

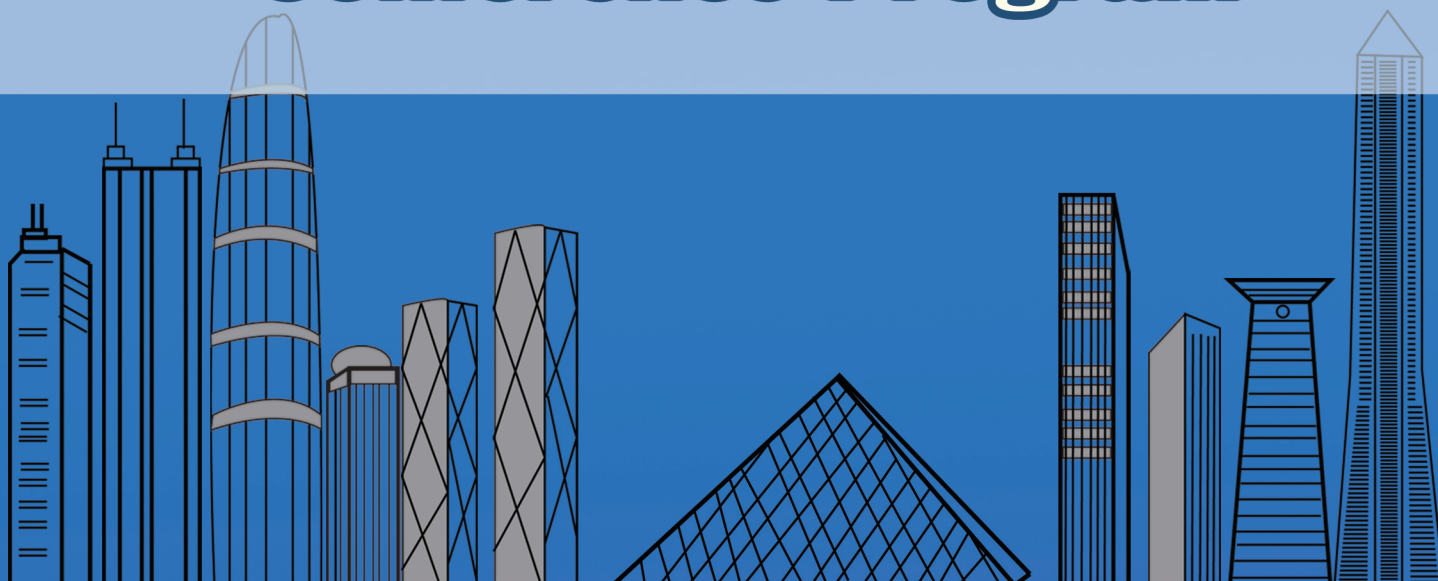


CMSE 2023

The 12th Global Conference on Materials Science and Engineering

October 27-30, 2023 Shenzhen, China

Conference Program



北京大学深圳研究院
PEKING UNIVERSITY SHENZHEN INSTITUTE

澳門會展旅遊業協會

ASSOCIACAO DOS SECTORES DE CONVENCÕES, EXPOSIÇÕES E TURISMO DE MACAU
MACAO ASSOCIATION OF CONVENTION, EXHIBITION & TOURISM SECTORS

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***For CMSE2023 Academic Exchange Only**

Part I Conference Schedule Summary

Friday, October 27, 2023 <i>Lobby of Dayhello International Hotel Shenzhen</i>	
08:30-18:00	On-site Registration
09:00-11:00 14:00-16:00	MS Teams Online Conference Testing and Ice Breaking http://www.academicconf.com/teamslink?confname=cmse2023

Note for offline registration:

* Please show us your name or paper ID for registration.

* Please pick up all the conference materials at the registration desk (Name Card, Conference Program, Lunch & Dinner Tickets etc.).

Saturday, October 28, 2023 <i>Location: Conference Room II, 2F</i>	
<i>MS Teams Link: http://www.academicconf.com/teamslink?confname=cmse2023</i>	
Chairman: <i>Dr. Liyuan Sheng, Peking University Shenzhen Institute, China</i>	
08:35-08:40	Opening & Welcome Speech <i>Dr. Liyuan Sheng, Peking University Shenzhen Institute, China</i>
08:40-09:20	Keynote Speech 1: Full Color Light Emitting Diodes Based on Rare Earth Doped Oxide Films <i>Prof. Qixin Guo, Department of Electrical and Electronic Engineering, Synchrotron Light Application Center, Saga University, Japan</i>
09:20-10:00	Keynote Speech 2: 3D Stitching Technology for Composite Repair and Fully Integrated Sandwich Structures <i>Prof. Zhongwei Guan, Executive Director of Advanced Materials Research Centre of Technology Innovation Institute, Abu Dhabi, UAE</i>
10:00-10:20	Group Photo & Coffee Break
10:20-11:00	Keynote Speech 3: Nanostructured Materials for Next Generation Li-ion Batteries, Metal-air Batteries and Fuel Cells <i>Dr. Zhaolin Liu, Principal Scientist, Institute of Materials Research and Engineering (IMRE), A*STAR (Agency for Science, Technology and Research), Republic of Singapore</i>

11:00-11:40	Keynote Speech 4: Phase Transformations in Explosively Welded Metallic Materials <i>Prof. Henryk Paul, Institute of Metallurgy and Materials Science, Polish Academy of Sciences, Poland</i>
11:40-12:40	Poster Session
12:40-14:00	LUNCH BREAK <i>Platanus Café / 柏顿餐厅, 1F</i>
14:00-18:35	Oral Session 1: Mechanical Behavior of Materials and Structures <i>Conference Room III, 2F</i>

Sunday, October 29, 2023 <i>Location: Conference Room III, 2F</i>	
<i>MS Teams: http://www.academicconf.com/teamslink?confname=cmse2023</i>	
08:30-12:55	Oral Session 2: Electronic, Photonic & Magnetic Materials & Nanomaterials
12:55-14:00	LUNCH BREAK <i>Platanus Café / 柏顿餐厅, 1F</i>
14:00-18:45	Oral Session 3: Metals, Ceramics, Composites & Polymers

Monday, October 30, 2023	
08:30-15:30	One day tour in Shenzhen

Note: Gathering at the Lobby of Dayhello International Hotel Shenzhen; Please take your Tour Ticket while getting on the tour bus.

Part II Keynote Speeches

Keynote Speech 1: Full Color Light Emitting Diodes Based on Rare Earth Doped Oxide Films

Prof. Qixin Guo

*Department of Electrical and Electronic Engineering,
Synchrotron Light Application Center,
Saga University, Japan*



Biography: Prof. Dr. Guo received B. E., M. E., and Dr. E. degrees in electronic engineering from Toyohashi University of Technology in 1990, 1992, and 1996, respectively. He is currently a Professor of Department of Electrical and Electronic Engineering, Saga University and was the Director of Saga University Synchrotron Light Application Center in Japan from April 2012 to March 2022. His research interests include epitaxial growth and characterization of semiconductor materials. Prof. Guo has published more than 370 papers in scientific journals including Nature Communications, Advanced Materials, Physical Review B, and Applied Physics Letters with more than 9300 citations (h-index: 49).

Abstract. Micro scale light emitting diodes (μ LEDs) have been extensively studied for augmented and virtual reality display applications. It is highly required that μ LEDs have high pixels per inch, high efficiency and brightness, stable emission, and full color emission. However, the realization of full color μ LED display technology has been challenging because conventional mass transfer processes require the extraction of red, green, and blue μ LED chips from different epitaxial wafers followed by precision transfers. Full color LEDs can be fabricated by using GaInN with different indium concentration as luminescence layers. However, the emission wavelength is unstable due to its temperature dependence of bandgap.

Rare earth (RE) doped semiconductors, which exhibit strong and sharp emission due to intra-4f-shell transitions in RE ion cores, have potential applications in color display and luminescence devices. Historically, much effort has been made to produce visible color emission using RE doped GaN. It has been reported that the luminescence efficiency of dopant emissions could be highly improved with a wide bandgap host. Moreover, the wide bandgap semiconductors exhibit highly thermal and chemical stability, which make them ideal hosts for RE ions. We have demonstrated that red, green and blue emissions are clearly observed from the Eu, Er, and Tm doped Ga₂O₃ films respectively. We found that the normalized emission intensity of the RE doped Ga₂O₃ films has a smaller temperature variation compared to that of the RE doped GaN films and showed that the bandgap of the films can be increased by adding Al into the films. In this talk, we present on the structure, surface morphology and temperature dependence of the photoluminescence of the RE doped (AlGa)₂O₃ films. Recent progress on the properties of the full color LEDs by using Eu, Er, and Tm co-doped Ga₂O₃ films will also be reported.

Keynote Speech 2: 3D Stitching Technology for Composite Repair and Fully Integrated Sandwich Structures



Prof. Zhongwei Guan

*Executive Director, Advanced Materials Research Centre
of Technology Innovation Institute, UAE*

Biography: Professor Zhongwei Guan is Executive Director of Advanced Materials Research Centre of Technology Innovation Institute in Abu Dhabi. He received his first degree on Solid Mechanics in Sichuan University China in 1982 and was awarded PhD on Structural Behaviour of Polymeric Pipelining in University of Bradford UK in 1993. He was Reader in Lightweight Composite Materials and Structures at the University of Liverpool. He has published more than 180 SCI papers in refereed leading international journals on lightweight composite structures subjected to extreme loading conditions such as projectile impact and blast, covering fibre metal laminates, PVC foam-based sandwiches and SLM lattice structures, corrugated sandwiches, timber structures, high temperature TP prepreg, etc. Prof Guan is ranked as world top 2 % scientists by Stanford University. He was Chairman of the 5th International Conference on Computational Methods held in Cambridge in 2014. He is a member of editorial board of International Journal of Impact Engineering, Applied Composite Materials and Advanced Materials Letter. He also serves as a scientific committee member of more than 20 international conferences and has given more than 25 keynotes, thematic and plenary speeches.

Abstract. Debonding and delamination failure are common problems experienced in composite bonded repair and sandwich structures. There is a need to have an effective approach to locally reinforce the repair patch and fully integrate skins with core. A novel stitching technology has emerged for enhancing the load carrying capacity of composite patch repair as well as the bonding behaviour between skins and core for a sandwich structure. In this approach, holes were first drilled through the scarf patch repaired and sandwich core. Then stitching processes were applied to tie the repair patch against the parent laminates and skins with core. The vacuum resin infusion technique was further used to integrate the threads with the sandwich core-skins and fix the patch to the parent part. The stitch-reinforced scarf patch is to reduce the amount of parent material that is removed during the repair. It has been shown that for a 2.5 mm diameter stitching thread the ultimate tensile strength of the repaired laminates can be enhanced by 50 %. In the stitched foam-core sandwich panels, stitching represents a more balanced technology for improving the flatwise compressive, bending and shear strength as well as delamination resistance properties of sandwich panels. Further, increasing the fiber volume fraction inside the stitching holes is an effective way to improve the out-of-plane mechanical performance.

Keynote Speech 3: Nanostructured Materials for Next Generation Li-ion Batteries, Metal-air Batteries and Fuel Cells

Dr. Zhaolin Liu

*Principal Scientist, Institute of Materials Research and Engineering (IMRE), A*STAR (Agency for Science, Technology and Research), Republic of Singapore*



Biography: Dr. Liu Zhaolin is a Principal Scientist at Institute of Materials Research and Engineering (IMRE), Agency for Science, Technology and Research (A*STAR), Singapore. He was a Senior Group Head of Battery Development & Engineering. His current research interest includes design, synthesis, and structural studies of energy storage materials and development of novel nanostructured materials which are suitable to be applied in Li-ion, metal-air batteries and fuel cells (including catalyst and membrane). He has published more than 240 research papers in refereed scientific journals and received a total citation of more than 23,000 with h-index of 83. He is ranked as world top 2 % scientists (Energy) by Stanford University and highly cited researcher by Clarivate.

Abstract. Nanostructured materials are currently of interest for batteries and fuel cells because of their high surface area, novel size effects, significantly enhanced kinetics, and so on. The presentation will describe some our works in nanostructured anode and cathode materials for next generation lithium-ion batteries, especially in silicon/carbon composites by nano silica and carbon-modified nano-silicon particles as anode materials. This modification coating layer composes of the disperse nano-carbon matrix and nano SiO₂. The nano-SiO₂ layer can avoid volume expansion and contraction and keep the structural perfection of the electrode materials. This could also avoid the subsidiary reactions usually happening between electrolyte and silicon particles and prevent the crack of the coating layer. The carbon crosslinked network can enhance the silicon/carbon composite electrode conductivity. The presentation will also discuss how to further develop electrode materials, electrolyte, electrode formulation, battery design engineering in Li-ion batteries.

The presentation will also give a brief introduction for our research works on nanostructured electrocatalysts as air electrode for metal-air batteries, as well as nanostructured transition metal and alloy-based electrocatalysts for fuel cells.

Keynote Speech 4: Phase Transformations in Explosively Welded Metallic Materials



Prof. Henryk Paul

*Institute of Metallurgy and Materials Science,
Polish Academy of Sciences, Poland*

Biography: Professor Henryk Paul received Dr. Eng. at Institute of Metallurgy and Materials Science (IMMS), Polish Academy of Sciences in Krakow (Poland) in 1989. After working as an assistant professor, he was promoted to an associate professor in 2003 and to a full Professor in 2010, all in IMMS. He is a Coordinator of long-term scientific collaborations with ENSM de Saint Etienne and University Paris-Sud, Orsay (France). He is the author more than 270 original papers, 22 book chapters, and 20 review papers on different aspects of phases transformation. His research interests include explosive welding technology, fundamental aspects of deformation, and in particular plastic flow instabilities formation, recovery and recrystallization, SPD processing of metals. He has served as a plenary, keynote or invited speaker at 30 international conferences. His publications receive ~ 2000 citations (h-index: 26) according to Scopus. Currently employed at the Institute of Metallurgy and Materials Science in Krakow.

Abstract. The direct joining of Ta with steel leads to several problems inherent in the formation of brittle reaction regions and complexities associated with the formation of butt joints during further processing of the composite. To overcome these complications, an intermediate layer made of a soft material with high thermal conductivity, such as Cu, can be used. This work presents a comprehensive study of recent advances in understanding of the microstructure-property relationships in a tantalum-stainless steel (SS) composite fabricated by explosive welding with copper interlayers, both during composite formation and post-processing annealing. Using scanning (SEM) and transmission electron microscopy (TEM), interfacial microstructures were investigated, thus providing guidelines for the design of materials. To support the microstructural findings, the evolution of the structure and properties of the interfacial layers was investigated using X-ray synchrotron radiation and nanohardness tests, respectively. Particular attention was paid to the description of the reaction regions and the competition between the strain hardening and softening processes occurring during the formation of the clad and further heat treatment. It was observed that the composite interfacial layers exhibited a complex and hierarchical microstructure. Analyses of the solidified melt regions using various SEM and TEM techniques revealed areas with different morphology and chemical composition. The reaction regions located near the Ta/Cu interface consisted only of a mixture of Cu and Ta particles (ultrafine grains and small dendrites), while the areas near the Cu/SS interface consisted of nanograins with a more complex chemical composition, containing elements from bonded sheets. No significant influence of the annealing process (under the applied conditions - at 750 °C for times up to 103 h) on changes in the microstructure of the solidified melt was observed, apart from a slight increase in grain size. The solidified melt regions, in the as-welded and annealed states were basically 2-3 times harder than the strain hardened steel layers.

Acknowledgements: This research was funded in part by National Science Centre (NCN) of Poland, within the project no.: 2018/31/B/ST8/00942.

Part III Oral Presentations

Offline Oral Presentation Guidelines

Devices Provided by the Conference Organizer:

- Laptops (with MS-Office & Adobe Reader)
- Projectors & Screen: Ratio 4:3
- 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 session starts.

Online Oral Presentation Guidelines

- Online Oral Presentation will be conducted via [Microsoft Teams Meeting](#) (Click to see how to join CMSE 2023 via MS Teams).
- All online presenters are requested to reach the Online Session Room prior to the scheduled time and deliver their presentations on time.
- The presentation timetable is shown in **China Standard Time (GMT+8)**.
- If a presenter cannot show up on time or has a problem with internet connection, the session chair has the right to rearrange his/her presentation, and let the next presentation start.

Best Oral Presentations Award

Selection Criteria:

TWO best presentations will be selected from EACH session based on the following criteria:

- Research Quality
- Presentation Performance
- Presentation Language
- Interaction with Listeners
- PowerPoint Design
- Effective Communications

Selectin Procedure:

- An assessment sheet will be delivered to listeners before the session;
- Write the numbers of two best presentations and submit the filled assessment sheet (with the listener's name and signature) to the Session Chair before the session termination.
- The Session Chair will count the votes for each presentation and name the winner based on the

maximal number of votes. The Session Chair has three votes but can use only one in favor of his/her own presentation (if any). To avoid any conflict of interests, only registered listeners are entitled to vote.

Nature of the Award:

- This award consists of free registration to the next conference CMSE 2024 and a certificate;
- The awards will be announced at the official website after the conference.

Assessment Sheet Sample
CMSE 2023 Oral Presentation Assessment

Dear participants,

After carefully listening to the presentations of this session, please kindly recommend two excellent Oral Presentations with reference to the following evaluation criteria.

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

The winner will be announced at the official website after the conference.

You can refer to the following Criteria:

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

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

Paper ID	Reasons

Evaluated by: _____ (Paper ID: _____)

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

Oral Session 1: Mechanical Behavior of Structures and Materials

Time: 14:00-18:35, October 28, 2023. China Standard Time (GMT+8)

Location: Conference Room III, 2F

Session Chair: Prof. Henryk Paul, Institute of Metallurgy and Materials Science, PAS, Poland

Session Chair: Dr. Xiaobin Lu, China Institute of Water Resources and Hydropower Research, China

Online Room Link: <http://www.academicconf.com/teamslink?confname=cmse2023>

14:00-14:15	CMSE4818	Study on Dimension Effect of Tensile Properties of ASS-304 Sheet at Various Service Temperatures <i>Dr. Ruibin Gou, College of Mechanical Engineering, Anhui Science and Technology University, China</i>
14:15-14:30	CMSE4835	Microstructural Changes Near the Interface of Eleven-Layered AZ31/AA1050 Composites Fabricated by Single-Shot Explosive Welding <i>Dr. Sandra Puchlerska, Faculty of Non-Ferrous Metals, AGH University of Science and Technology, Poland</i>
14:30-14:45	CMSE4909	A New Tensile Creep Model for Predicting Long-Term Creep Strengths with Short-Term Test Data for Creep Resistant Alloys <i>Prof. Zhidong Xiang, The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology, China</i>
14:45-15:00	CMSE4851	Application of Dynamic Elastic Modulus Targeted Testing Methods for Old Concrete Aqueducts <i>Dr. Xiulin Li, State Key Laboratory of Simulation and Regulation of Water Cycle in River Basin, China Institute of Water Resources and Hydropower Research, China</i>
15:00-15:15	CMSE5016	Performance Analysis of Copper Friction Stir Welding Zone <i>Dr. Ling Ji, Linyi University, China</i>
15:15-15:30	CMSE4996	A Multi-Scale Modeling Framework Based on Micro-CT to Predict the Mechanical Properties of Three-Dimensional Tubular Braided Composites at Different Temperatures <i>Dr. Yuyang Zhang, Institute of Advanced Structure Technology, Beijing Institute of Technology, China</i>
15:30-15:55	CMSE4959	Microstructure Characterization of Nano-Al Particles and its Effect on Mechanical Properties of Aluminum Alloy <i>Prof. Yanli Lu, State Key Laboratory of Solidification Processing, Northwestern Polytechnical University, China</i>
15:55-16:10	CMSE4838	Analysis of the Microstructure and Hardness of Aluminum Alloy Gradient Plate Prepared by Friction Stir <i>Dr. Weiwei Song, School of Mechanical and Electrical Engineering, Huangshan University, China</i>
16:10-16:30		Coffee Break

16:30-16:45	CMSE4860	Strain-Hardening Prediction of DP600 Steel Considering the Heterogeneous Deformation Between Ferrite and Martensite <i>Dr. Wen-Jiao Dan, College of Mechanical Engineering, Anhui Science and Technology University, China</i>
16:45-17:10	CMSE4936 Online	Thermo-Mechanical Stability of FRP and FGM Plates with Geometrical Imperfections Using Layer Wise Finite Element <i>Assoc. Prof. Marina Ćetković, Department for Engineering Mechanics and Theory of Structures, Faculty of Civil Engineering, University of Belgrade, Serbia</i>
17:10-17:35	CMSE4871	Biochar as a Novel Green Additive to Mitigate Wellbore Cement Degradation during CO₂ Invasion <i>Prof. Liwei Zhang, State Key Laboratory of Geomechanics and Geotechnical Engineering, Institute of Rock and Soil Mechanics, CAS, China</i>
17:35-17:50	CMSE4852	Mechanical Properties of Recycled Concrete with Brick Blocks Under Different Compression Conditions <i>Dr. Jiangfeng Dong, College of Architecture and Environment, Sichuan University, China</i>
17:50-18:05	CMSE5002 Online	Comparative Study of the Influence of Charge Shapes on the Blast Effect and the Use of Random Forests Algorithm for Predictive Modelling <i>Mr. Sreekumar Punnappilly, National Institute of Technology, India</i>
18:05-18:20	CMSE5001	Engineered Smart Concrete Utilizing Indigenous Agricultural Wastes for Self-Healing Applications <i>Dr. Chosel Lawagon, Center of Green Nanotechnology Innovations for Environmental Solutions, College of Engineering Education, Research and Publication Center, University of Mindanao, Philippines</i>
18:20-18:35	CMSE4984 Online	Corrosion Monitoring Study of Mild Steel is in Contact with Acid Medium Using Expired Labetalol Drug (ELT) as Inhibitor <i>Dr. S. S. Syed Abuthahir, P.G. and Research Department of Chemistry, Jamal Mohamed College (Autonomous), Affiliated to Bharathidasan University, India</i>

Oral Session 2: Electronic, Photonic & Magnetic Materials & Nanomaterials

Time: 08:30-12:55, October 29, 2023. China Standard Time (GMT+8)

Location: Conference Room III, 2F

Session Chair: Dr. Suraya Ahmad Kamil, Universiti Teknologi MARA, Malaysia

Session Chair: Dr. Fengxia Wei, Agency for Science, Technology and Research (A*STAR), Singapore

Online Room Link: <http://www.academicconf.com/teamslink?confname=cmse2023>

08:30-08:45 CMSE4926	Crystal Growth, Defects and Ion Migration of CsPbBr₃ Crystals for Nuclear Radiation Detection <i>Dr. Binbin Zhang, College of Advanced Interdisciplinary Studies, National University of Defense Technology, China</i>
08:45-09:00 CMSE4972	Precise Size and Shape Control of Monodisperse CsPbBr₃ Nanocrystals Under Ambient Condition <i>Dr. Fengxia Wei, Institute of Materials Research and Engineering (IMRE), A*STAR, Singapore</i>
09:00-09:15 CMSE4943	Preparation and Photoelectric Properties of Nanostructured High Power Al_xGa_{1-x}As/GaAs Semiconductor Lasers <i>Prof. Gwomei Wu, Institute of Electro-Optical Engineering, Department of Electronic Engineering, Chang Gung University</i>
09:15-09:30 CMSE4989	Micron Resolved Electronic Structure of Materials Surface <i>Prof. Chaofan Zhang, College of Advanced Interdisciplinary Studies, National University of Defense Technology, China</i>
09:30-09:55 CMSE4981	Pressure-Induced Mixed States Caused by Spin-Elastic Interactions During First-Order Phase Transition in Spin Crossover Compounds <i>Prof. Georgiy Levchenko, State Key Laboratory of Superhard Materials, International Center of Future Science, Jilin University, China</i>
09:55-10:20 CMSE4992	Upconversion Luminescence from Sol-Gel-Derived Erbium- and Ytterbium-Doped BaTiO₃ Film Structures <i>Prof. Nikolai V. Gaponenko, Belarusian State University of Informatics and Radioelectronics, Belarus</i>
10:20-10:45 CMSE4934 Online	Diamond Logic Circuits Consisting of Depletion-Mode and Enhancement-Mode MOSFETs <i>Dr. Jiangwei Liu, Research Center for Electronic and Optical Materials, National Institute for Materials Science, Japan</i>
10:45-11:00	Coffee Break
11:00-11:15 CMSE4930	A Low-Cost Microwave Sensor Based on Complementary Circular Spiral Resonator <i>Dr. Xingyun Zhang, National Key Laboratory of Scattering and Radiation, China</i>
11:15-11:30 CMSE4945	Effect of Yb³⁺ Concentration on the Spectroscopic Properties of Er³⁺/Yb³⁺ Co-Doped SiO₂-TiO₂ Nanofiber <i>Dr. Suraya Ahmad Kamil, Faculty of Applied Sciences, Universiti Teknologi MARA, Malaysia</i>

11:30-11:45	CMSE4932	A Novel Ag/g-C₃N₄/GCE Sensor for Highly Efficient Electrochemical Detection of Sulfamethoxazole <i>Dr. Rui Liu, Center of Pharmaceutical Engineering and Technology, Harbin University of Commerce, China</i>
11:45-12:00	CMSE4980	Multifunctionality of Novel Ferroelectric-Ferromagnetic Nanocomposite <i>Dr. Nikita Liedienov, State Key Laboratory of Superhard Materials, International Center of Future Science, Jilin University, China</i>
12:00-12:15	CMSE4950	Effect of Nickel Doping Concentration on the Morphological and Structural Properties of Titanium Dioxide Nanoparticles <i>Dr. Siti Nurbaya Supardan, Faculty of Applied Sciences, Universiti Teknologi MARA, Malaysia</i>
12:15-12:30	CMSE4985 Online	Hydrothermal Synthesis of a Nanocomposite of Reduced Graphene Oxide and Bismuth Tungstate (rGO/Bi₂WO₆) with Effective Photocatalytic Activity for Wastewater Treatment <i>Dr. Amr Awad Ibrahim, Department of Chemistry, Faculty of Science, Mansoura University, Egypt</i>
12:30-12:55	CMSE4935 Online	Experimental Study of Emergent Ground State Behaviour in Yb-based Compounds <i>Dr. Andrea Dzubinska, CPM-TIP, UPJS, The Slovak Republic</i>

Oral Session 3: Metals, Ceramics, Composites, Polymers

Time: 14:00-18:45, October 29, 2023. China Standard Time (GMT+8)

Location: Conference Room III, 2F

Session Chair: Prof. Isaac Chang, Brunel University London, UK

Session Chair: Dr. Wenyi Wang, Hong Kong Polytechnic University, China

Online Room Link: <http://www.academicconf.com/teamslink?confname=cmse2023>

14:00-14:15	CMSE4922	Study on Precipitation Behavior of Mg-Gd-Y(-Nd)-Zn Alloy <i>Dr. Zhiwei Du, Guobiao (Beijing) Testing & Certification Co., Ltd., China</i>
14:15-14:40	CMSE4944	In-situ Al-AlN Metal Matrix Composites Fabricated Industrially at A Large Scale <i>Dr. Martin Balog, Institute of Materials and Machine Mechanics, Slovak Academy of Sciences, The Slovak Republic</i>
14:40-15:05	CMSE5008	Recovery of Metal Fatigue Damage by Electropulse Technology <i>Prof. Isaac Chang, Brunel Centre for Advanced Solidification (BCAST), Brunel University London, UK</i>
15:05-15:20	CMSE4907	Crystallization Temperature Dependence of Hardness and Energy Storage Properties in Phosphotitanate-Based Glass-Ceramics <i>Mr. Chao Chen, School of Integrated Circuit Science and Engineering, University of Electronic Science and Technology of China, China</i>

15:20-15:35	CMSE4974 Online	Bulk Refractory High Entropy Alloys from the Cr-Hf-Mo-Ta-W System with Body Centered Cubic Structure <i>Dr. Tomasz Stasiak, Materials Research Lab, National Centre for Nuclear Research, Poland</i>
15:35-16:00	CMSE4995	Well-Defined Porous Biodegradable/Thermoresponsive Microspheres <i>Prof. Ildoo Chung, Department of Polymer Science & Engineering, Pusan National University, Republic of Korea</i>
16:00-16:25	CMSE4979	Photo Curable Alkyl Vinyl Imidazolium Ionic Liquids as Monomers for Fuel-Binders in Propellant Compositions <i>Assoc. Prof. Yoav Eichen, Faculty of Chemistry, Technion - Israel Institute of Technology, Israel</i>
16:25-16:40	Coffee Break	
16:40-16:55	CMSE4921	Flocculation Performance and the Action Mechanism of Poly(hexamethylene Biguanide) in the Presence of Inorganic Salts <i>Dr. Wenyi Wang, Department of Applied Biology and Chemical Technology, Hong Kong Polytechnic University, China</i>
16:55-17:20	CMSE4997	Current Status of Polymers for High Temperature Resistant Drilling Fluids <i>Prof. Xianbin Huang, School of Petroleum Engineering, China University of Petroleum (East China), China</i>
17:20-17:35	CMSE5014	Removal of Volatile Organic Compounds and Odorous Compounds for Multilayer Packaging Recyclates Using Heated Air Purging <i>Ms. Pragti Saini, Department of Paper Technology, IIT Roorkee, India</i>
17:35-17:50	CMSE5007	Biodegradation Evaluation of 3D Printed PLA Scaffolds with Magnesium Incorporation for Biomedical Applications <i>Dr. Fawad Ali, Department of Sustainable Energy, Hamad Bin Khalifa University, Qatar</i>
17:50-18:15	CMSE4821 Online	Phase Transformations and Crystallographic Analysis of Shape Reversibility in Shape Memory Alloys <i>Prof. Osman Adiguzel, Department of Physics, Firat University, Elazig, Turkey</i>
18:15-18:30	CMSE5004 Online	Spatiotemporal Changes in Collagen Fibers and Bioapatite Nanocrystals in Native Bone <i>Dr. Andrey Pavlychev, Solid State Electronics Department, Saint. Petersburg State University, Russian Federation</i>
18:30-18:45	CMSE4969 Online	Machine Learning Approach for Investigation of Oxidation Behaviors in Metallic Alloys: A Survey and A Case Study <i>Dr. Hamid Abdoli, Renewable Energy Department, Niroo Research Institute (NRI), Iran</i>

Part IV Poster Session

Poster Presentation 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 Presentation Selection Procedure

Selection Criteria:

- Research Quality
- Presentation Skill
- Design

Selection Procedure:

- 10 volunteers will be invited from the participants 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 of high quality or well designed and well presented, please be noticed that the judge cannot give 2 red or 2 green stickers to the same poster (one red and one green sticker are acceptable)
- After the poster session, the conference secretary will count the points from each poster and TWO best poster presentation with more points will be selected. If there is a tie, the one with more red (Research Quality) stickers wins.

Samples of Stickers



Nature of the Award

- This award consists of free registration to the CMSE 2024 and a certificate
- **TWO Best Poster Presenters** will be selected after session finishes with certificate issued and results announced on CMSE2023 website.

List of Posters

Time: 11:40-12:40, October 28, 2023. China Standard Time (GMT+8)

Location: Conference Room II, 2F

CMSE4817	Microstructure Evolution Mechanism of AISI 1045 Steel Under High Speed Deformation <i>Dr. Lingen Luo, Resource Application and Alloy Materials Division, China Iron and Steel Research Institute Group, China</i>
CMSE4823	Low Temperature Welding Test and Numerical Simulation of Metallurgical Phase Transformation of Q460GJC Thick Plate <i>Dr. Changchun Pan, Inspection and Certification Co., Ltd, MCC, China</i>
CMSE4840	Understanding the Influence of Fibre Meander on the Tensile Properties of Advanced Composite Laminates <i>Mr. Gaoyang Meng, James Watt School of Engineering, University of Glasgow, UK</i>
CMSE4845	The Formation Mechanism of the Chill Fine-Grain Layer with High Supersaturation and its Influence on the Mechanical Properties of Die Casting Al-7Si-0.5Mg Alloy <i>Mr. Guodong Niu, College of Materials Science and Engineering, Sichuan University, China</i>
CMSE4846	Exploring Magnetic Polylactic Acid Composites Using Combined Sol-Gel and Co-Blending Methods for Developing 3D Printing Filament <i>Mr. Haoran Ding, Southern University of Science and Technology, China</i>
CMSE4849	Welding Characteristics of Dissimilar Welding of SM45C and STS304 using Nd:YAG Laser <i>Prof. Jin-Woo Kim, Department of Mechanical Engineering, Chosun University, Gwangju, Republic of Korea</i>
CMSE4854	Tensile Behavior of Martensite + Ferrite Micro-Layered 15CrMo Steel Plates <i>Dr. Xin Zhao, School of Materials Science and Engineering, Zhengzhou University of Aeronautics, China</i>
CMSE4874	Structure and Ionic Conductivity of Ga and Nb Dual Doped Li₇La₃Zr₂O₁₂ Synthesized by Sol-Gel Method <i>Dr. Jun Li, School of Aviation and Transportation, Jiangsu College of Engineering and Technology, China</i>
CMSE4887	Tensile and Creep Properties of Novel Powder Metallurgy Ni-based Superalloy <i>Dr. Xinyu Li, School of Materials Science and Engineering, Northeastern University, Shenyang, China</i>
CMSE4891	Experimental Investigation and Theoretical Prediction of Forming Limit Diagram of DP600 Steel Sheets <i>Dr. Qiuli Zheng, Norinco Group' Air Ammunition Research Institute Co., Ltd, China</i>

CMSE4908	<p>Fabrication Process and Variation Rule of Electrical Properties of CrSi Thin Film Resistors</p> <p><i>Ms. Jiajia Zhu, Technology Development Department, CSMC Technologies Corporation, China</i></p>
CMSE4911	<p>Fabrication of Li₂WO₄ Microwave Dielectric Ceramics Assisted by Cold Sintering</p> <p><i>Dr. Hua Wang, State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, China</i></p>
CMSE4918	<p>Effect of Rare Earth Oxides on the Energy Storage Performance of Sr_{0.7}Bi_{0.2}TiO₃ Ceramics</p> <p><i>Ms. Jingjing Chen, National Engineering Research Center of Electromagnetic Radiation Control Materials, University of Electronic Science and Technology of China, China</i></p>
CMSE4939	<p>Fluorescent Contactless Method for Temperature Determination of YAl₃(BO₃)₄ Crystals Doped with Yb³⁺ Ions</p> <p><i>PhD Dmitrii Shcherbinin, IR&EC PhysNano, ITMO University, Russia</i></p>
CMSE4940	<p>Hoeffding's Independence Test for An Ion Dynamics Characterization in the Octupole Trap</p> <p><i>PhD Semyon Rudyi, IR&EC PhysNano, ITMO University, Russia</i></p>
CMSE4949	<p>The Microstructure of <i>in-situ</i> Al-AlN Metal Matrix Composites</p> <p><i>Mr. Peter Krizik, Institute of Materials and Machine Mechanics, Slovak Academy of Sciences, The Slovak Republic</i></p>
CMSE4967	<p>Hot Corrosion Products and Microstructural Evolution of the Air-Plasma-Sprayed LaYbZr₂O₇ Thermal Barrier Coatings at 1000 °C</p> <p><i>Dr. Kai Yan, College of Mechanical and Transportation Engineering, China University of Petroleum, China</i></p>
CMSE4977	<p>One-Pot Catalyst-Switching Synthesis of Thermoresponsive Amphiphilic Diblock Copolymers Consisting of Poly(N,N-diethylacrylamide) and Biodegradable Polyesters</p> <p><i>PhD Xiangming Fu, Changchun University of Science and Technology, China</i></p>
CMSE4987	<p>The Mechanical Properties of (NbMoTaW)Si₂ from a First-Principles Calculations</p> <p><i>Ms. Huang-Hui Jiang, School of Chemistry and Chemical Engineering, Guangxi University, China</i></p>
CMSE4990	<p>Research Progress of PDA-Coated Porous Titanium Alloy Scaffold Loaded with ZOL-GNPs in Promoting Osteoporotic Bone Defect Restoration by Regulating the Bone Microenvironments</p> <p><i>Ms. Meng-YanJing Huang, Guangxi Medical University, China</i></p>
CMSE4998	<p>Microstructure, Compressive Properties and Oxidation Behaviors of the Nb-Si-Ti-Cr-Al-Ta-Hf Alloy with Minor Holmium Addition</p> <p><i>Dr. Qiaoli Wang, Shenzhen Institute, Peking University, China</i></p>

CMSE5009 **Comparative Study of Reciprocating Sliding Wear of HNBR on the Effects of Temperature**
Mr. Zhangyu Qiao, College of Mechanical and Transportation Engineering, China University of Petroleum (Beijing), China

CMSE5015 **Electrospinning Fabrication of Chitosan/PMMA Nanofiber Membranes for Heavy Metal Adsorption**
Ms. Mengyun Yu, School of Chemical and Environmental Engineering, Anhui Polytechnic University, China

Part V Conference Venue

Venue: Dayhello International Hotel Shenzhen

深圳登喜路国际大酒店

Website: http://www.dayhellohotel.com/en_index.asp

Address: 12 Baotian Road 1, Bao'an District, Shenzhen (广东省深圳市宝安区宝田一路12号)

Telephone: +86-755-23008888

Access to Dayhello International Hotel Shenzhen:

1. Shenzhen Bao'an International Airport - Dayhello International Hotel Shenzhen (About 11KM)

(1) By taxi: About 26 minutes' drive. Taxi fare about CNY 40.

(2) By Metro

Take Line 11, starting from Airport Station(机场站) towards Bitou(往碧头方向), get off at the 2nd stop Fuyong (福永站); transfer to Line 12, starting from Fuyong (福永站) towards Zuopaotaidong (往左炮台东方向), get off at the 9th stop Baotianyilu(宝田一路站), get out from exit C, walk 150 meters to the hotel.

2. Shenzhen Bei Railway Station - Dayhello International Hotel Shenzhen (About 25KM)

By Metro (about 45 minutes)

Take Line 5, start from Shenzhen Bei(深圳北站), get off at the 8th stop Lingzhi (灵芝站), transfer to Line 12 towards Haishangtianyundang(往海上田园东方向), get off at the 4th stop Baotianyilu(宝田一路站), get out from exit C, walk 150 meters to the hotel.

3. Shenzhen Railway Station - Dayhello International Hotel Shenzhen (About 35KM)

By Metro (about 1 hour and 20 minutes)

Take Line 1, start from Luohu(罗湖站), get off at the 18th stop Taoyuan(桃园站), transfer to Line 12 towards Haishangtianyundang(往海上田园东方向), get off at the 9th stop Baotianyilu(宝田一路站), get out from exit C, walk 150 meters to the hotel.

4. Shenzhen Dong Railway Station - Dayhello International Hotel Shenzhen (About 36KM)

By Metro (about 1 hour)

Take Line 5, start from Buji (布吉站), get off at the 16th stop Lingzhi (灵芝站), transfer to Line 12 towards Haishangtianyundang(往海上田园东方向), get off at the 4th stop Baotianyilu(宝田一路站), get out from exit C, walk 150 meters to the hotel.

Part VI Acknowledgements

On behalf of the CMSE2023 Organizing Committee, we would like to take this opportunity to express our sincere gratitude to our participants. Without their support and contributions, we would not be able to hold the conference successfully. We would also like to express our acknowledgements to the Technical Program Committee members who have given their professional guidance and valuable advice as reviewers. For those who contribute to the success of the conference organization without listing the name here, we would love to say thanks as well.

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