

**The 2nd International Conference on Numerical
Modelling in Engineering (NME 2019)**

&

**2019 International Conference on Metals and
Alloys (CMA 2019)**

Conference Program

August 19-22, 2019

Beijing, China

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Part I Conference Schedule

MONDAY, AUGUST 19, 2019

Lobby of Sunworld Hotel

09:00-18:00

Conference Registration

TUESDAY MORNING, AUGUST 20, 2019

2nd Floor, Songhe Room

08:30-08:35

WELCOME SPEECH

Prof. Magd Abdel Wahab, Ghent University, Belgium

08:35-09:15

Keynote Speech 1: Numerical Methods: Indispensable Tools for Engineering Applications

Prof. Guirong Liu, University of Cincinnati, America

09:15-09:55

Keynote Speech 2: Advances in Computational Methods for the Assessment of Structures under Fires and Fire Following Earthquakes

Prof. Hussam Mahmoud, Colorado State University (CSU), America

09:55-10:05

GROUP PHOTOGRAPH

10:05-10:25

COFFEE BREAK

10:25-11:05

Keynote Speech 3: Development of Al-Si-Cu-Mg Based Aluminium Alloys for Automotive Powertrain at Elevated Temperatures

Prof. Shouxun Ji, Brunel University London, United Kingdom

11:05-12:00

POSTER PRESENTATIONS

TUESDAY AFTERNOON, AUGUST 20, 2019

12:00-13:00 **BUFFET LUNCH**
1st Floor, Sunny Coffee

14:00-18:15 **Oral Session 1: Mechanical and Materials Engineering (I)**
2nd Floor, Songzhu Room

Oral Session 2: Metals and Alloys (I)
2nd Floor, Songling Room

18:20-19:30 **BUFFET DINNER**
1st Floor, Sunny Coffee

WEDNESDAY, AUGUST 21, 2019

08:30-12:05 **Oral Session 3: Mechanical and Materials Engineering (II)**
2nd Floor, Songzhu Room

Oral Session 4: Metals and Alloys (II)
2nd Floor, Songling Room

12:10-13:20 **BUFFET LUNCH**
1st Floor, Sunny Coffee

14:00-18:00 **Oral Session 5: Mechanical and Materials Engineering (III)**
2nd Floor, Songzhu Room

Oral Session 6: Civil Engineering
2nd Floor, Songling Room

18:10-18:30 **CLOSING SPEECH & PRIZE AWARDING**
Prof. Magd Abdel Wahab, Ghent University, Belgium

18:30-20:00 **AWARDING BANQUET**
2nd Floor, Songhe Room

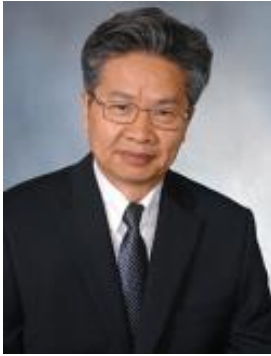
THURSDAY, AUGUST 22, 2019

08:25-08:30 **GATHERING AT THE HOTEL LOBBY**

08:30-17:00 **BADALING GREAT WALL & SOUTH LUOGU LANE**

Part II Keynote Speeches

Numerical Methods: Indispensable Tools for Engineering Applications



Prof. Guirong Liu, University of Cincinnati, America

Dr. Liu received PhD from Tohoku University, Japan in 1991. He is currently a Professor and Ohio Eminent Scholar (State Endowed Chair) at the University of Cincinnati. He authored a large number of journal papers and books including two bestsellers: “Mesh Free Method: moving beyond the finite element method” and “Smoothed Particle Hydrodynamics: a Meshfree Particle Methods.” He is the recipient of numerous awards, including the Singapore Defence Technology Prize, NUS Outstanding University Researcher Award and Best Teacher Award, APACM Computational Mechanics Awards, JSME Computational Mechanics Awards, ASME Ted Belytschko Applied Mechanics Award, and Zienkiewicz Medal from APACM. He is listed as a world top 1% most influential scientist (Highly Cited Researchers) by Thomson Reuters in 2014-2016, 2018. ISI citations by others: ~14000. ISI H-index: ~68; Google Scholar H-Index: 94.

ABSTRACT. This talk provides an overview of computational numerical methods and its applications to the analysis and design of engineering systems. The focus will be on general formulations of meshfree and element-based methods established using strong, weak and weakened weak (W2) formulations. Studies on the comparisons of W2 formulations with the strong and weak formulations will be presented. We will present a family of W2 models known as S-PIM and S-FEM developed in the recent years. Properties of this class of methods important for automations in computation will be discussed including, spatial and temporal stability and convergence, softening effects induced by various types of smoothing domains, upper bound properties leading to certified solutions real-time computational models, and insensitivity to the quality of mesh allowing effective uses of triangular/tetrahedral meshes, which are best suited for adaptive analyses. For CFD problems, the gradient smoothing methods (GSM) will be briefly introduced. Application examples will also be presented for simulating engineered material behavior at various extreme situations, fluid structural interaction problems (helicopter blades interacting with subsonic airflows, flying birds, etc.), cracks in engineering aerospace structural systems, crystal plasticity for metallic polycrystalline used in jet engines, integrity assessment of systems via inverse analysis with real-time computation., and additive manufacturing processes.

KEYWORDS: FEM; Meshfree; S-FEM; S-PIM; GSM; CFD; FSI; Numerical Methods; Modeling and Simulation; Weakened Weak Formulation

Advances in Computational Methods for the Assessment of Structures under Fires and Fire Following Earthquakes



Prof. Hussam Mahmoud, Colorado State University (CSU), America

Dr. Hussam Mahmoud is the George T. Abell Professor in Infrastructure in the Department of Civil Engineering at Colorado State University (CSU). He obtained his BS and MS in Civil Engineering from the University of Minnesota and his Ph.D. from the University of Illinois at Urbana Champaign (UIUC). Dr. Mahmoud's research program has three major thrusts including assessing community resilience, quantifying building damage to extreme single and multiple hazards, and evaluating deteriorated infrastructure. For the first and second thrust, the focus is on assessment and developed of resilient systems subjected to extreme single and multiple, natural and manmade hazards including blasts, fire, earthquakes, tsunamis, and hurricanes or a combination of such. Dr. Mahmoud has authored numerous publications and he chairs and serves on various technical committees including ASCE fire protection, fatigue and fracture, steel bridges, and Multi-hazard committees, among others. He is the recipient of various awards including the American Institute of Steel Construction early faculty career award, the R. J. Dexter Memorial Lecture award, and the Air Force summer faculty fellowship award. Dr. Mahmoud's work has also received various media coverage through citations and interviews including the Smithsonian Magazine, CBS Egypt - TV show. Here is the Capital with Lamis Elhadidy, Business insider, among others.

ABSTRACT. Fires following earthquakes may occur in metropolitans with moderate-to-highly seismicity. The simultaneous ignitions - caused by strong earthquake – might turn to mass conflagrations in the affected area, leading to to catastrophic consequences including major structural damage as well as severe economic and social losses. In this talk, advances in numerical and analytical simulations of steel buildings under fire will be presented. This includes the integration between a newly developed mathematical formulation to evaluate the performance at the member level with detailed finite element simulations at the frame level under the umbrella of a new performance-based fire following earthquake engineering framework (PBFFE). In the PBFFE framework a stochastic model of the effective random variables controlling performance is utilized to generate fragility of steel columns and frames under the multiple hazards of earthquake and fire. The results demonstrate that instability can be a major concern in steel structures, both on the member and system levels, under the sequential events and highlights the need to develop provisions for the design of steel structures subjected to fire following earthquake.

Development of Al-Si-Cu-Mg Based Aluminium Alloys for Automotive Powertrain at Elevated Temperatures



Prof. Shouxun Ji, Brunel University London, United Kingdom

Dr Shouxun Ji is currently a Reader at Brunel University London. He is focusing on developing lightweight materials and structures for the automotive industry, including purpose-developed aluminium and magnesium alloys with improved ductility, strength, modulus, or thermal conductivity, and the hybrid structures using different materials. He is also working on new materials for aerospace applications, such as materials for explosive cords and high strength casting materials for aircraft components, which have been used in industry.

Dr. Ji is also specializing in semi-solid processing of aluminium alloys and magnesium alloys. He is the experienced person in casting technology including sand casting, gravity casting, low pressure die casting and high pressure die casting. His works also include cast irons (spheroidal graphite cast iron and austempered ductile iron) and copper alloys, design of casting equipment, hydraulic and pneumatic system with plc control system. Dr. Ji is the member of three ISO technical committee and one BSI technical committee. He is also the editorial member of three Scientific Journals. He received CMI UK innovation award in 2017.

ABSTRACT. During the last three decades, carbon-based composite coatings have enjoyed a growing interest in several industrial applications. By tuning the carbon sp³-to-sp² atomic bonding ratio and by alloying the carbon with other elements, the researchers have been able to tailor unique physical, mechanical, and tribological composite properties in order to satisfy an increased technological demand.

In the first part of the talk we will show how carbon-based composite coatings can be deposited at industrial scale on steel bearings and gears using physical vapor deposition (PVD) techniques at low temperatures. The main deposition methods will be reviewed.

In the second part of the talk, we will explain how is possible to deposit films with different amount of sp²-sp³ bonding ratios by just changing fundamental deposition parameters, leading to six different microstructures: graphite, non-hydrogenated a-C (amorphous) and ta-C (tetrahedral) carbon coatings, hydrogenated a-C:H and ta-C:H films, and a soft polymeric coatings. Furthermore, the mechanical and tribological properties of the different microstructures will be discussed.

In the last part of the talk, we will describe the main applications of SKF's NoWear® carbon-based composite coated bearings to extend maintenance and life expectancy of specialized bearings and gears in the automotive and wind-energy areas.

Part III Poster Presentations

Poster Guidelines

Materials Provided by the Conference Organizer:

- X Racks & Base Fabric Canvases
- Adhesive Tapes or Clamps

Materials Provided by the Presenters:

- Home-Made Posters
- Posters Printed by Conference

Requirement for the Posters:

- Material: not limited
- Size: 160cm (height) ×60cm (width)



X-Rack

Best Poster Selection Guidelines

Selection Criteria:

- ✚ Research Quality
- ✚ Presentation Skill
- ✚ Design



Stickers

Selection Procedure:

- ✚ The Conference General Chair will invite 10 volunteers from invited speakers, professors and experienced researchers to serve as the judges to review the posters (Note: A judge would not have a poster or know the participant exhibiting a poster);
- ✚ 2 red stickers and 2 green stickers will be provided to the judges. The red sticker stands for “Research Quality” with a value of 2 points; the green sticker stands for “Presentation Skill and Design” with a value of 1 point;
- ✚ Each judge will go around the poster session and give the stickers to the poster which he/she thinks is high quality or well design and good presentation, please be noticed that the judge cannot give 2 red or 2 green stickers to the same poster (one red and one green stickers are acceptable);
- ✚ After the poster session, the Chair will count the points from each poster and select ONE best poster presentation with more points. If there is a tie, the one with more red (Research Quality) stickers wins; if there is still a tie, the Chair will make the final decision.

Nature of the Award

- ✚ This award consists of free registration to the next conference and a certificate;
- ✚ The awards will be given during the Awarding Banquet on August 21.

List of Posters

Time: August 20, 11:05-12:00

Location: 2nd Floor, Songhe Room

NME1020	Research on vibration characteristic simulation of the 220kV gas insulated metal enclosed switchgear equipment <i>Mr. Xupeng Wang, Chongqing University, China</i>
NME1049	Impact characteristics of gustiness debris flow on check dam <i>Dr. Xiangang Jiang, Sichuan Agricultural University, China</i>
NME1051	Numerical study of the reflection at a liquid solid interface of a transient ultrasonic field radiated by a linear phased array transducer <i>Assoc. Prof. Nadir Maghlaoui, Higher School of Applied Sciences, Algiers</i>
NME1060	Application of machine learning to the prediction of Kelvin-Helmholtz instability <i>Dr. Shigenori Togashi, HITACHI, Ltd., Research & Development Group, Japan</i>
NME1109	Influence of different oil-paper configurations on the electric field distribution simulation of the internal insulation of converter transformer <i>Mr. Zhidong Cheng, Chongqing University, China</i>
NME1114	Construction and analysis of a district heating / cooling network system based on thermal bus <i>Dr. Haiying Wang, Tongji University, China</i>
NME1126	Fast computation of dynamical system for emission computed tomography <i>Assoc. Prof. Ken'ichi Fujimoto, Kagawa University, Japan</i>
NME1152	A feather precision measurement method <i>Dr. Yuping Zhao, Tsinghua University, China</i>
NME1163	Contact force analysis in a planar mechanism with translational clearance joint considering complex contact modes <i>Dr. Mengbo Qian, Tsinghua University, China</i>
NME1165	Research on low frequency electromagnetic environment of electric vehicle and human health <i>Mr. Xuwei Dong, Lanzhou Jiaotong University, China</i>
NME1094	Lattice Boltzmann simulation of the methane backward flow in coal mine tunnels after methane outburst <i>Mr. Yuechao Zhao, China University of Mining and Technology, China</i>
NME1062	Equal-order polygonal analysis for fluid analysis of curved domain <i>Prof. Magd Abdel Wahab, Ghent University, Belgium</i>
NME1111	Calculation of the braking temperature on a brake disc of light passenger aircraft using FEM and newcomb models <i>Prof. Magd Abdel Wahab, Ghent University, Belgium</i>
NME1121	Development and engineering application of high-precision and multi-function simulation system for double reheat ultra-supercritical units <i>Assoc. Prof. Baoling Cai, Xi'An Thermal Power Research Institute Co., Ltd, China</i>

NME1191	The rolling contact research of three-dimensional wheel-rail based on finite element analysis <i>Mr. Guoquan Jing, Xi'an Technological University, China</i>
CMA1015	Characterization of blast furnace dust <i>Prof. Marianna Czaplicka, Institute of Environmental Engineering, Polish Academy of Science, Poland</i>
CMA1041	Research of unpolluted deoxidization technology with applied electric field <i>Dr. Jixiang Jia, Iron & Steel Research Institute of Ansteel, China</i>
CMA1072	Mechano-chemical synthesis of crystalline superionic conductors $\text{CsAg}_4\text{Br}_{3-x}\text{I}_{2+x}$ ($0 < x < 1$) and their silver-conducting properties <i>Mr. Wenbin Zuo, Wuhan University, China</i>
CMA1082	Structural characterization of CoCrFeMnNi high entropy alloy oxynitride thin film grown by sputtering <i>Prof. Soon-Ku Hong, Chungnam National University, Korea</i>
CMA1037	Modelling and validation of fluid flow inside a dissipative ladle shroud and a continuous casting tundish <i>Dr. Jiangshan Zhang, University of Science and Technology Beijing, China</i>

Part IV Oral Presentations

Oral Presentation Guidelines

Devices Provided by the Conference Organizer:

- Laptops (with MS-Office & Adobe Reader)
- Projectors & Screen
- Laser Sticks
- Microphones

Materials Provided by the Oral Presenters:

- PowerPoint or PDF file

For presenters who don't send the PowerPoint to the Conference Secretary, please have your presentation ready in a memory stick, and save it in the laptop of your corresponding session about **15 minutes** before the start time. You also need to tell the Session Chair (before the start of your Session) that you are going to present your talk.

Best Oral Presentations Selection Guidelines

Selection Criteria:

ONE best presentation will be selected from EACH session based on the following items:

- ✚ Research Quality
- ✚ Presentation Performance
- ✚ Presentation Language
- ✚ Interaction with Listeners
- ✚ PowerPoint Design

Selection Procedure:

- ✚ An assessment sheet will be delivered to listeners before the session;
- ✚ When the session is finished, each listener is required to fill the sheet (he/she can vote for two excellent presentations) and give it to the Session Chair after the session;
- ✚ The Session Chair will count the votes from each presentation and select one best oral presentation with more votes. If there is a tie, the Session Chair will make the final decision.

Nature of the Award

- ✚ This award consists of free registration to the next conference and a certificate;
- ✚ The awards will be given during the Awarding Banquet on August 21.

NME2019 & CMA2019 Oral Presentation Assessment

Dear participants,

After carefully listening to the presentations of this session, please kindly recommend two excellent Oral Presentations with refer to the following evaluation criteria (please see the Table below).

The session Chair will count the notes from each presentation and select ONE Best Oral Presentation with more votes in this session. If there is a tie, the Session Chair will make the final decision.

The results will be released in the Awarding banquet on August 21.

You can refer to the evaluation criteria:

Items	Assessment
Content	Right, Logical, Original, Well-Structured
Language	Standard, Clear, Fluent, Natural
Performance	Spirited Appearance, Dress Appropriately, Behaves Naturally
PowerPoint	Layout, Structure, Typeset, Animation, Multimedia
Reaction	Build a Good Atmosphere, Speech Time Control Properly

Please write down the paper ID and give reasons for your recommendation:

Paper ID	Reasons

Evaluated by _____ (Paper ID: _____)

Note: When the session is finished, please fill it out and give it to the Session Chair, so that the Best Oral Presentation in this session could be selected.

Assessment Sheet

Oral Session 1: Mechanical and Materials Engineering (I)

Session Chair: Prof. Junfeng Zhang, Laurentian University, Canada

Time: 14:00-18:15, Tuesday Afternoon, August 20

Location: 2nd Floor, Songzhu Room

14:00-14:25	NME1003 (Invited Talk)	A new model for spall-rolling-element interaction <i>Prof. Jacob Bortman, Ben Gurion University, Israel</i>
14:25-14:50	NME1010 (Invited Talk)	Physics-based MRAM model considering both MTJ and NMOS transistor process variations <i>Dr. BingJin Chen, Institute of High Performance Computing, Singapore</i>
14:50-15:15	NME1014 (Invited Talk)	Computational microscopic blood flows: Model development and applications <i>Prof. Junfeng Zhang, Laurentian University, Canada</i>
15:15-15:40	NME1078 (Invited Talk)	Real-time forecasting of large-scale wildland fire spread using FARSITE tool and Ensemble transform Kalman filter (ETKF) <i>Prof. Jie Ji, University of Science and Technology of China, China</i>
15:40-15:55	NME1154	Generalized Noether's conservation laws for plane dynamic elastic field and application <i>Dr. Weichen Shi, Shanghai Maritime University, China</i>
15:55-16:10	NME1023	Numerical modelling for the simulation of nonlinear ultrasound in liquids with gas bubbles <i>Assoc. Prof. Christian Vanhille, Universidad Rey Juan Carlos, Spain</i>
16:10-16:30 COFFEE BREAK		
16:30-16:45	NME1066	Natural convection in a porous cavity filled with a fluid of variable viscosity in the presence of the heat-generating element and finned radiator <i>Ms. Astanina Marina, National Research Tomsk State University, Russia</i>
16:45-17:00	NME1081	Simulation analysis of liquid sloshing under different working conditions of hazardous materials rescue truck <i>Mr. Zhenhong Liu, Northeastern University, China</i>
17:00-17:15	NME1018	Thermo-mechanical reliability of the interfacial cracked multi-layered structure in 3D integration <i>Assoc. Prof. Xin Lan, Shandong University, China</i>
17:15-17:30	NME1116	Numerical simulation of the gravity instabilities in gas flows by use of the quasi gas dynamic equation system <i>Prof. Evgeny Shilnikov, Keldysh Institute of Applied Mathematics, RAS, Russia</i>

17:30-17:45	NME1179	Effective elastic properties of doubly periodic array of functionally graded inclusions by an iterative FE-BE coupling method <i>Dr. Zhaoyan Liu, Beijing Institute of Spacecraft Environment Engineering, China</i>
17:45-18:00	NME1013	Effect of clearance jet on aerodynamic performance of centrifugal fan <i>Mr. Xiaoyu Bo, Xi'an University of Technology, China</i>
18:00-18:15	NME1150	Investigations on the thermal behavior and associated thermal stresses for short pulse laser heating <i>Mr. Dawen Xue, Zhejiang Ocean University, China</i>

Oral Session 2: Metals and Alloys (I)

Session Chair: Prof. Duoqi Shi, Beihang University, China

Time: 14:00-18:10, Tuesday Afternoon, August 20

Location: 2nd Floor, Songling Room

14:00-14:25	CMA1008 (Invited Talk)	Effect of combination of ultrasonic nanocrystal surface modification and plasma nitriding on fatigue strength of S45C steel <i>Prof. Ri-ichi Murakami, National Taiwan University of Science and Technology, Taiwan, China</i>
14:25-14:50	CMA1051 (Invited Talk)	Processing of agglomerates and pellets with the various content of titanium dioxide <i>Prof. Andrey N. Dmitriev, Institute of Metallurgy of the Ural Branch of the Russian Academy of Sciences, Russia</i>
14:50-15:05	CMA1022	Anomalous concentration dependence of the thermal conductivity of refractory sintered binary nano-composites TiN-ALN and ZrC-ZrB ₂ <i>Prof. Zarichniak Yuri, ITMO University Saint-Petersburg, Russia</i>
15:05-15:20	CMA1054	Application of TRIZ theory in steel rolling production <i>Mr. Jiangbo Li, Beijing Century Top management Consultant Co., Ltd, China</i>
15:20-15:35	CMA1071	As-cast microstructures and high temperature behavior of high performance {Ni,Co}-based superalloys designed to be TiC-reinforced <i>Assoc. Prof. Patrice Berthod, University of Lorraine, France</i>

15:35-15:50	CMA1011	Microstructure of Ti-Nb-Zr-O biomedical alloy spark plasma sintered from elemental powders <i>Prof. Milos Janecek, Charles University, Czech Republic</i>
15:50-16:05	CMA1019	Microstructural characterization of laser welded shape memory alloy produced by powder metallurgy <i>Dr. Abdollah Bahaor, Osaka University, Japan</i>
16:05-16:30 COFFEE BREAK		
16:30-16:45	CMA1044	Effect of two-step austempering process on carbidic ductile iron <i>Assoc. Prof. Ajay Likhite, India</i>
16:45-17:00	CMA1053	Ceria doped TiO ₂ as photocatalyst for water treatment under visible light <i>Prof. Sreekantha Babu Jonnalagadda, University of KwaZulu-Natal, South Africa</i>
17:00-17:25	CMA1065 (Invited Talk)	Microstructure-sensitive modeling of competing fatigue failure mechanisms of Ni-base polycrystal superalloy at elevated temperature <i>Prof. Duoqi Shi, Beihang University, China</i>
17:25-17:40	CMA1059	Formation and decomposition of Widmanstätten austenite in GOES belt-casted strips <i>Prof. Vlastimil Vodarek, VSB - Technical University of Ostrava, Czech Republic</i>
17:40-17:55	CMA1013	Effect of carbon nanofiber on electrodes performance of symmetric supercapacitor with composite α -MnO ₂ nanorods <i>Prof. Ratna Naik, Wayne State University, United States</i>
17:55-18:10	CMA1025	Measuring the dislocation density of VT1-0 titanium alloys with different content of hydrogen by x-ray diffraction method <i>Dr. Shupeng Xu, National Research Tomsk Polytechnic University, Russia</i>

Oral Session 3: Mechanical and Materials Engineering (II)

Session Chair: Dr. Shibani Khanra Jha, Birla Institute of Technology and Science, India

Time: 08:30-12:00, Wednesday Morning, August 21

Location: 2nd Floor, Songzhu Room

08:30-08:55	NME1088 (Invited Talk)	Numerical approach to prioritize renewable energy alternatives and source locations to predict the future prospects <i>Dr. Shibani Khanra Jha, Birla Institute of Technology and Science, India</i>
08:55-09:20	NME1091 (Invited Talk)	Gas hydrate based methane recovery from low-concentration coalbed methane <i>Prof. Dongliang Zhong, Chongqing University, China</i>
09:20-09:45	NME1095 (Invited Talk)	Maximum likelihood prediction of records from 3-parameter Weibull distribution and some approximations <i>Dr. Laila Alkhalfan, Kuwait University, Kuwait</i>
09:45-10:10	NME1087 (Invited Talk)	Simulating periodic thermal flows with conjugate heat transfer using the temperature decomposition method <i>Prof. Junfeng Zhang, Laurentian University, Canada</i>
10:10-10:30	COFFEE BREAK	
10:30-10:45	NME1033	A convergence of the approximated free boundary of regularized functionals via Γ -convergence <i>Prof. Yoshihiko Yamaura, Nihon University, Japan</i>
10:45-11:00	NME1102	Investigation of gas-dynamics processes in a boundary layer on a basis of molecular dynamics simulation <i>Dr. Tatiana Kudryashova, Keldysh Institute of Applied Mathematics, Russia</i>
11:00-11:15	NME1082	Simulation research on regenerative braking control strategy of electric vehicle <i>Mr. Qingyun Wang, Northeastern University, China</i>
11:15-11:30	NME1067	Convective heat transfer in a rotating partially porous cavity with a local heat-generating element using local thermal non-equilibrium model <i>Mr. Stepan Mikhailenko, National Research Tomsk State University, Russia</i>
11:30-11:45	NME1132	Influences of various orifice layouts on the properties of aerostatic journal bearings based on finite element method <i>Dr. Siyu Gao, Hefei Institutes of Physical Science, CAS, China</i>
11:45-12:00	NME1162	On the spectral distribution of symmetrized toeplitz sequences <i>Dr. Mohammad Ayman Mursaleen, University of Insubria, Italy</i>

Oral Session 4: Metals and Alloys (II)

Session Chair: Prof. Hongzhi Fu, Louyang Normal University, China

Time: 08:30-12:05, Wednesday Morning, August 21

Location: 2nd Floor, Songling Room

08:30-08:55	CMA1063 (Invited Talk)	Formation of diamond-like carbon film for tribology using high power impulse magnetron sputtering <i>Prof. Takayuki Ohta, Meijo University, Japan</i>
08:55-09:10	CMA1003	Investigation of structural and magnetic properties of Cu-substituted $\text{Ni}_{0.5-x}\text{Zn}_{0.3}\text{Mg}_{0.2}\text{Fe}_2\text{O}_4$ nanocrystalline ferrite <i>Assoc. Prof. Milind R. Bhandare, Mahatma Phule Mahavidyalaya Pimpri, India</i>
09:10-09:25	CMA1006	Study of the relationship between stacking fault energy and microstructure in different compositions of Fe-Mn steels produced by weld deposit <i>Prof. Hamilton F. G. Abreu, Federal University of Ceara, Brazil</i>
09:25-09:40	CMA1057	A modified mathematical model for end-point carbon prediction of BOF based on off-gas analysis <i>Dr. Wenhui Lin, University of Science and Technology Beijing, China</i>
09:40-10:05	CMA1085 (Invited Talk)	Aluminium-assisted crystallization of Ge and SiGe epitaxy on Si <i>Dr. Ziheng Liu, University of New South Wales, Australia</i>
10:05-10:20	CMA1058	Probability based global sensitivity analysis of fatigue reliability of steel structures <i>Prof. Zdenek Kala, Brno University of Technology, Czech Republic</i>
10:20-10:35	COFFEE BREAK	
10:35-10:50	CMA1079	Fabrication of Ag micro-patterns by electrohydrodynamic jet printing <i>Dr. Hao Lv, Qingdao University of Science and Technology, China</i>
10:50-11:05	CMA1026	An experimental investigation on fatigue mechanism of continuous welded rails in railways <i>Mr. Yasin Sarikavak, Turkish State Railways, Turkey</i>
11:05-11:20	CMA1012	Phase transition effects on the hardening of Ti15Mo alloy deformed by ECAP <i>Dr. Cinthia Antunes Corrêa, Charles University, Czech Republic</i>

11:20-11:35	CMA1074	The study on microstructure evolution behavior during sintering process and Zn strengthening of Mg ₂ Sn/Mg composites <i>Ms. Rong Wang, Dalian University of Technology, China</i>
11:35-11:50	CMA1002	Elastic anisotropy affects the lattice wave and phonon distribution in crystal <i>Prof. Hongzhi Fu, Louyang Normal University, China</i>
11:50-12:05	CMA1083	Comparative evaluation of 316L with low nickel and nickel free lean duplex stainless steels on microstructural, mechanical and corrosive properties <i>Prof. Prashant Poojary, IIT-Varanasi- BHU, India</i>

Oral Session 5: Mechanical and Materials Engineering (III)

Session Chair: Assoc. Prof. Yang Liu, Sojo University, Japan

Time: 14:00-18:00, Wednesday Afternoon, August 21

Location: 2nd Floor, Songzhu Room

14:00-14:25	NME1101 <i>(Invited Talk)</i>	Constraint conditional finite element method for off-axial interfacial sliding of fiber reinforced composite <i>Dr. Ryuta Kitamura, Kanagawa University, Japan</i>
14:25-14:50	NME1108 <i>(Invited Talk)</i>	Piezo-actuated device for a bio-structural monitoring application through vibration-based condition and electromechanical impedance measurements <i>Dr. Hector Andres Tinoco, Universidad Autónoma de Manizales, Colombia</i>
14:50-15:15	NME1115 <i>(Invited Talk)</i>	Non-linear dynamical effects in frictional energy dissipation <i>Prof. Motohisa Hirano, Hosei University, Japan</i>
15:15-15:40	NME1144 <i>(Invited Talk)</i>	Exponential integrators preserving local conservation laws of PDEs with time-dependent damping/driving forces <i>Dr. Ashish Bhatt, IIT (ISM) Dhanbad, India</i>
15:40-15:55	NME1125	Relation between stress intensity factor of circumferential crack and adhesive thickness in bonded round bar <i>Prof. Kazuhiro Oda, Oita University, Japan</i>
15:55-16:10	NME1133	Influence of bias voltage on structure and mechanical properties of TiCrN-Mo ₂ N-Ni coatings <i>Mr. Chernogor Aleksei, National University of Science and Technology "MISiS", Russia</i>

16:10-16:30		COFFEE BREAK
16:30-16:45	NME1142	Numerical analysis of mini-channel cooling applied in power battery <i>Ms. Fuxia Huang, Guizhou University, China</i>
16:45-17:00	NME1123	Numerical simulation of cryosurgery in biological tissues with developed circulatory system <i>Assoc. Prof. Kirill Shilnikov, National Research Nuclear University "MEPhI", Russia</i>
17:00-17:15	NME1119	Numerical modelling and vibration analysis of human middle ear for application in sound conduction reconstruction <i>Assoc. Prof. Yang Liu, Sojo University, Japan</i>
17:15-17:30	NME1183	Simulation design method of free boundary simulator for high precision spacecraft on orbit <i>Mr. Minghui Liu, Beijing Institute of Spacecraft Environment Engineering, China</i>
17:30-17:45	NME1141	Mathematical modelling of Snap-Fits <i>Dr. Satheesh Kumar, Contiental Automotive Pte Ltd., Singapore</i>
17:45-18:00	NME1192	Study on the influence of temperature variations on microstructure during the hot precision forging process <i>Mr. Zhiyu Hu, Inner Mongolia University of Science & Technology, China</i>

Oral Session 6: Civil Engineering

Session Chair: *Prof. Tariq M. Nahhas, Umm AlQura University, Saudi Arabia*

Time: 14:00-18:00, Wednesday Afternoon, August 21

Location: 2nd Floor, Songling Room

14:00-14:25	NME1044 (Invited Talk)	Detection and analysis of coherent structures in the near-field of a turbulent annular swirling jet: an unsteady Reynolds-averaged Navier-Stokes (URANS) simulation <i>Assoc. Prof. Maarten Vanierschot, KU Leuven, Belgium</i>
14:25-14:50	NME1084 (Invited Talk)	A comparison of IBC with 1997 UBC for modal response spectrum analysis in standard-occupancy buildings <i>Prof. Tariq M. Nahhas, Umm AlQura University, Saudi Arabia</i>
14:50-15:15	NME1103 (Invited Talk)	Forecasting methods in engineering <i>Prof. Liljana Ferbar Tratar, University of Ljubljana (SEB LU), Slovenia</i>

15:15-15:30	NME1131	Weak-form differential quadrature element method for dynamic analysis of fluid-saturated soil <i>Dr. Guanghui He, Shanghai Construction Group Co., Ltd., China</i>
15:30-16:00 COFFEE BREAK		
16:00-16:25	NME1147 (Invited Talk)	Simulation of the active confinement in a steel-concrete bond model for reinforced concrete structures <i>Dr. Ludovic Jason, CEA SACLAY, France</i>
16:25-16:50	NME1122 (Invited Talk)	Effect of concrete compressive strength on transfer length <i>Dr. Alberto T. Ramirez-Garcia, University of Arkansas, United States</i>
16:50-17:05	NME1072	Numerical investigation of plane wave propagation in three soil models and a simple viscoelastic treatment of the boundary considering gravity using MPM <i>Mr. Ruiyu Zhang, Tsinghua University, China</i>
17:05-17:20	NME1026	Acoustic response of thin-walled, orthogonally stiffened cylinders <i>Mr. Dong Zhao, University of Southampton, United Kingdom</i>
17:20-17:45	NME1092 (Invited Talk)	Structure-preserving numerical methods for stochastic Poisson systems <i>Assoc. Prof. Lijin Wang, University of Chinese Academy of Sciences, China</i>
17:45-18:00	NME1158	Applications of wave modes for a complex cylinder with a general cross section <i>Assoc. Prof. Hao Bai, Lakehead University, Canada</i>

Part V Field Visit

Schedule

08:30	Depart from the Sunworld Hotel
09:00-13:30	Visiting the Badaling Great Wall
13:30-14:30	Lunch at Badaling Restaurant
14:30-16:30	Head to the Nanluoguxiang (South Luogu Lane) and Exploration
16:30-17:00	Back to the Sunworld Hotel



Badaling Great Wall

Badaling Great Wall was built along the ridges of mountains, looking precipitous from the external wall but gently sloped from the internal wall. It was officially opened to tourists in 1958. It is a section of the Great Wall opened earliest to tourists and receives the largest number of tourists. In the five decades since it opened, Badaling Great Wall scenic spot, on behalf of the Great Wall of China, was conferred with the World Cultural Heritage license by UNESCO. It was listed among the first batch of important cultural relic sites under state-level protection by the Central Government, the best of the top 10 scenic spots in the country, the best of the top 40 tourism destinations in the country, and the country's first group of 5A-class tourism scenic spots. In 2007, in the appraisal of the world's new seven wonders, Great Wall maintained its top position because of its extensive and profound history and culture, and unprecedented prestige in the world.

Nanluoguxiang (South Luogu Lane)

Nanluoguxiang is a little street over 1 kilometer long with more than 800-year history. Visitors who visit Nanluoguxiang will enjoy the architecture around and know better about Beijing's local people life style and culture. Besides that, Nanluoguxiang also has known as the third most popular bar street in Beijing behind Sanlitun and Houhai. With its impressive historical reputation and cultural influences, Nanluoguxiang has become a popular attraction in Beijing that you should not miss. It offers with cafes, bars, restaurants, and shops selling traditional crafts and souvenirs. Try some traditional and interesting food or snack in Nanluoguxiang is one of the things to do in Beijing.



