structures	Ching-Tai Ng (University of Adelaide)
MS-039	Multiscale and Multiphisics Modelling for Complex Materials	Bernhard Schrefler (University of Padua) and Patrizia Trovalusci (Sapienza Universita Di Roma)
MS-040	Computational Methods in Welding and Joining	Zhao Zhang (Dalian University of Technology)
MS-042	Recent Advances In Meshfree and Particle Methods	Bin Chen (Xi'an Jiaotong University), Seiichi Koshizuka (University of Tokyo) and Moubin Liu (College of Engineering)
MS-043	Computational Modelling in Material Processing	Cho-Pei Jiang (National Formosa University)
MS-045	Advances in Computational Geomechanics	Ha Bui (Monash University), Giang Nguyen (University of Adelaide) and Phu Nguyen(University of Adelaide)

MS-046	Multiscale Modelling of Advanced Engineering Materials	Yang Xiang (University of Western Sydney) and Chunhui Yang (University of Western Sydney)
MS-047	Fatigue Cracking Modeling and Numerical Simulation	Sheng-Chuan Wu (Southwest Jiaotong University)
MS-048	Advanced Numerical Methods in Explosion and Shock Waves	Dean Hu (Hunan University) and Cheng Wang (Beijing Institute of Technology)
MS-049	Nanomechanics and Nanoscale Modelling	Haifei Zhan (Queensland University of Technology)
MS-050	Algorithms for Structural Control and Health Monitoring	Geoff Chase (Univ of Canterbury), Chris Pretty (University of Canterbury), Chao Xu (Northwestern Polytechnical University) and Geoffrey Rodgers (University of Canterbury)
MS-051	Computations and Modelling of Multiphase Flows	Yang-Yao Niu (Tamkang University) and Feng Xiao (Tokyo Institute of Technology)
MS-052	Computational Modelling of Hemodynamics	Chang-Joon Lee (Macquarie University)
MS-053	Advances and Applications of the Scaled Boundary Finite Element Method	Sundararajan Natarajan (Indian Institute of Technology-Madras) and Ean Tat Ooi (Federation University Australia)
MS-054	Topology Optimization in Electromagnetic or Acoustic Fields	Jeonghoon Yoo (Yonsei University)
MS-055	Computational Unsaturated Soil Mechanics	Yixiang Gan (University of Sydney) and Annan Zhou (RMIT University)
MS-056	Engineering Inverse Problems	Xu Han (Hunan University), Chao Jiang (Hunan University) and Jie Liu(Hunan University)
MS-057	Structural Uncertainty Modeling & Reliability Analysis	Wei Gao (University of New South Wales), Chao Jiang (Hunan University) and Zhan Kang (Dalian University of Technology)
MS-058	Soft Tissue Mechanics: Multi-Scale Modelling, Measurement, and Parameter Identification	Martyn Nash (University of Auckland), Poul Michael Fonss Nielsen (University of Auckland) and Michael Sacks (University of Texas at Austin)
MS-059	Numerical Modelling of Composite Structures Subjected to Extreme Loading Conditions	Zhongwei Guan (University of Liverpoo)
MS-061	Concrete Structure Damage Due to Explosion	Sau Cheong Fan (Nanyang Technological University)
MS-062	Modeling and Simulation of High-Speed Multimaterial Flows	Gustaaf Jacobs (San Diego State University) and H.S. Udaykumar (University of Iowa)
MS-064	Effective Visualisation for Science through Big Data and Visual Analytics	Tomasz Bednarz (CSIRO)
MS-065	Stochastic Modelling and Probabilistic Engineering	Chenfeng Li (Swansea University)
MS-067	Hydraulic Fracturing: Mathematical Modeling, Numerical Simulation, and Engineering Aspects	Zhanli Liu (Tsinghua University) and Yongxing Shen (Shanghai Jiao Tong University)
MS-068	Medical Rapidprototyping and Tissue Engineering	Abhaykumar Kuthe (Visvesvaraya National Institute of Technology)
MS-069	New Horizons in FEM Analysis for Mechatronics in the Medical Applications	Francesco Mammoliti (University of Catania and Istituto Nazionale di Fisica Nucleare) and Francesco Noto (University of Catania and INFN LNS)
MS-070	CFD of Turbulence for Applied, Industrial, or Environmental Flows	Lian Shen (University of Minnesota)
MS-072	Fluid-Structure Interactions in Aerospace Engineering	Jianyao Yao (Chongqing University)
MS-073	Numerical Methods and Applications in Geoscience and Geotechnics	Yu Huang (Tongji University)
MS-074	Design and Control of Flexible Smart Structures	Shutian Liu (Dalian University of Technology) and Liyong Tong (University of Sydney)

MS-075	Advances in the Boundary Element Method and Its Applications	Yijun Liu (Northwestern Polytechnical University), Jinyou Xiao (Northwestern Polytechnical University), Jianming Zhang (Hunan University) and Wenjing Ye(Hong Kong University of Science and Technology)
MS-076	High Performance Computing and Simulation of Multiphase Flows	Don Liu (Louisiana Tech University)
MS-077	Advances in Computational Modelling and Optimization for Impact and Blast Problems	Jianguang Fang (University of Sydney), Shujuan Hou (Hunan University), Guangyong Sun (Hunan University) and Qing Li(The University of Sydney)
MS-078	Advances in High-performance Finite Element Methods	Song Cen (Tsinghua University)
MS-079	Biomedical Image Processing and Analysis	Julia Kar (Washington University)
MS-080	Current Trends in Modelling and Simulation of Turbulent Flows	Suad Jakirlic (Technische Universitaet Darmstadt)
MS-081	Advanced Modeling and Simulation of Dynamic Systems	Zhicheng He (Hunan University), Quan Bing Eric Li (Jilin University) and Xu Xu(Jilin University)
MS-082	Statistical Inverse Problems	Taufiquar Khan (Clemson University)
MS-083	Analysis, Modelling and Simulation of Soft Active Materials	Soo Jin Adrian Koh (National University of Singapore)
MS-084	Computational Biomechanics of Musculoskeletal Tissues	Justin Fernandez (University of Auckland) and Qing Li (The University of Sydney)
MS-085	Materials Constitutive Modelling: from Nano-scale to Continuum	Gwenaelle Proust (The University of Sydney)

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

9.   CONFERENCE SESSIONS

Day 1: Plenary Lectures: Wednesday, 15 July 2015
Room : Princess Ball Room BC

Session 1: Plenary Lectures (PL), Chair:: Raj Das and Gui-Rong Liu

Time	ID	Presenter and Title
08:10-08:45	1349	The computational mechanics of the heart Nic Smith (University of Auckland, New Zealand)
08:45-09:20	1346	Constrained variation in multiscale modeling and simulation Shiyi Chen (South University of Science and Technology, China)

Session 2: Thematic Plenary Lectures (TPL), Chairs: Qing Li, Moubin Liu, Zhongwei Guan

Time	ID	Presenter and Title
		TPL-1, Princess Ball Room A, Chairman: Qing Li
09:40-10:10	810	Biomechanics of soft tissues using moving particle simulation Seiichi Koshizuka (University of Tokyo, Japan)
		TPL-2, Princess Ball Room B, Chairman: Moubin Liu
09:40-10:10	757	A robust and efficient CFD model for interfacial multiphase flows on arbitrary unstructured grids Feng Xiao (Tokyo Institute of Technology, Japan)
		TPL-3, Princess Ball Room C, Chairman: Zhongwei Guan
09:40-10:10	651	A unified discrete defect dynamics framework for plasticity and fracture Nasr Ghoniem (University of California at Los Angeles , USA)

Day 2 Thematic Plenary Lectures: Thursday, 16 July 2015

Session 3: Thematic Plenary Lectures (TPL), Chairs: Seiichi Koshizuka, Nasr Ghoniem, YuanTong Gu

Time	ID	Presenter and Title
		TPL-4, Princess Ball Room A, Chairman: Seiichi Koshizuka
08:00-08:30	690	Numerical simulation on collapse behaviors of CTV building caused by the 2011 New Zealand earthquake Daigoro Isobe (University of Tsukuba, Japan)
		TPL-5, Princess Ball Room B, Chairman: Nasr Ghoniem
08:00-08:30	691	Modelling damage evolution of fibre metal laminates subjected to projectile impact Zhongwei Guan (University of Liverpool, UK)
		TPL-6, Princess Ball Room C, Chairman: YuanTong Gu
08:00-08:30	1348	XFEM based analysis and optimization of biomedical materials and structures for fracture criteria Qing Li (University of Sydney, Australia)

Day 3 Thematic Lectures: Friday, 17 July 2015

Session 4, Thematic Plenary Lectures (TPL), Chairs: Raj Das, YuanTong Gu, Daigoro Isobe

Time	ID	Presenter and Title
		TPL-7, Princess Ball Room A, Chairman: Raj Das
08:00-08:30	1347	Issues and challenges for the visualisation of computed vector fields Gordon Mallinson (University of Auckland, New Zealand)
		TPL-8, Princess Ball Room B, Chairman: YuanTong Gu
08:00-08:30	678	Development of multiscale particle discretization within the MPM framework Zhen Chen (University of Missouri, USA)
		TPL-9, Princess Ball Room C, Chairman: Daigoro Isobe
08:00-08:30	1327	Dynamic drape simulation by solid-shell element and rotation-free triangle K Y Sze (University of Hong Kong, Hong Kong)

Day 1: Room 1 (Princes Ballroom A) Parallel Sessions: Wednesday, 15 July 2015

Session 5 - Chairs: Weiqiu Chen, Gui-Rong Liu
MS-001 Theory and Formulation for Novel Computational Methods
MS-009 Computational Acoustics and Elastodynamics in Solids and Structures

Time	ID	Title / Authors
10:10-10:30	716	Keynote: Analysis of wave dispersion in multiferroic laminates via the reverberation-ray matrix method / Weiqiu Chen
10:30-10:50	1060	Invited: A piezoelectric nanobimorph energy harvester based on the nonlocal theory / Hongping Hu, Hao Chen, Qin Qian, Yuantai Hu
10:50-11:10	675	Continuum structural topological optimizations with stress constraints based on stress gradients and a normal density function / Jian Hua Rong
11:10-11:30	908	Development of microsystems analysis (μsys) software using hybrid finite elements and direct solution of coupled equations / Anish Roychowdhury, Kunal D. Patil, Arup Nandy, C.S. Jog, Rudra Pratap, G. K. Ananthasuresh
11:30-11:50	984	Moving beyond continuum based numerical model for geomechanics / Gaofeng Zhao
11:50-12:10	845	A better way for managing all of the physical sciences under a single unified theory of analytical integration / Mike Joseph Mikalajunas
12:10-12:30	966	Improved complex mode theory and it truncating acceleration technique / Yaping Zhao
12:30-12:50	879	MLS truly meshless 3D linear elastic solution based on cartesian transformation integration method / Jose Alberto Martinez Trespalacios

Session 6 - Chairs: XiaoYi Liu, Yu Huang
MS-002 Modelling and Simulation on Nanomechanics
MS-073 Numerical Methods and Applications in Geoscience and Geotechnics

Time	ID	Title / Authors
13:50-14:10	1154	Keynote: Finite element modeling of the AFM indentation response of two-dimensional material with a soft substrate / Guoxin Cao
14:10-14:30	683	Keynote: Chirality-dependent buckling-driven wrinkles in graphene monolayer / XiaoYi Liu
14:30-14:50	813	Microscopic investigation on adsorption of shale gas in nanopores / Jie Chen
14:50-15:10	824	Chirality-controlled and defect-controlled CNTs fabricated by self-assembly of graphene nano-ribbons: MD simulations / Shaohua Chen
15:10-15:30	925	Chord rotation demand for effective catenary action of rc beams under gravitational monotonic loadings / Meng-Hao Tsai
15:30-15:50	902	Direct three-dimensional meshless magnetotelluric modeling / Jan Wittke, Bülent Tezkan

Session 7 - Chairs: Taufiquar Khan, Jie Chen
MS-002 Modelling and Simulation on Nanomechanics
MS-082 Statistical Inverse Problems

Time	ID	Title / Authors
16:00-16:20	730	Keynote: Statistical inversion in electrical impedance and diffuse optical tomography / Taufiquar Khan
16:20-16:40	702	Keynote: Establishing effective criteria to link atomic and macro-scale simulations of dislocation nucleation in FCC metals / Nathaniel J. Burbery, Raj Das, W. George Ferguson
16:40-17:00	1010	Acceleration of an accurate summation algorithm / Takeshi Ogita
17:00-17:20	1016	Numerical simulation of flows around jellyfish in a current / Takeshi Inomoto
17:20-17:40	1183	A probabilistic approach to inverse material parameter identification / Erfan Asaadi
17:40-18:00	930	A semi-analytical method for the one-dimensional Burgers' equation / Qiang Gao, Weian Yao, Mingyu Zou

Day 1: Room 2 (Princes Ballroom B) Parallel Sessions: Wednesday, 15 July 2015

Session 8– Chairs: Yunying Zhou, Weiqiu Chen
MS-001 Theory and Formulation for Novel Computational Methods
MS-009 Computational Acoustics and Elastodynamics in Solids and Structures
MS-046 Multiscale Modelling of Advanced Engineering Materials

Time	ID	Title / Authors
10:10-10:30	739	Keynote: Instability induced patterns of 2d soft phononic materials / Ronghao Bao, Weiqiu Chen, Tongxi Yu
10:30-10:50	1292	Invited: Vibration analysis of multiferroic rectangular plates using higher-order shear deformation theory / Yunying Zhou
10:50-11:10	728	Nonlinear free vibration of a bilayer graphene nanoribbon with interface shear effect / Dongying Liu, Weiqiu Chen
11:10-11:30	1209	Nonlinear guided waves in plates – a new perspective on dispersion characteristics estimation / Pawel Packo
11:30-11:50	754	Evidence theory based analysis for structural-acoustic field with epistemic uncertainties / Longxiang Xie, Jian Liu, XianFeng Man, YongChang Guo
11:50-12:10	841	Acoustic scattering by multiple spheroids using collocation multipole method / Wei-Ming Lee
12:10-12:30	740	The self-assembly of self-interstitial-atoms caused by an electron beam / Sachiko T. Nakagawa
12:30-12:50	1118	A three-dimensional micromechanical model for predicting effective macroscopic mechanical behaviors of bi-directional fiber-reinforced ceramic matrix composites / Wugui Jiang

Session 9– Chairs: Shunji Honma, Mikio Sakai
MS-018 Numerical Modeling of Granular and Multiphase Flows

Time	ID	Title / Authors
13:50-14:10	1034	Keynote: Development of the XEL method for granular and multi-phase flows / Mikio Sakai
14:10-14:30	1165	Invited: A coarse-grained discrete particle method for particle-fluid flows / Wei Ge
14:30-14:50	1212	Numerical study on highly viscous slurry under shear flow / Hiroyuki Araki, Masatoshi Sakai, Mikio Sakai
14:50-15:10	1223	Modeling and validation of liquid bridge force in DEM simulation / Yuki Tsunazawa, Daiki Fujihashi, Chiharu Tokoro, Mikio Sakai
15:10-15:30	1184	Determining temporal composition changes of a ternary mixture / Homa Izadi
15:30-15:50	1344	Computational material chemistry level modeling of materials - cement paste / Ram Mohan

Session 10– Chairs: Sau Cheong Fan, Y.X. Zhang
MS-061 Concrete Structure Damage Due to Explosion
MS-064 Effective Visualisation for Science through Big Data and Visual Analytics
MS-070 CFD of Turbulence for Applied, Industrial, or Environmental Flows

Time	ID	Title / Authors
16:00-16:20	1276	Keynote: Numerical simulation of breakup of concrete magazine due to accidental internal explosion and determination of its debris hazard zone / Sau Cheong Fan
16:20-16:40	709	Invited: Parametric study of FRP-strengthened reinforced concrete panels under blast loads / X. Lin, Y.X. Zhang
16:40-17:00	753	Cognition of parameters' role on vertical control device for aerodynamic characteristics of aircraft using data mining / Kazuhisa Chiba, Taiga Omori, Yasuto Sunada, Taro Imamura
17:00-17:20	819	A comparison of two computational methods (RANS and LES) in analysing of ventilation flow through a room fitted with a two-sided windcatcher for free flow condition / Amirreza Niktash, B. Phuoc Huynh
17:20-17:40	959	A numerical study on the fluid flow inside a cage-guided globe valve to evaluate the operability of air-operated valve / Sang Hyuk Lee, Wonsam Cho, Dae-Hwan Kim, Taehyun Lee, Jaehyung Kim, Yong Jin Kim
17:40-18:00	1198	Aerodynamic analysis of the airfoil of a vawt by using 2D CFD modelling / Luis Fernando Garcia, Julian Ernesto Jaramillo, Jorge Luis Chacón

Day 1: Room 3 (Princes Ballroom C) Parallel Sessions: Wednesday, 15 July 2015

Session 11– Chairs: Yang-Yao Niu, Honghui Teng
MS-018 Numerical Modeling of Granular and Multiphase Flows
MS-051 Computations and Modelling of Multiphase Flows

Time	ID	Title / Authors
10:10-10:30	1014	Keynote: Buoyancy-driven motion of a liquid droplet in another immiscible liquid / Shunji Honma
10:30-10:50	745	Keynote: Simulations of the interaction of compressible droplet impaction on walls based on the two-fluid model / Yang-Yao Niu
10:50-11:10	1311	Direct Numerical Simulations Of Turbulent Mixing By Compressible Rayleigh-Taylor instability / Baolin Tian
11:10-11:30	711	A mixed interface capturing/tracking scheme for sharp interface simulation of flow instability problem / Ching-Sen Wu
11:30-11:50	1012	Application of an arbitrary-shaped wall boundary model to a DEM simulation in a die filling process / Yuki Tsunazawa, Yusuke Shigeto, Chiharu Tokoro, Mikio Sakai
11:50-12:10	1214	Numerical investigation of aerosol particle transport and deposition in realistic lung airway / Mohammad Saidul Islam, Suvash C. Saha, Emilie Sauret, Y.T. Gu, Zoran Ristovski
12:10-12:30	701	An unsteady double diffusive natural convection in an inclined rectangular enclosure with different angle of magnetic field / Sabyasachi Mondal, Precious Sibanda
12:30-12:50	988	Multiphase model for thermal activity in a multistory residential home / Chamika De Costa, Satoru Ushijima

Session 12– Chairs: Feng Xiao, Kensuke Yokoi
MS-006 Engineering Analysis and Design under Uncertainty
MS-051 Computations and Modelling of Multiphase Flows

Time	ID	Title / Authors
13:50-14:10	694	Keynote: Oblique shock to detonation transition in hydrogen-air mixtures / Honghui Teng
14:10-14:30	977	Keynote: Density-scaled balanced continuum surface force model with a level set based curvature interpolation technique / Kensuke Yokoi
14:30-14:50	1307	A GKS-ALE method for multi-material flows with general equation of state / Yibing Chen
14:50-15:10	1284	An investigation of nano-particle deposition in cylindrical tubes under laminar condition using lagrangian transport model / Meisam Babaie, Pouyan Talebizadeh, Kiao Inthavong, Goodarz Ahmadi, Zoran Ristovski, Hassan Rahimzadeh, Richard Brown
15:10-15:30	1046	Free surface flow simulation using moving-grid finite-volume method / Sadanori Ishihara, Kenichi Matsuno, Masashi Yamakawa, Takeshi Inomoto, Shinichi Asao
15:30-15:50	1244	Probabilistic structural analysis of the composite crew module- substructuring with high resolution grid / Vinod K. Nagpal

Session 13– Chairs: Yijun Liu, Delfim Soares Jr.
MS-053 Advances and Applications of the Scaled Boundary Finite Element Method
MS-075 Advances in the Boundary Element Method and Its Applications

Time	ID	Title / Authors
16:00-16:20	668	Keynote: Study of acoustic metamaterials using the fast multipole boundary element method / Yijun Liu, Anli Wang, Bangjian He
16:20-16:40	717	Invited: Frequency domain elastodynamic solutions using iterative coupling of FEM and BEM / Delfim Soares Jr., Kleber A. Gonçalves, Jose Claudio de Faria Telles
16:40-17:00	932	Invited: Isoparametric tube, disk and ring boundary elements and their application in BEM analysis of slender structures / Xiao-Wei Gao, Zhi-Chao Yuan, Wen-Hao Zeng
17:00-17:20	782	Invited: A new automatic quadrangle mesh generation method for Boundary Face Method / Wang Pan, Zhang Jianming
17:20-17:40	899	Invited: Meso-scale fracture modelling of concrete using a finite element-scaled boundary finite coupled method / Yujie Huang, Zhenjun Yang, Guohua Liu
17:40-18:00	777	All-hexahedral mesh generation based on virtual decomposition for boundary face method / Han Lei, Zhang Jian Ming

Day 1: Room 4 (Gallery II) Parallel Sessions: Wednesday, 15 July 2015

Session 14– Chairs: Chongmin Song, Wilfried Becker
MS-053 Advances and Applications of the Scaled Boundary Finite Element Method

Time	ID	Title / Authors
10:10-10:30	885	Keynote: Static and free vibration analysis of laminated composite plates by the scaled boundary finite element method / Tingsong Xiang, Chongmin Song, Sundararajan Natarajan, Hou Man, Wei Gao
10:30-10:50	1087	Keynote: From CAD and digital imaging to fully automatic and adaptive stress analysis / Chongmin Song, Hossein Talebi
10:50-11:10	672	Numerical modelling of wave propagation / Dinusha Wijesekara, Carolin Birk
11:10-11:30	681	A high-order doubly asymptotic transmitting boundary for vector wave propagation / Denghong Chen
11:30-11:50	939	Stress analysis of complex geometries by implicit surfaces and the scaled boundary polyhedral finite elements / Hossein Talebi
11:50-12:10	940	Evaluation of the singular stress field of the crack tip of the infinite elastic plate / Junyu Liu
12:10-12:30	990	A scaled boundary finite element formulation with quadtree mesh for elasto-plastic analysis / Ke He
12:30-12:50	1274	Scaled boundary finite element analysis of three-dimensional crack configurations in laminate structures / Sascha Hell, Wilfried Becker

Session 15– Chairs: Yijun Liu, Zai-You Yan
MS-075 Advances in the Boundary Element Method and its Applications

Time	ID	Title / Authors
13:50-14:10	1201	Invited: Simulation of the acoustic filed of a structure vibrating in a subsonic uniform flow using the fast BEM / Qiang Zhou, Chuan-Zhen Li, Zai-You Yan
14:10-14:30	935	Fast computational algorithm for actively cooling TPS based on sub-structure BEM / Jian Liu, Xiao-Wei Gao
14:30-14:50	1044	In-plane free vibration of circular FG disks / Yang Yang, Kun Pang Kou, Chi Chiu Lam, Vai Pan Iu
14:50-15:10	1135	New approach for computing hyper-singular interface stresses in IIBEM for solving multi-medium elasticity problems / Kai Yang
15:10-15:30	1264	Fast multipole boundary element method for elastic wave scattering in 2-D anisotropic solids / Takahiro Saitoh, Sohichi Hirose, Akira Furukawa
15:30-15:50	823	An Automatic Topology Recovery Method Based on T-Spline Surfaces Reconstruction in BFM / Chenjun Lu, Jianming Zhang

Session 16– Chairs: Song Cen, Raj Das
MS-078 Advances in High-performance Finite Element Methods

Time	ID	Title / Authors
16:00-16:20	770	Keynote: HDF method: a novel and efficient finite element scheme for analysis of Mindlin-Reissner plate / Song Cen, Yan Shang
16:20-16:40	947	Invited: Quasi-conforming formulation method based on couple stress theory / Changsheng Wang, Xiangkui Zhang, Ping Hu
16:40-17:00	981	Report on a novel concave-admissible quadrilateral 8 node plane element / Yang Xia, Qingyuan Hu, Ping Hu, Chongjun Li
17:00-17:20	953	Study on the triangular shell elements for anisotropy material / Xiang Rong Fu
17:20-17:40	766	Application of the quadrilateral area coordinates: A 4-node quadrilateral membrane element beyond MacNeal's theorem / Pei-Lei Zhou
17:40-18:00	747	A displacement-based element model for solving the edge effect problem of Mindlin-Reissner plate / Yan Shang

Day 1: Room 5 (Gallery III) Parallel Sessions: Wednesday, 15 July 2015

Session 17– Chairs: Mengyan Zang, Wing Kong Chiu
MS-001 Theory and Formulation for Novel Computational Methods
MS-012 Discrete Finite Element Method and Its Applications

Time	ID	Title / Authors
10:10-10:30	846	Keynote: Simulation of pneumatic tire running on sand bed by using the FEM/DEM / Mengyan Zang, Chunlai Zhao, Shunhua Chen
10:30-10:50	1098	Invited: The inadequacy of elastic properties from tensile tests for Lamb wave analysis / Wing Kong Chiu
10:50-11:10	738	Invited: A novel technique with a correction term for unsteady state heat transfer problem with moving boundary / Ruiping Niu
11:10-11:30	796	Study on elastic matrix model of the bi-modulus finite element / Zhiming Ye, Huiling Zhao
11:30-11:50	1269	Adaptive combined DE/FE algorithm for analyzing impact fracture problem / Wei Xu, Jiro Sakamoto
11:50-12:10	679	Convergence analysis of discontinuous finite volume methods for second order hyperbolic problems / Sarvesh Kumar
12:10-12:30	786	Solution of computational acoustics and wave propagation problems using a high order, high resolution coupled compact difference scheme / Jitenjaya Pradhan, Yogesh G. Bhumkar, Satish D. Dhandole
12:30-12:50	-	-

Session 18– Chairs: Gui-Rong Liu, Ning Hu
MS-001 Theory and Formulation for Novel Computational Methods
MS-007 Property Characterization of Nanomaterials through Multi-scale Simulations

Time	ID	Title / Authors
13:50-14:10	665	Keynote: Numerical simulation on piezoresistivity of nanofiller and polymer based nanocomposites / Ning Hu
14:10-14:30	881	Investigation on toughening behavior of thermoplastic modified epoxy / Byungjo Kim, Hyunseong Shin, Hyungbum Park, Joonmyung Choi, Seunghwa Yang, Manyoung Lee, Jongkyoo Park, Maenghyo Cho
14:30-14:50	1117	Pull-out behavior of CNT with cap from CNT-reinforced nanocomposites / Ning Hu
14:50-15:10	1323	An implicit algorithm for finite volume - finite element coupling / Aleksandar Jemcov, Davor Cokljat, Joseph Maruszewski
15:10-15:30	1226	The scaled boundary finite element method / Chongmin Song
15:30-15:50	844	Evaluation of dynamic stress intensity factors using iXFEM Longfei Wen, Rong Tian

Session 19– Chairs: Mengyan Zang, Zhen Chen
MS-012 Discrete Finite Element Method and Its Applications
MS-019 Particle Based Methods

Time	ID	Title / Authors
16:00-16:20	1330	Keynote: A ghost particle-based coupling approach for combined finite-discrete element method / Hu Chen, Y.X. Zhang, Mengyan Zang
16:20-16:40	806	Invited: Modelling interaction of incompressible fluids and deformable particles with the material point method / Rachel Marie Gelet, Giang Nguyen, Pierre Rognon
16:40-17:00	1306	Invited: Ball's motion, sliding friction and internal load distribution in a high-speed ball bearing subjected to a combined radial, thrust, and moment load/ Mario Cesar Ricci
17:00-17:20	973	Failure analysis of plate with non-uniform arrangement holes by ordinary state-based peridynamics / Qing Zhang
17:20-17:40	1210	Entropically damped artificial compressibility for SPH / Prabhu Ramachandran, Kunal Puri
17:40-18:00	744	Mesoscopic modelling of the shear stud-concrete interface / Daniel J. Lowe, Raj Das, Charles Clifton, Namasivayam Navaranjan

Day 2: Room 1 (Princes Ballroom A) Parallel Sessions: Thursday, 16 July 2015

Session 20- Chairs: Wei Li, Patrizia Trovalusci,
MS-015 Advanced Computational Methods in Underwater Acoustics
MS-039 Multiscale and Multiphisics Modelling for Complex Materials

Time	ID	Title / Authors
8:30-8:50	1256	Keynote: Coarse-graining approaches for complex materials as multifield continua with applications to particle composites / Patrizia Trovalusci
8:50-9:10	722	Quantitative, elastoplastic phase-field model for microstructural evolution in solids under stress and temperature gradients / San-Qiang Shi
9:10-9:30	808	Computational fluid dynamics –aquatic / Afolabi Emmanuel Osunlana
9:30-9:50	1020	Acoustic resonance scattering of Bessel beam by elastic spheroids in water / Zhixiong Gong
9:50-10:10	1021	An edge-based smoothed three-node Mindlin plate element(ES-MIN3) for shell analysis / Chai Ying Bin
10:10-10:30	955	A non-intrusive polynomial chaos for uncertainty quantification on numerical simulation of flows around cylinder / Yanjin Wang

Session 21- Chairs: Hiroshi Kanayama, Masao Ogino
MS-011 Large Scale Coupled Problems and Related Topics

Time	ID	Title / Authors
10:40-11:00	906	Keynote: Development of a library of iterative solvers based on the domain decomposition method / Masao Ogino, Ryuji Shioya
11:00-11:20	945	Invited: Development of a C library for sparse matrix computations / Abul Mukid Mohammad Mukaddes, Ryuji Shioya, Masao Ogino, Hiroshi Kanayama
11:20-11:40	696	Keynote: Preconditioners in domain decomposition method for magnetostatic problems / Hiroshi Kanayama, Masao Ogino, Shin-ichiro Sugimoto
11:40-12:00	1065	Invited: Numerical simulation of flow around multiple cylinders by a domain decomposition method / Qinghe Yao
12:00-12:20	1095	A unified finite volume approach for numerical simulations of fluid piezoelectric structure coupled systems/ Vinh-Tan Nguyen , Jason Leong and Pankaj Kumar
12:20-12:40	1234	Efficient approach for the fluid-structure interaction problems and the comparison between experiment and computation / Yasushi Nakabayashi, Shinsuke Nagaoka, Yoshiaki Tamura, Genki Yagawa

Session 22- Chairs: Raj Das, Chunhui Yang
MS-046 Multiscale Modelling of Advanced Engineering Materials
MS-057 Structural Uncertainty Modeling & Reliability Analysis

Time	ID	Title / Authors
13:50-14:10	1075	Keynote: Multiscale modeling of multiple-cracking fracture behaviour of engineered cementitious composites / Ting Huang, Y.X. Zhang, Chunhui Yang
14:10-14:30	1100	Invited: Interval optimization for the structural-acoustic system with interval parameters in the mid-frequency range / Hui Yin, Baizhan Xia, Dejie Yu, Shengwen Yin
14:30-14:50	1251	Invited: An efficient set preference based multi-objective genetic algorithm and its applications / Guiping Liu
14:50-15:10	1286	Parametric reliability sensitivity analysis using failure probability ratio function / Pengfei Wei
15:10-15:30	1161	Mechanics on hierarchical chirality transfer in biological materials and nanomaterials / Jianshan Wang
15:30-15:50	1288	Dynamic recrystallization simulation of Ti-6Al-4V alloy during hot compressive deformation by cellular automata coupled with finite element method / Han Fei, Chen Rongquan, Wang Yongqiang, Gao Qi

Session 23- Chairs: Chunhui Yang, Chao Jiang
MS-046 Multiscale Modelling of Advanced Engineering Materials

Time	ID	Title / Authors
16:00-16:20	1112	Keynote: Micromechanics-based multiscale modelling of porous materials with two-scale pressured voids / Lianhua Ma, Chunhui Yang
16:20-16:40	1287	Hot compressive deformation behavior and flow stress prediction using constitutive model of TC4 titanium alloy / Han Fei, Chen Rong Quan, Yang Chun Hui, Li Xian Min
16:40-17:00	1192	Bifurcation of a spherical balloon under air inflation and electric activation / Yu-Xin Xie
17:00-17:20	1196	A multiple mechanism based model for prediction of yield strength in crystals / Ganyun Huang
17:20-17:40	1018	Multiscale analysis of piezoceramic-battery hybrid composites / Ganesh S, P S Prasad, Dineshkumar Harursampath
17:40-18:00	1122	Predicting ductility of dual-phase steels using micromechanical modelling / Yuliang Hou, Mohamed Rachik

Day 2: Room 2 (Princes Ballroom B) Parallel Sessions: Thursday, 16 July 2015

Session 24- Chairs: Yu Huang, Sumit Basu

MS-073 Numerical Methods and Applications in Geoscience and Geotechnics

Time	ID	Title / Authors
8:30-8:50	650	Keynote: Reliability analysis of soil slope stability based on the probability density evolution method / Yu Huang, Min Xiong
8:50-9:10	1007	Keynote: Numerical study on the liquefaction resistance improvement effect by self-weight consolidation of a reservoir dam / Xuanwang Wang, Bin Ye, Chao Liu, Yu Huang
9:10-9:30	1178	Invited: Effects of axial compression ratio of central columns on seismic performance of a multi-story underground structure / Zhiyi Chen, Wei Chen, Wei Zhang
9:30-9:50	830	Invited: A soil dynamics based liquefaction potential assessment framework for urban sites / Jian Chen, Tomohide Takeyama, Hideyuki O-tani, Kohei Fujita, Muneo Hori
9:50-10:10	890	Reliability analysis of slope stability using monte carlo simulation and comparison with deterministic analysis / Ravi Kumar Sharma
10:10-10:30	1257	Development of a fully coupled flow-geomechanics simulator for flow in saturated porous media / Chao Zhang, Sadiq J. Zarrouk, Rosalind Archer

Session 25- Chairs: Erick Saavedra Flores, Wilson Ricardo Leal da Silva

MS-022 Multi-scale Computational Mechanics for Heterogeneous Materials

Time	ID	Title / Authors
10:40-11:00	1318	Keynote: A computational approach for the modelling of rolling shear cracks in cross-laminated / Erick I. Saavedra Flores, Karin Saavedra, and Raj Das
11:00-11:20	1193	Keynote: Stress analysis of functionally graded plates under different gradient distribution / Maedeh Amirpour, Raj Das, Erick Saavedra Flores
11:20-11:40	1220	Invited: Multiscale FEM analysis of mass concrete structures - case study / Wilson Ricardo Leal da Silva, Zdenek Bittnar
11:40-12:00	1340	Thermomechanics model for inelastic deformation of flexible graphite o-ring seals and seal packs under their exploitation in stop valves / Alexey Vyacheslavovich Zaitsev, Ivan Yurievich Zoubko, Oleg Yurievich Isaev, Vitaliy Sergeevich Koksharov, Dmitriy Veniaminovich Smirnov
12:00-12:20	1217	Effect of distribution between stress and couple stress on Saint-Venant's decay rates for micropolar elastic solids in pure bending / Tomohide Ishimaru, Akihiro Nakatani
12:20-12:40	703	Magnetohydrodynamic nanofluid flow and heat transfer along a permeable stretching surface with non uniform heat generation/absorption / Mohammad Sharifuddin Ansari, Raj Nandkeolyar, S. S. Motsa

Session 26- Chairs: Gwenaelle Proust, Qing Li

MS-084 Computational Biomechanics of Musculoskeletal Tissues

MS-085 Materials Constitutive Modelling: from Nano-scale to Continuum

Time	ID	Title / Authors
13:50-14:10	1202	Keynote: Modelling the quasi-static and high-strain rate deformation behaviour of magnesium alloy AZ31 / Gwenaelle Proust, Ling Li, Emmanuel A. Flores-Johnson, Luming Shen, Ondrej Muransky
14:10-14:30	1303	Numerical simulations of induced wrinkling by patterned defects in metal thin films / Mingchao Liu, Emmanuel A. Flores-Johnson, Luming Shen, Changqing Chen, Yixiang Gan
14:30-14:50	820	Nonlinear electro-mechanical responses of ferroelectric ceramics and active composites / Anastasia Muliana
14:50-15:10	867	A computational analysis of ballistic resistance of bio-inspired multilayered panels with functionally graded foam cores / Ruoyu Wang, Emmanuel A. Flores-Johnson, Gwénaëlle Proust, Luming Shen
15:10-15:30	1121	Numerical study of impact and blast performance of nacre-like aluminium composites / Emmanuel A. Flores-Johnson, Luming Shen, Irene Guiamatsia, Giang D. Nguyen
15:30-15:50	774	Prediction of human elbow joint torque based on improved bp neural network / Gao Yongsheng

Session 27- Chairs: Qing Li, Chunhui Yang

MS-084 Computational Biomechanics of Musculoskeletal Tissues

Time	ID	Title / Authors
16:00-16:20	1172	Keynote: Bulk and surface balance of osteocytes during bone tissue formation and remodelling: Continuous and stochastic models / Pascal Buenzli
16:20-16:40	792	Statistical analysis of shape and stress in the lower lumbar using principal component analysis and partial least squares / Shasha Yeung, Amanjeet Sing Toor, Gerard Deib, Ju Zhang, Thor Besier, Justin Fernandez
16:40-17:00	794	A statistical model to predict bone cell diffusion patterns in scaffolds / Wilson Fok, S.T.C. Lin, David Musson, Jillian Cornish, Justin W. Fernandez
17:00-17:20	1249	Development of a simplified computational model to study cranial backspatter using SPH / Eppuje E. Kwon, Akshat Malhotra, Raj Das, Justin W Fernandez, Michael C Taylor

| 17:20-17:40 | 1054 | Computational modeling of the behaviour of the ceramic head for total hip joint endoprosthesis / Vladimir Fuis, Premysl Janicek |
| 17:40-18:00 | - | - |

Day 2: Room 3 (Princes Ballroom C) Parallel Sessions: Thursday, 16 July 2015

Session 28- Chairs: Chao Jiang, Zhicheng He
MS-057 Structural Uncertainty Modeling and Reliability Analysis
MS-058 Soft Tissue Mechanics: Multi-Scale Modelling, Measurement, and Parameter Identification

Time	ID	Title / Authors
8:30-8:50	1089	Keynote: Optimal design of experiments for in-vivo identification of breast tissue mechanical properties / Thiranja Prasad Babarenda Gamage, Habib Baluwala, Duane Malcolm, Christopher Patrick Bradley, Martyn P. Nash, Poul M. Nielsen
8:50-9:10	821	Invited: Reliability modeling of mechanical and electrical products based on reliable operating space envelope / Yang Wang
9:10-9:30	731	Research on reliability modeling technology for FMS based on task / Yan Ran, Genbao Zhang, Lin She
9:30-9:50	1123	Global sensitivity analysis for structural models by sparse grid integration / Changcong Zhou
9:50-10:10	785	Stochastic prediction and update for macroscopic property of heterogeneous material considering microstructural uncertainties / Pin Wen
10:10-10:30	1097	Hall current effects on unsteady MHD flow through a composite medium in a rotating parallel plate channel / Jagdish Prakash, M Veera Krishna

Session 29- Chairs: Piotr Sielicki, Jerzy Malachowski
MS-031 Advanced Computational Modelling and Simulations in Safety

Time	ID	Title / Authors
10:40-11:00	979	Keynote: Local blast wave effects in interaction with structural elements / Jerzy Malachowski
11:00-11:20	1073	Keynote: SAPPER: online platform for prediction the blast loading on structures / Piotr Sielicki
11:20-11:40	1088	Development of light-weight fast installation protective blastscreens / Tomasz Łodygowski
11:40-12:00	1203	Constitutive modelling of the dynamic behaviour of the building steels for design of protective structures / Leopold Kruszka, Wojciech Mocko, Jacek Janiszewski
12:00-12:20	1260	Selection of nanostructured material parameters of the bainitic steel for the numerical model of the passive armour / Adam Wisniewski, Karol Jach, Robert Swierczynski, Tadeusz Niezgoda, Pawel Zochowski
12:20-12:40	889	Identification and computation of space conflicts using geographic information systems / Vijay Kumar Bansal

Session 30- Chairs: Raj Das, Zhenjun Yang
MS-024 Advanced Computational Modelling of Fracture and Damage
MS-026 Cohesive Fracture Modelling of Quasi-Brittle Materials

Time	ID	Title / Authors
13:50-14:10	1104	Keynote: Development of an anatomically-based SPH model for cranial ballistic injury / Eppuje E. Kwon, Raj Das, Michael R. Singh, Ravin D. Vallabh, Justin W. Fernandez, Michael C. Taylor
14:10-14:30	1302	Simulation of the screw driving sounding (SDS) test in sandy soil using the Smoothed Particle Hydrodynamics Method / Seyed Y. Mirjafari Miandeh, Rolando P. Orense, Raj Das
14:30-14:50	784	An Improved peridynamic approach for quasi-static and dynamic fracture analysis / Dan Huang, Yepeng Xu, Qing Zhang
14:50-15:10	840	A rate-dependent constitutive model for PVB in the impact fracture simulation of laminated glass / Shunhua Chen, Mengyan Zang, Chunlai Zhao
15:10-15:30	1335	Construction of a non-linear quasi-interpolation based on the cubic B-splines / Hyoseon Yang
15:30-15:50	1103	Prediction of the onset of global failure of irregular honeycombs under compression / Youming Chen, Raj Das, Mark Battley

Session 31- Chairs: Zhen Chen, Ken-ichi Tsubota
MS-019 Particle Based Methods; MS-040 Computational Methods in Welding and Joining
MS-020 Modeling and Simulation of Cellular Migration: from Molecules to Multiple Cells

Time	ID	Title / Authors
16:00-16:20	775	Keynote: Computer simulation of blood cell motion based on viscoelastic deformation / Ken-ichi Tsubota
16:20-16:40	1167	Invited: Study of the characteristic of droplet transfer in laser-MIG hybrid welding based on the phase matching control of laser pulse and arc waveform / Gang Song
16:40-17:00	868	Optimization of transient temperature field distribution of biological cells under laser irradiation / Xiaona Wang, Shide Song, Yi Huang, Lei Liu, Xi Xu
17:00-17:20	1283	Atomistic interaction between grain boundaries and radiation-induced point defects in HCP titanium / Man Yao
17:20-17:40	1293	Estimation for heat transfer coefficient of secondary cooling process during slab continuous casting / Xudong Wang

17:40-18:00	1331	Feasibility of particle methods in LS-DYNA for unsaturated soil modelling / E. A. Flores-Johnson, S. Wang, F. Maggi, A. El Zein, G. D. Nguyen, L. Shen

Day 2: Room 4 (Gallery II) Parallel Sessions: Thursday, 16 July 2015

Session 32- Chairs: Seiichi Koshizuka, Moubin Liu

MS-042 Recent Advances In Meshfree and Particle Methods

Time	ID	Title / Authors
8:30-8:50	1148	Keynote: DPD simulation of the movement and deformation of single cells / Moubin Liu
8:50-9:10	923	Keynote: A symmetric moving particle semi-implicit method for the simulation of free surface flows / Hao Xiang, Bin Chen
9:10-9:30	915	Truly meshless element-free Galerkin linear elastic structural shape optimization using a particle swarm method / Kevin Patron Hernandez
9:30-9:50	1058	An effective improved algorithm for finite particle method / Yang Yang, Fei Xu, Xiao ting Li, Lu Wang
9:50-10:10	800	Consolidation analysis of saturated soils using edge-based smoothed point interpolation method / Arman Khoshghalb, Omid Ghaffaripour, Arash Tootoonchi
10:10-10:30	1032	A multi-level meshless method based on an implicit use of the method of fundamental solutions / Csaba Gaspar

Session 33- Chairs: Pradeep K.W. Abeygunawardhana, Mário César Ricci

MS-010 Adaptive Numerical Methods

MS-065 Stochastic Modelling and Probabilistic Engineering

Time	ID	Title / Authors
10:40-11:00	685	Keynote: ICA and adaptive filtering based signal enhancement for imaging-type Fourior spectroscopic measurement based pulse oximeter / Pradeep K.W. Abeygunawardhana
11:00-11:20	974	SSRLS based enhanced impulsive noise OFDM suppressor in AWGN channel /Alina Mirza
11:20-11:40	718	An L-stable trapezoidal-like integrator for the numerical solution of one-dimensional time dependent partial differential equations / Johnson Oladele Fatokun
11:40-12:00	886	Computation of vadoze zone moisture profiles for successive irrigation scheduling / Vijay Shankar Dogra
12:00-12:20	1169	Efficient global optimization applied to multi-objective design optimization of lift creating cylinder using plasma actuators / Masahiro Kanazaki, Takashi Matsuno, Kengo Maeda, Hiromitsu Kawazoe
12:20-12:40	839	A computational approach for determination of system length distribution of a batch arrival and batch service queue / Umesh Chandra Gupta, Sourav Pradhan

Session 34- Chairs: Soo Jin, Adrian Koh

MS-023 Computational Modeling of Human Body Injury

MS-083 Analysis, Modelling and Simulation of Soft Active Materials

Time	ID	Title / Authors
13:50-14:10	1206	Keynote: Inspiring Design of soft active systems by theory / Soo Jin Adrian Koh
14:10-14:30	724	Invited: Numerical techniques for modeling nonlinear oscillation of dissipative dielectric elastomers / Jinxiong Zhou
14:30-14:50	831	Invited: Modelling viscoelastic dielectric elastomers / Keith Choon Chiang Foo, Zhi-qian Zhang
14:50-15:10	1114	Invited: Bulging instability of a pressurized tube made of dielectric elasomter under electromechanical loading / Tongqing Lu
15:10-15:30	1146	Invited: Mechanical modeling and simulation of soft machines / Tiefeng Li
15:30-15:50	850	A framework for multiscale modeling of warfighter blast injury protection / Andrzej Przekwas

Session 35- Chairs: Chao Jiang, Gui-Rong Liu

MS-057 Structural Uncertainty Modeling & Reliability Analysis

Time	ID	Title / Authors
16:00-16:20	1152	Keynote: Non-random vibration analysis based on non-stochastic process model / Chao Jiang, Bingyu Ni
16:20-16:40	1080	Keynote: Assessment of structural performance of concrete-filled steel tubular arch with interval viscoelastic effects / Di Wu, Wei Gao
16:40-17:00	888	Invited: A fuzzy analysis for the plane bimodular problem /Haitian Yang
17:00-17:20	1041	Invited: A Meta-model-based importance sampling for reliability-based design optimization / Guangsong Chen, Linfang Qian, Wenyu Zhai
17:20-17:40	1019	A reliability optimization allocation method considering differentiation of functions / Yi Xiaojian, Lai Yuehua, Dong Haiping, Hou Peng
17:40-18:00	1153	Construction of convex models for non-probabilistic correlation quantification and uncertainty analysis / Bingyu Ni, Chao Jiang

Day 2: Room 5 (Gallery III) Parallel Sessions: Thursday, 16 July 2015

Session 36- Chairs: Hiromi Miyoshi, Ken-ichi Tsubota
MS-020 Modeling and Simulation of Cellular Migration: from Molecules to Multiple Cells

Time	ID	Title / Authors
8:30-8:50	715	Keynote: Polarity control at micro-grooved structures in migrating fibroblast / Hiromi Miyoshi
8:50-9:10	999	Invited: Atomistic molecular dynamics simulation of a complete model of bacterial cytoplasm / Isseki Yu, Takaharu Mori, Jaewoon Jung, Tadashi Ando, Ryuhei Harada, Michael Feig, Yuji Sugita
9:10-9:30	727	Physical modeling of membrane-bounded organelle / Masashi Tachikawa
9:30-9:50	705	Crawling cell migration controlled by mechanical interaction with substratum / Yoshiaki Iwadate
9:50-10:10	733	Capillary network formation by the co-culture of endothelial cells and mesenchymal stem cells in a microfluidic device / Ryo Sudo
10:10-10:30	1066	An optimization study on the aerodynamic design of counter rotating axial fan / Myungsung Lee, Joohan Kim

Session 37- Chairs: Zhongwei Guan, Dilip K. Paul
MS-027 Computational Methods in Fluid-Structure Interactions
MS-059 Numerical Modelling of Composite Structures Subjected to Extreme Loading Conditions

Time	ID	Title / Authors
10:40-11:00	1300	Keynote: A simple lumped mass-damper idealization for dam-reservoir-foundation system for seismic analysis / Dilip K. Paul, Arnab Banerjee, Rabindranath Dubey, Khairul Alam Chowdhury, Amar Pal Singh
11:00-11:20	829	Keynote: Viscoelastic response of composite laminated shells based on efficient higher-order theory / Sy-Ngoc Nguyen, Jaehun Lee, Maenghyo Cho
11:20-11:40	817	Hydroelastic analysis in frequency domain and time domain / Frank Lin
11:40-12:00	1160	Meshless MLS Navier-Stokes flow across savonius windmill / Edgardo William Arrieta, Kevin Eliecer Patron
12:00-12:20	1170	Invited: The failure mechanism of composite sandwich structure with stringer reinforcement / Ruixiang Bai
12:20-12:40	1313	Damage prediction of carbon-epoxy composites under shear and three point bending loads using the finite element method / Kariappa Maletira Karumbaiah, Raj Das, Stephen Campbell

Session 38- Chairs: Jeonghoon Yoo, Yixiang Gan
MS-054 Topology Optimization in Electromagnetic or Acoustic Fields
MS-055 Computational Soil Mechanics

Time	ID	Title / Authors
13:50-14:10	742	Keynote: Structural design in electromagnetic fields through topology optimization schemes on metamaterials / Jeonghoon Yoo, Heeseung Lim, Hyundo Shin
14:10-14:30	848	Keynote: The grain-scale mechanisms for landslide instability in unsaturated soils / Yixiang Gan
14:30-14:50	874	Invited: Topology optimization of permanent magnet and coils in electromagnetic vibration energy harvesters / Jaewook Lee
14:50-15:10	1006	Topology optimization of wire in gas tungsten arc welding / Yiseul Kim, Jaewook Lee, Xiao Long Liu, Bo Young Lee, Yunlong Chang
15:10-15:30	862	A study of frequency dependence in level set-based topology optimization for the design of wave motion converter in an acoustic-elastic coupled system / Yuki Noguchi, Takayuki Yamada, Masaki Otomori, Kazuhiro Izui, Shinji Nishiwaki
15:30-15:50	968	Structural topological optimization of a 3-D nano-aperture based on the phase field method / Cheol Woong Kim, Hong Kyoung Seong, Heeseung Lim, Jeonghoon Yoo

Session 39- Chairs: Lihai Zhang, Zhongwei Guan
MS-021 Parallel and Other High Performance Computing in the Solution of Partial Differential Equations
MS-025 Orthopaedic Biomechanics and Mechano- Biology
MS-059 Numerical Modelling of Composite Structures Subjected to Extreme Loading Conditions

Time	ID	Title / Authors
16:00-16:20	1133	Keynote: Preliminary work on the potential of extending structural health monitoring concepts for healing assessment / Wing Kong Chiu, Wern Hann Ong, Matthias Russ, Zelia Karmen Chiu
16:20-16:40	918	Keynote: Osteoporotic bone fracture healing under the locking compression plate system / Lihai Zhang, Saeed Miramini, Priyan Mendis, Martin Richardson
16:40-17:00	811	Numerical modeling of nonlinear transversal behavior of a para-aramid yarn / Tuan-long Chu, Cuong Ha-Minh, Abdellatif Imad
17:00-17:20	1062	Monte Carlo method for the laser-tissue interaction with application in laser dermatology / Bin Chen
17:20-17:40	647	Parallel space-time methods for parabolic PDEs / Xiao-Chuan Cai
17:40-18:00	936	ParaFESAP: A PETSc-based parallel Finite Element Program for elasticity problems / Jianfei Zhang

Day 3: Room 1 (Princes Ballroom A) Parallel Sessions: Friday, 17 July 2015

Session 40- Chairs: XiaoYi Liu, Jie Chen, Jeonghoon Yoo
MS-002 Modelling and Simulation on Nanomechanics
MS-054 Topology Optimization in Electromagnetic or Acoustic Fields

Time	ID	Title / Authors
8:30-8:50	1128	Keynote: Mechanical instability criterion of dislocation structures from discrete dislocation dynamics / Yabin Yan, Xiaoyuan Wang, Takahiro Shimada, Takayuki Kitamura
8:50-9:10	1129	Invited: Effect of surface steps on the ferroelectricity of PbTiO3: a first-principles study / Xiaoyuan Wang, Takahiro Shimada, Takayuki Kitamura
9:10-9:30	1145	A molecular dynamics study on deformation mechanisms and mechanical properties of nanotwinned magnesium / Lei Zhou
9:30-9:50	1262	Numerical simulation of the dynamic process for positive displacement motor by immersed boundary method / Qiao Ni
9:50-10:10	735	Torsional stability of carbon nanotubes encapsulating metal atoms using atomistic simulation / Lei Wang
10:10-10:30		

Session 41- Chairs: Haimin Yao, Decheng Wan
MS-001 Theory and Formulation for Novel Computational Methods
MS-004 Advanced Hydrodynamics Analysis for Offshore Platform

Time	ID	Title / Authors
10:40-11:00	1109	Keynote: C-axis preferential orientation of hydroxyapatite accounts for the high wear resistance of the black carp (Mylopharyngodon piceus) teeth / Haimin Yao
11:00-11:20	957	Keynote: Multi-resolution MPS method for 2D free surface flows / Decheng Wan, Zhengyuan Tang
11:20-11:40	962	Invited: Numerical investigation of influence of eccentricity on the hydrodynamics of a ship maneuvering into a lock / Decheng Wan, Qingjie Meng, Wenhua Huang
11:40-12:00	858	Invited: Defects interaction between twin boundary and dislocations emitted from a crack of magnesium by molecular dynamics simulations / Yoji Shibutani
12:00-12:20	1092	Mechanical behavior of laminated glass cylindrical shell with hinged free boundary conditions / Ebru Dural, Mehmet Zulfu
12:20-12:40	1342	Level set-based topology optimization of heat control devices / So Okamoto, Takayuki Yamada, Kazuhiro Izui, Shinji Nishiwaki

Session 42- Chairs: Ming Li and W. Li
MS-003 Smoothed Finite Element Methods;

Time	ID	Title / Authors
13:50-14:10	857	Keynote: Mathematical basis of G spaces / Ming Li
14:10-14:30	1254	Keynote: A study of long slender marine structures under combined parametric and forcing excitations with differential quadratic method / W. Li, Zhang Yang
14:30-14:50	1027	F-bar aided edge-based smoothed finite element method with tetrahedral elements for large deformation analysis of nearly incompressible materials / Yuki Onishi
14:50-15:10	1083	Numerical study on the thermal characteristics in a twin swirl pulverized coal combustor / Hao Tang
15:10-15:30	1134	An improved smoothed XFEM for analysis of axisymmetric problems with interface discontinuity / De tao Wan, De an Hu, G Yang, Jiang C, Xu Han
15:30-15:50	667	SFEM-based Variable-node finite elements and their applications / Seyoung Im, Hobeom Kim, Chan Lee, Dongwoo Sohn

Session 43- Chairs: Ha Bui, Giang Nguyen
MS-045 Advances in Computational Geomechanics

Time	ID	Title / Authors
16:00-16:20	1005	Keynote: The benefits of heuristic computational models in geomechanics / Itai Einav
16:20-16:40	985	Keynote: Spatial scaling issues in constitutive modelling of geomaterials / Chi T Nguyen, Giang D Nguyen, Bui H Ha, Vinh Phu Nguyen
16:40-17:00	992	REDBACK: an open-source highly scalable simulation tool for rock mechanics with dissipative feedbacks / Manolis Veveakis
17:00-17:20	1105	New framework for predicting compacted soil behavior / Jayantha Kodikara
17:20-17:40	1268	Modelling of rock materials subjected to dynamic loading using a particle-based numerical manifold method / Jian Zhao
17:40-18:00	-	-

Day 3: Room 2 (Princes Ballroom B) Parallel Sessions: Friday, 17 July 2015

Session 44- Chairs: Xu Xu, Jingjie Yeo
MS-014 Advances in Weakened Weak (W2) Formulation Based Numerical Methods
MS-017 Inverse Problems, Design and Optimisation under Uncertainties
MS-028 Computational Modelling of Bio-related systems and Nanomaterials

Time	ID	Title / Authors
8:30-8:50	769	Keynote: Development 3D CFD solver based on gradient smoothing method / Jianyao Yao
8:50-9:10	704	Keynote: Conformational change of an α-helix segment of bovine serum albumin adsorbed on graphene / Jingjie Yeo, You Ting Han, Yuan Cheng
9:10-9:30	1163	Invited: Numerical simulation of turing pattern formation by edge-based smoothed radial point interpolation method (ES-RPIM) / Wen Li, G.R. Liu
9:30-9:50	883	Invited: Grain Size "softening" in Nanocrystalline Materials Using a Discrete Dislocation Dynamics Approach / Siu Sin Quek, Zheng Hoe Chooi, Zhaoxuan Wu, Yong Wei Zhang, David Srolovitz
9:50-10:10	1136	A conjugate gradient method based on the complex-variable-differentiation method and its application for the identification of boundary conditions / Miao Cui
10:10-10:30	656	Back-analysis of initial stress fields in underground powerhouse using deformation data observed in field / Shouju Li

Session 45- Chairs: Zhicheng He, Quan Bing Eric Li
MS-052 Computational Modelling of Hemodynamics
MS-081 Advanced Modeling and Simulation of Dynamic Systems

Time	ID	Title / Authors
10:40-11:00	822	Keynote: Mass-redistributed method in the evaluation of eigenfrequency of solid systems / Quan Bing Eric Li, Zhicheng He, Xu Xu
11:00-1 1:20	1333	Invited: Improved edge-based smoothed finite element method (IES-FEM) for Mid-frequency acoustic analysis/ Zhi Cheng He, Guang Yao Li, Quan Bing Eric Li, Guiyong Zhang, Xin Nie
11:20-11:40	875	Invited: A positive-bounded explicit finite-difference scheme for simulating complex biofilm system / Gaofeng Sun
11:40-12:00	723	The three-dimensional finite-volume non-hydrostatic icosahedral model (NIM)/ Jin Lee
12:00-12:20	1040	Thermal vibration of a rectangular single-layered graphene sheet / Lifeng Wang, Rumeng Liu
12:20-12:40	1294	Keynote: Understanding cerebrovascular disease through computational simulations / Chang-Joon Lee

Session 46- Chairs: Cho-Pei Jiang, Ching-Tai Ng
MS-038 Structural Health Monitoring and Identification of Structures
MS-043 Computational Modelling in Material Processing

Time	ID	Title / Authors
13:50-14:10	1325	Keynote: Finite element modelling of deformation behavior in incremental sheet forming of aluminum alloy / Cho-Pei Jiang
14:10-14:30	951	Keynote: Imaging and characterizing damages in metallic plates using Lamb waves / Ching-Tai Ng
14:30-14:50	851	Invited: Development of an automated monitoring system for steel bridges / Sherif Beskhyroun
14:50-15:10	1155	Finite element analysis of different chi p breaker types for turning tool process / Dyi-Cheng Chen, Ci-Syong You
15:10-15:30	693	Finite element analysis of hot aluminum extrusion of asymmetric parts / Yeong-Maw Hwang, Y.H. Lin
15:30-15:50	803	Mode decomposition method for non-classically damped structures using acceleration responses / J. S. Hwang, S. H. Shin, Hongjin Kim

Session 47- Chairs: Raj Das, and Pardeep Kumar
MS-001 Theory and Formulation for Novel Computational Methods

Time	ID	Title / Authors
16:00-16:20	878	Stiffness based assessment of masonry arch bridges / Pardeep Kumar
16:20-16:40	1130	Post-buckling analysis based on isogeometric analysis / Kai Luo, Cheng Liu, Qiang Tian, Haiyan Hu
16:40-17:00	736	Compression behaviour and performance of novel carbon-fiber aluminum-honeycomb sandwich reinforced by aluminum grid / Shanshan Shi, Zhi Sun, Haoran Chen
17:00-17:20	924	A sphere relaxation based approach for three-dimensional mesh deformation / Xuan Zhou
17:20-17:40	911	Simulation of cross roll straightening of circular bars using computational modelling / Tomas Navrat, Jindrich Petruska, Marek Benesovsky
17:40-18:00	1298	Fluid models and parameter sensitivities: computations, and applications / Fran Pahlevani, Monika Neda, Jiajia Waters, Lisa Davis

Day 3: Room 3 (Princes Ballroom C) Parallel Sessions: Friday, 17 July 2015

Session 48- Chairs: Alexander V. Gerasimov, Vladimir Albertovich Skripnyak
MS-029 A Probabilistic Approach in the Numerical Simulation of Deformation and Fracture of Solids
MS-047 Fatigue Cracking Modeling and Numerical Simulation

Time	ID	Title / Authors
8:30-8:50	787	Keynote: New model and method simulating effective protection of space vehicles from high-velocity debris / Alexander V. Gerasimov, Yury F. Khristenko
8:50-9:10	1222	Invited: Mesoscale modeling of dynamic mechanical response of HCP alloys with bimodal and gradient distributions of grain size / Vladimir Albertovich Skripnyak
9:10-9:30	1224	Multiscale computer simulation dynamic fracture of ultrahigh temperature ceramics at room and elevated temperatures / Vladimir Albertovich Skripnyak
9:30-9:50	1218	Simulation mechanical behavior ultra high temperature ceramic composites under intensive dynamic loading / Vladimir Albertovich Skripnyak
9:50-10:10	912	Investigation on the influence of localized unbonded-areas on the crack growth characteristic of diffusion bonded titanium alloy laminates / Yang Liu, Yongcun Zhang, Shutian Liu, Shan Xiao, Yanpeng Sun, Xiangming Wang
10:10-10:30	-	-

Session 49- Chairs: Emilie Sauret, Cheng Wang
MS-030 Confidence and Uncertainty Quantification in Computational Mechanics
MS-048 Advanced Numerical Methods in Explosion and Shock Waves

Time	ID	Title / Authors
10:40-11:00	1195	Keynote: Stochastic analysis of a radial-inflow turbine in the presence of parametric uncertainties / A. Zou, E. Sauret, J.-C. Chassaing, S.C. Suvash, Y.T. Gu
11:00-11:20	1156	Keynote: Simulation of shock-induced chemical reactions in reactive powder mixtures using SPH / Sumit Basu
11:20-11:40	1350	High resolution numerical simulation for corner-turning in LX-17 / Cheng Wang, Xinqiao Liu
11:40-12:00	790	Development of a discontinuous Galerkin method for supersonic flow simulations on hybrid mesh / Su Peng-hui, Zhang Liang
12:00-12:20	1351	Three dimensional high order parallel investigations on underwater explosion / Cheng Wang, Jianxu Ding
12:20-12:40	1038	Topology optimization of anisotropic constrained damping structures / Long Zhao, Qiong Deng, Shuangyan Liu, Mengjia Su, Yihang Xu

Session 50- Chairs: Haifei Zhan and Chao Xu
MS-49 Nanomechanics and Nanoscale Modelling; MS-50 Algorithms for Structural Control & Health Monitoring

Time	ID	Title / Authors
13:50-14:10	916	Keynote: Intriguing resonance properties of super-graphene / Haifei Zhan
14:10-14:30	884	Keynote: Transient wave propagation in a damaged functionally graded material ring: spectral element modeling and analysis / Chao Xu, Teng Wang
14:30-14:50	1072	Wave properties based homogenization for graphene via nonlocal finite difference method applied to recover physical dispersion / Adam Martowicz, Wieslaw J. Staszewski, Massimo Ruzzene, Tadeusz Uhl
14:50-15:10	1028	A novel fast model predictive control for large-scale structures / Haijun Peng
15:10-15:30	1043	Dynamic analysis on coupled vibration of strapdown INS damping system / Huang De-dong
15:30-15:50	861	Adjoint program generated by automatic differentiation of a meteorological simulation program, and its application to gradient computation / Yasuyoshi Horibata

Session 51- Chairs: Zhicheng He, Xu Xu,
MS-062 and MS-067 Modeling and Simulation of High-Speed Multimaterial Flows and Hydraulic Fracturing
MS-081 Advanced Modeling and Simulation of Dynamic Systems

Time	ID	Title / Authors
16:00-16:20	1057	Keynote: Cluster particle dynamics (CPD) for multiscale computation / Xu Xu
16:20-16:40	804	An effective three dimensional MMALE method for compressible fluid dynamics / Shudao Zhang
16:40-17:00	807	Initiation and propagation of wormhole in unconsolidated rock matrix induced by long-term water injection / YongKuan Shen
17:00-17:20	-	-
17:20-17:40	-	-
17:40-18:00	-	-

Day 3: Room 4 (Gallery II) Parallel Sessions: Friday, 17 July 2015

Session 52- Chairs: Qiao Jinxiu, Kepa Morgan
MS-000 General Papers

Time	ID	Title / Authors
8:30-8:50	1309	Keynote: Analyses on the in-plane impact resistance of auxetic double arrowhead / Qiao Jinxiu
8:50-9:10	1328	Invited: Numerically modelling sustainability using the Mauri Model / Kepa Morgan, Tumanako Ngawhika Fa`aui
9:10-9:30	1071	Object categorization with soft marginal multi model knowledge transfer / Ratnababu Mamidi
9:30-9:50	760	Development of material search technology using kriging model / Norihiko Nonaka, Tomio Iwasaki
9:50-10:10	901	Advances in the chevron crack development prediction / Frantisek Sebek, Petr Kubik, Jindrich Petruska
10:10-10:30		

Session 53- Chairs: Francesco Mammoliti, Francesco Noto
MS-069 New Horizons in FEM Analysis for Mechatronics in the Medical Applications
MS-076 High Performance Computing and Simulation of Multiphase Flows

Time	ID	Title / Authors
10:40-11:00	1241	Invited: Test of the GEM front tracker for the SBS spectrometer at JLab / Francesco Mammoliti
11:00-11:20	1204	Invited: Structural mechanics optimization of the aisha ion source / Francesco Noto, Luigi Celona, Ornella Leonardi, Giuseppe Torrisi, Dario Nicolosi
11:20-11:40	866	Novel multimedia architecture design pattern using audio joiner prototype with delay remover / Ganeshchandra Narharrao Shinde, Narangale Sachin M
11:40-12:00	767	A new computational package for using in CFD and other problems / Mohammad Reza Akhavan Khaleghi
12:00-12:20		
12:20-12:40	-	-

Session 54- Chairs: Abhaykumar Kuthe, Chao Jiang, Jianyao Yao
MS-056 Engineering Inverse Problems
MS-068 Medical Rapidprototyping and Tissue Engineering
MS-072 Fluid-Structure Interactions in Aerospace Engineering

Time	ID	Title / Authors
13:50-14:10	891	Keynote: Innovative development of the RP assisted customized surgical guides in various surgeries / Sandeep W. Dahake, Abhaykumar M. Kuthe, Mahesh B. Mawale, Ashutosh D. Bagde
14:10-14:30	971	Fluid-structure interaction study of a flexible flapping wing using a Navier-Stokes solver / Salil Harris, Sunetra Sarkar
14:30-14:50	827	Accurate computations of matrix multiplication with level 3 operation in blas / Katsuhisa Ozaki
14:50-15:10	855	Mechanical modeling and simulation of collagen fibers and fibrils: microscopic deformation mechanism caused by spiral structure / Ken-ichi Saitoh, Takuya Shirahana, Takayaki Suzuki, Masanori Takuma, Yoshimasa Takahashi, Tomohiro Sato
15:10-15:30	1008	Online parameter estimation of the Lankarani-Nikravesh contact force model using two different methods / Jia Ma, Linfang Qian, Guangsong Chen
15:30-15:50	695	Comparison of LQR, LQG and H-infinity Methods to Design Controllers for a Satellite considering Fluid-Structure Interaction / Luiz C. G. Souza, Alain G. de Souza

Session 55- Chairs: Jianguang Fang, Qing Li
MS-077 Advances in Computational Modelling and Optimization for Impact and Blast Problems
MS-079 Biomedical Image Processing and Analysis

Time	ID	Title / Authors
16:00-16:20	1035	Keynote: Crashworthiness simulation of multi-cell tubes under oblique impact loads / Jianguang Fang
16:20-16:40	780	Keynote: Time-dependent reliability analysis with random and evidence variables / Dequan Zhang, Xu Han, Chao Jiang, Qing Li
16:40-17:00	1301	Generation of three-dimensional models suitable for computational mechanical analysis, based on a population of endothelial cells / Yi Chung Lim, Michael Cooling, Sue McGlashan, David Long
17:00-17:20	864	Validation of a fast transient solver based on the projection method / Darrin Stephens, Chris Sideroff, Aleksandar Jemcov
17:20-17:40	1033	Bird strike on an engine primary compressor at high rotational speed: numerical simulations and parametric study / Jia Huang, Yulong Li, Zhixue Zhang, Jun Liu, Zhongbin Tang
17:40-18:00	-	-

Day 3: Room 5 (Gallery III) Parallel Sessions: Friday, 17 July 2015

Session 56- Chairs: Suad Jakirlic, Erick Saavedra Flores
MS-074 Design and Control of Flexible Smart Structures
MS-080 Current Trends in Modelling and Simulation of Turbulent Flows

Time	ID	Title / Authors
8:30-8:50	1187	Keynote: Wall-bounded flow separation computed by a second-moment closure model / Suad Jakirlic
8:50-9:10	1180	Keynote: Amplitude dependent band gap characteristic of elastic wave propagating in pre-compressed periodic bistable elastic mechanical chain / Yu Huang, Shutian Liu, Jian Zhao
9:10-9:30	1017	Analysis of shape-memory alloy wire embedded laminated composite to imitate turtle's lag / Hyeok Lee, Jong-Gu Lee, Junghyun Ryu, Sung-Hyuk Song, Sung-Hoon Ahn, Myeonghyo Cho
9:30-9:50	1267	Linear global stability computations of magnetohydrodynamic duct flows / Hu Jun
9:50-10:10	-	-
10:10-10:30	-	-

Session 57- Chairs: Zhao Zhang, Yu E. Ma
MS-040 Computational Methods in Welding and Joining

Time	ID	Title / Authors
10:40-11:00	687	Keynote: Residual stress effects and mechanical property of dissimilar 2024-T3 and 7075-T6 FSW joints / Yu E. Ma, Jiang Li
11:00-11:20	741	Keynote: Numerical studies on grain growth in friction stir welding / Zhao Zhang
11:20-11:40	788	Computational methods for prediction of tool fatigue life in friction stir welding / Qi Wu
11:40-12:00	698	Numerical simulation of infrared staking plastic for an automotive part / Hong Seok Park, Trung-Thanh Nguyen
12:00-12:20	835	Fatigue analysis of used welded impeller for determination of critical threshold before remanufacture / Ying Feng
12:20-12:40	998	Decentralized vibration control algorithms for large truss structure / Zhiqin Cai

Session 58- Chairs: Haimin Yao, Stoyan Smoukov, Yu Huang
MS-005 Computational Modeling of Advanced Materials
MS-073 Numerical Methods and Applications in Geoscience and Geotechnics

Time	ID	Title / Authors
13:50-14:10	1168	Keynote: Geometrical basis for symmetry breaking and multi-functionality / Stoyan Smoukov
14:10-14:30	1126	Keynote: Numerical simulation of catastrophic debris flows / Yu Huang
14:30-14:50	1004	Invited: Multiscale method for mechanical analysis of pressure-actuated cellular structures with polygonal microstructures / Jun Lyu, Hongwu Zhang, Xiaowei Gao
14:50-15:10	758	Impact analysis of laminated plate using VAM / Rama Sateesh Venkata Kandula, Prasad PS, Peereswara Rao MV, Dinesh Kumar Harursampath
15:10-15:30	768	Towards wideband mechanical metamaterials: Comparing nonlinear oscillator mechanisms / Arnab Banerjee, Emilio P. Calius, Raj Das
15:30-15:50	1237	Microdynamics modeling for kink deformation and delamination in multilayered solid / Xiao-Wen Lei, Akihiro Nakatani

Session 59- Chairs: Bin Chen, Seiichi Koshizuka
MS-042 Recent Advances in Meshfree and Particle Methods

Time	ID	Title / Authors
16:00-16:20	952	Keynote: Numerical investigation of oil spill from a tanker by multiphase MPS method / Guangtao Duan, Bin Chen
16:20-16:40	1321	Keynote: A Kansa-RBF method for elliptic boundary value problems in annular domains / C.S. Chen
16:40-17:00	961	Distributed parallel large-scale MPS-FE fluid-structure interaction coupled analysis for tsunami analysis on urban area / Kohei Murotani
17:00-17:20	997	An improved pressure projection method for meshfree modelling of ideally incompressible hyperelasticity / Chun Meng Goh, Martyn P. Nash, Poul M.F. Nielsen
17:20-17:40	670	A circular-cylinder piezoelectric energy harvester based on flow-induced flexural vibration mode and its nonlinear characteristics near resonance / Jiemin Xie, Yuantai Hu
17:40-18:00	649	Quick modal reanalysis for large modification of structural topology based on multiple condensation model / Jianjun He

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