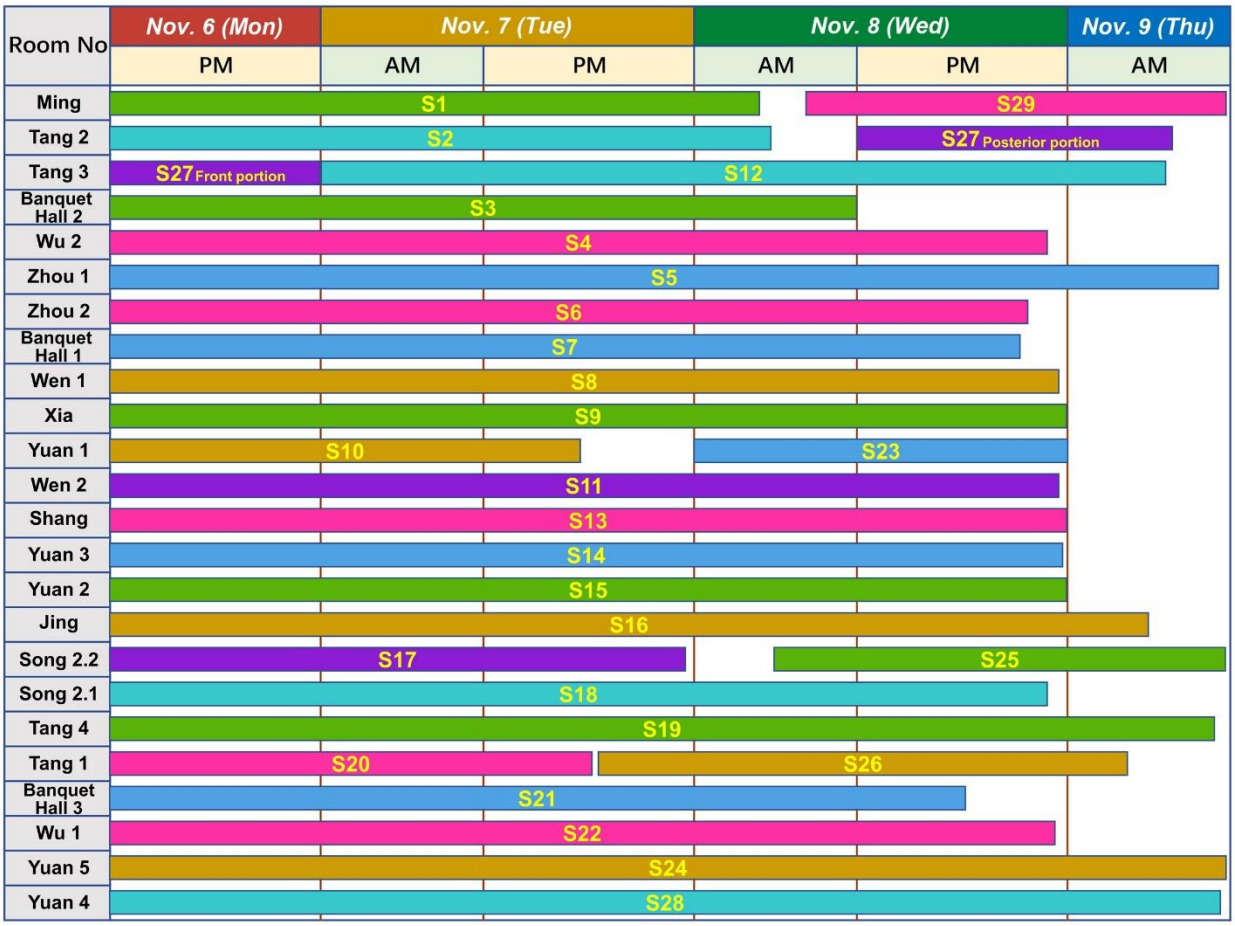
Program at a Glance

	Nov. 5 (Sun)	Nov. 6 (Mon)	Nov. 7 (Tue)	Nov. 8 (Wed)	Nov. 9 (Thu)
AM	On-site Registration 08:30-18:00 West Lobby (1F)	Opening Ceremony & Plenary Session 08:30-12:15 Banquet Hall (6F)	Technical Sessions & Poster session & Exhibition	Technical Sessions & Exhibition	Technical Sessions & Exhibition
		Lunch – Packed Meal (12:00-13:30)			
PM		Technical Sessions & Poster session & Exhibition	Technical Sessions & Poster session & Exhibition	Technical Sessions & Exhibition	
	Welcome Reception 18:00-20:00 Banquet Hall (6F)			Conference Banquet & Award Ceremony 18:00-20:00 Banquet Hall (6F)	

Final Technical Sessions Gantt Chart



Opening Ceremony

(Location: Banquet Hall)

Chair: Yu Zhou, *Harbin Institute of Technology*

08:30–09:00 Welcome and opening remarks

1. Prof. **Ruiping Gao**, President of *the Chinese Ceramic Society and Co-Chair of this conference*
2. Prof. **Paolo Colombo**, President of *the International Ceramic Federation, University of Padova, Italy*
3. Prof. **Yudong Huang**, President of *Harbin Institute of Technology, Shenzhen*
4. Speech by the Head of *Futian District, Shenzhen*
5. Speech by the Deputy Mayor of *Shenzhen City*

Plenary Session

Session Chair: Yanchun Zhou, *Zhengzhou University*
Jing-Feng Li, *Tsinghua University*

09:00–09:35

Rajendra K. Bordia, *Clemson University*, USA

Academician of the World Academy of Ceramics

Title: **Analysis and Simulation Guided Processing and Properties of Anisotropic Hierarchical Porous Ceramics for Energy Conversion and Storage**

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Short Bio:

Bordia is the George J. Bishop, III Professor of Materials Science and Engineering at Clemson University in Clemson, SC, USA. He is also the Scientific Director of Materials Assembly and Design Excellence in South Carolina (MADE in SC) – an NSF funded EPSCoR Track I Research Infrastructure Improvement Award. From 2013 to February 2019, he was the Chair of his Department. He was a faculty member at the University of Washington (1991-2013) and a Research Scientist in DuPont Co. (1986 to 1991). He received his B. Tech from IIT, Kanpur, India (1979), and his M.S. (1981) and Ph.D. (1986) from Cornell University, Ithaca, NY, USA.

His research is at the intersection of materials and mechanics and is focused on fundamental and applied studies in the processing and properties of complex material systems. The current focus is on ceramics with designed microstructures for energy conversion and storage technologies with low negative environmental impact; for clean air and water; and for medical applications. He has authored or co-authored over 170 peer-reviewed technical publications.

He was elected Fellow of the American Ceramic Society (2002); Fellow of the Indian Institute of Metals (2010); Academician in the World Academy of Ceramics (2012); and Fellow of the International Society for Energy, Environment and Sustainability (2020). Other significant awards include: Humboldt Research award from the Alexander von Humboldt Foundation, Germany (2007); and the Outstanding Educator Award of the American Ceramic Society (2012). He is an Associate Editor of the Journal of the American Ceramic Society (1988-Present); and Editor-in-Chief of Ceramics International (2009 – Present). He has been elected to serve as the President of the American Ceramic Society during the 2023-2024 year.

Abstract:

Our current research is focused on developing processing strategies to control the microstructure of ceramics at different length scales. One of the focal areas porous ceramics produced by controlled sintering of powder compacts. Many of the applications of porous ceramics demand optimization of a multitude of properties some of which have conflicting requirements on the microstructure. Materials with designed anisotropic and/or hierarchical microstructures have the potential to optimally address the requirements.

We will first present a broad overview of the use of porous ceramics in advanced energy conversion and storage applications including the property requirements. Next, we will present results from our collaborative projects focused on microstructural control in hierarchical and/or anisotropic porous ceramics. Porous ceramics are used in a broad range of technologies of interest to energy conversion and storage including electrochemical applications like electrodes for solid oxide fuel cells, high temperature insulators, thermal energy storage and electrochemical energy storage. In these applications, a multitude of properties are of interest. For specific applications, a subset of mechanical, thermal, electrical and ionic conductivity, gas diffusion and chemical reactivity need to be optimized. In this presentation, results will be presented on the processing approaches to make these designed microstructures, the quantification of the 3D microstructure at different length scales and simulations to design optimal microstructures for specific applications including electrodes for solid oxide fuel cells and electrolysis cells, and Li-ion batteries.
The research is supported by the US National Science Foundation.

09:35–10:10

Hideo Hosono, *Tokyo Institute of Technology*, Japan

Distinguished Fellow, National Institute for Materials Science
Academician of the World Academy of Ceramics

Title: **Hidden Potential of Abundant Materials: Frontier Opened from Transparent Oxide Research**

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Short Bio:
Hideo Hosono is an honorary and institute professor of Tokyo Institute of Technology and a distinguished fellow and a group leader at National Institute for Materials Science. He received a Ph.D. (thesis: electron spin resonance in oxide glasses) in Applied Chemistry from Tokyo Metropolitan University in 1982, and became a professor of Tokyo Tech in 1999 via Nagoya Tech, Institute for Molecular Science and Vanderbilt University. He studied point defects in SiO_2 glass and worked on creation of photosensitive glasses utilizing point defects, photonic glasses by ion implantation, protonic conductive glasses and micro-porous glass-ceramics with phosphate skeleton. After these researches, he shifted his main subject to cultivation of electro-active functionality in transparent oxides since 1993. His research focus is creation of novel functional materials based on own design concept. The representative achievements so far are material design of transparent oxide semiconductors such as IGZO and their TFT applications for the state-of the art displays (OLED-TVs are driven by IGZO-TFTs), creation of stable electrides and their application to catalysts for ammonia synthesis, and discovery of high-Tc iron-based superconductors which led to the 2nd research fever since high-Tc cuprates. Hosono is a recipient of various honors including the Japan Prize, von Hippel Prize (MRS), J. McGroddy Prize (APS), Jan Raychman Prize (SID), Eduard Rhein Award, Imperial Prize (the Japan Academy), and is a Thomson Reuter Citation Laureate and a foreign fellow of the Royal Society.

Abstract:
Materials science is a cross-disciplinary subject bridging physics and chemistry, and fundamental science and application engineering. This unique feature provides a variety of opportunities for social implementation of novel materials created in academia. The most fascinating thing in materials research is huge impact on our society if research is successful and meets with demands.
We have studied electronic functionality in wide gap oxide-based materials, which is a main ingredient of ceramics, over 20 years aiming at cultivation of new frontier in which fundamentals and applications. In this talk I introduce three excitements in my materials research, i.e. (1) from basic idea of transparent amorphous oxide semiconductors as a novel class of amorphous semiconductors to their TFT application (IGZO) in flat panel displays (high resolution & energy saving LCDs and large-sized OLED-TVs[1], (2) from creation of stable electride, a material in which electrons serve anions, to catalyst green ammonia synthesis[2], and (3) from discovery of iron-based superconductors to finding of excellent grain boundary

nature advantageous for wire and bulk magnet fabrication[3].

[1] H. Hosono and H. Kumomi, “Amorphous Oxide Semiconductors: IGZO and Related Materials for Display and Memory” Wiley (2022).
[2] H. Hosono and M. Kitano, Advances in materials and applications of inorganic electrides. Chemical Reviews 121, 3121-3185(2021).
[3] H. Hosono, A. Yamamoto, H. Hiramatsu, Y. Ma, Recent advances in iron-based superconductors toward applications. Materials today, 21, 278-302(2018).

10:10–10:30 **Break**

Session Chair: **Wei Pan**, *Tsinghua University*
Hua-Tay Lin, *Guangdong University of Technology*
Dechang Jia, *Harbin Institute of Technology*

10:30–11:05

Shaoming Dong, *Shanghai Institute of Ceramics*, China
Academician of Chinese Academy of Engineering
Academician of the World Academy of Ceramics

Title: **Design and Construction of Carbon Fiber Reinforced Ultra-high Temperature Ceramic Matrix Composites**

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Homepage: https://sourcedb.sic.cas.cn/yw/rck/cas/202009/t20200907_5687276.html

Short Bio:

Shaoming Dong is a Principal Investigator, a supervisor of doctoral students and a director of academic degrees Committee at Shanghai Institute of Ceramics, Chinese Academy of Sciences. He is also an academician of Chinese Academy of Engineering, an academician of World Academy of Ceramics, a chairman of the Space Material Specialized Committee in the Space Science Committee, an executive council member of Shanghai society for composite materials.

Dong has been conducting works on fiber reinforced ceramic matrix composites (CMC) and carbide ceramics. He has intensively studied the sintering, microstructure, mechanical property, and toughening mechanism of carbide ceramics. He has proposed new design concepts for CMCs. He has developed the forming and densification techniques for large size SiC and CMC parts of complex shapes, and devoted to engineering applications of these materials. He has more than 220 papers published in peer-reviewed journals and holds 57 patents.

Dong has received many important awards and honors, including 1) 3 times of the Second prize of national technological invention, 2) 4 prizes from ministry and province, 3) Global Star Award from the Engineering Ceramics Division of the American Ceramic Society, 4) Shanghai Science and Technology Leading Talent Award, etc.

Abstract:

Continuous fiber reinforced ceramic matrix composites (CMCs) possess excellent physical and chemical properties, such as high specific strength, oxidation/ablation resistance and strong designability, so they have attracted great attention in aerospace, energy, transportation and other high-tech fields. Especially in some extreme service environments, it has become a research hotspot in the field of structural materials. Combined with the fundamental theoretical knowledge and development context of ceramic matrix composites, this report first introduces the featured research work of Shanghai Institute of Ceramics in the field of ceramic matrix composites. Emphasis is put on the design and construction of carbon fiber reinforced ultra-high temperature ceramic matrix composites (UHTCMCs). In addition, this report also points out the challenges and development direction of ceramic matrix composites according to the application trends of CMCs.

11:05–11:40

Hui-Suk Yun, *Korea Institute of Materials Science (KIMS)*, Korea

Head of Advanced Biomaterials Research Department

Title: **Novel Multi-material Additive Manufacturing Technologies for Biomedical Applications**

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Short Bio:

Hui-suk Yun is the head of the Department of Advanced Biomaterials Research at the Korea Institute of Materials Science (KIMS) and a professor at the University of Science & Technology (UST) in the Department of Materials Science. Furthermore, she is an advisory committee member for the Ministry of Science and ICT, Korea and a medical devices committee member for the Ministry of Food and Drug Safety, Korea. She was also working for the Korea government as a deliberative council member on the Presidential Advisory Council of Science and Technology.

Yun holds a Ph.D. in Materials Science Engineering from the University of Tokyo, Japan. She completed her post-doctoral research at the National Institute of Advanced Industrial Science and Technology (AIST, Japan) and then began working as a lecturer at the Consolidated Research Institute for Advanced Science and Medical Care at Waseda University, Japan. Her research interests include bioceramics in tissue engineering, porous materials, and technologies for ceramic additive manufacturing, including materials, processes, and systems.

Yun has 38 domestic patents, 8 international patents, and has published over 73 SCI papers. She has also written 7 technology transfer contracts relating to ceramic additive manufacturing. Evidently, she is an accomplished academic who has received many honors, such as the 2023 plenary award from Engineering Ceramic Division of American Ceramic Society, the best performance award of running royalty from the Korean Intellectual Property Office, in 2021, the 2021 Global Ambassador Award and 2020 ECD Jubilee Global Diversity Award from the American Ceramic Society, the 100 Most Distinguished Researchers Achievement from the Ministry of Science and ICT, and the World's Top Technology Prize from the Korea Institute of Materials Science.

Abstract:

Additive manufacturing (AM), so called 3D printing, is a fabrication process that used digital information from a computer aided design file to stack 2D layers of various materials to produce a 3D object, without requiring any part-specific tooling. AM technology especially offers significant advantages in the medical industry as it permits the on-demand manufacture of low-volume or one-of-a-kind parts based on patient-specific need. Multi-material AM technologies are moreover fascinating in the tissue engineering fields because tissues or organs play multi-function and are composed of multi-component. Our group recently has developed original material extrusion based AM process for simultaneous manufacturing of hydrogel based cells and bioceramics for bone tissue regeneration. This novel process is carried out in gel bath condition, where we could fabricate the self-standing 3D ceramic structure without any supporting structure. Our group also have developed novel stereolithography based AM process for using multi-ceramic materials. We could mimic both structure and functions of bone by co-printing of calcium phosphate and bioactive glass. We furthermore could simultaneously imitate both shape and colors of tooth by manufacturing functionally graded materials structure using two types of feldspathic porcelain for applying aesthetic and restorative dentistry. We believe that these new technologies may expand application markets of AM technologies in various ceramic industries.

11:40–12:15

Steven J. Zinkle, *University of Tennessee*, USA

Member of National Academy of Engineering

Title: **High Performance Ceramic Materials for the Extreme Environments of Fission and Fusion Energy Systems**

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Short Bio:

Steve Zinkle is the Governor's Chair Professor for Nuclear Materials at the University of Tennessee, Knoxville, with a joint appointment at Oak Ridge National Laboratory (ORNL). He previously served in various management and technical R&D roles at ORNL including Chief Scientist of the Nuclear Science and Engineering Directorate, director of the Materials Science and Technology Division, and ORNL Corporate Fellow. His research interests include deformation and fracture mechanisms in structural materials, accelerated design and maturation of high-performance structural materials, advanced manufacturing, and radiation effects in ceramics, fuel systems, and metallic alloys for fission and fusion energy systems. His research encompasses basic and applied materials science and engineering investigations under a wide range of extreme operating conditions (e.g., high temperatures, applied stresses, and radiation environments), with a particular emphasis on using transmission electron microscopy and other advanced microstructural characterization techniques to elucidate the linkage between microstructure and properties/performance in materials. He received his PhD in Nuclear Engineering and an MS in Materials Science from the University of Wisconsin-Madison in 1985. He has written over 350 peer-reviewed publications, and is a fellow of the American Nuclear Society (ANS), The Minerals, Metals and Materials Society (TMS), Materials Research Society, American Physical Society, ASM International, American Ceramic Society (ACerS), and AAAS. He received the 2022 ANS Seaborg medal for outstanding scientific or engineering research achievements associated with the development of peaceful uses of nuclear science; other awards include the 2018 ASM International Gold Medal, the 2017 TMS Robert Franklin Mehl award, the 2017 ACerS Edward Orton, Jr. Memorial Lecture, and the 2006 U.S. Department of Energy (DOE) Ernest Orlando Lawrence Memorial Award. He has served on a variety of national and international committees including the National Academies National Materials and Manufacturing Board (2015-2020) and the DOE Fusion Energy Sciences Advisory Committee (2009-2015), and is currently on the National Academies Condensed Matter and Materials Research Committee. He is a member of the National Academy of Engineering.

Abstract:

Access to a variety of economic and environmentally sustainable energy sources is important for international energy security. Nuclear (fission) power currently provides ~12% of the world's electricity, and a variety of fission and fusion energy concepts are under consideration for meeting growing future energy needs. There is also growing interest in nuclear power to enable future science missions involving space exploration and other demanding applications. These next generation nuclear energy systems will require development of advanced high-performance materials due to the extreme operating environment that typically includes high temperatures, high neutron displacement damage levels and (for fusion first wall materials) intense particle bombardment operation. Key materials science challenges and research needs associated with reliable operation in these extreme operating environments will be summarized, with particular emphasis on ceramic materials. The potential roles of high-performance ceramic materials to meet these challenging operational environments will be discussed. These include MAX-phase ceramics, Ultra-high temperature ceramics, Complex concentrated ceramics (CCCs, also known as high entropy ceramics or multiple principal element ceramics), and a variety of ceramic-matrix composites.

Symposium 1: Virtual Materials Design and Ceramic Genome
(Location: Ming)

Session Chair: Chao Wang, *Harbin Institute of Technology*

13:30 (S1-01) Recommender System for Discovery of Inorganic Crystals (Keynote)
Isao Tanaka[1, 2]
[1]*Dept. Mater. Sci. Eng., Kyoto University*
[2]*Nano Research Lab., JFCC*

14:00 (S1-02) Topological Ordering of Memory Glass in Extended Length Scales (Invited)
Sheng-Cai Zhu[1, *], Gu-Wen Chen[1], Dongzhou Zhang[2], Liang Xu[3], Zhi-Pan Liu[4], Ho-kwang Mao[5], Qingyang Hu[5]
[1]*School of Materials, Shenzhen Campus of Sun Yat-sen University*
[2]*Hawai'i Institute of Geophysics and Planetology, School of Ocean Earth Science and Technology*
[3]*National Key Laboratory of Shock Wave and Detonation Physics, Institute of Fluid Physics, China Academy of Engineering Physics*
[4]*Collaborative Innovation Center of Chemistry for Energy Material, Shanghai Key Laboratory of Molecular Catalysis and Innovative Materials, Key Laboratory of Computational Physical Science, Department of Chemistry, Fudan University*
[5]*Center for High Pressure Science and Technology Advanced Research (HPSTAR)*

14:25 (S1-03) Crystal Structure and Elasticity of Alumina-Rich Spinel (Invited)
Bingtian Tu[1, *], Ye Wu[2], Wei Xu[3], Hao Wang[1, *]
[1]*State Key Lab of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology*
[2]*School of Science, Wuhan University of Technology*
[3]*Chemistry Institute for Synthesis and Green Application, Ningbo University*

14:50 (S1-04) Ceramic Genome of Sintered SiC: Insight from μSHD (Invited)
Zhiheng Huang[1, *], Kaiwen Zheng[1], Dechang Jia[2], Hua-Tay Lin[3], Yuezhong Meng[1]
[1]*The Key Laboratory of Low-carbon Chemistry & Energy Conservation of Guangdong Province, and School of Materials Science and Engineering, Sun Yat-sen University*
[2]*Institute for Advanced Ceramics, and School of Materials Science and Engineering, Harbin Institute of Technology*
[3]*School of Electromechanical Engineering, Guangdong University of Technology*

15:15 (S1-05) Microstructure Control of (K, Na)NbO_3 Lead-Free Ceramics and Enhanced Electric-Field-Induced Strain via Rapid Sintering Method
Ran Chen[1], Juanjuan Xing[1, *], Faqiang Zhang[2], Hui Gu[1]
[1]*School of Materials Science and Engineering, Shanghai University*
[2]*Shanghai Institute of Ceramics*

15:35 Break

Session Chair: Bingtian Tu, *Wuhan University of Technology*

16:00 (S1-06) Machine Learning Design of High Entropy Ceramics (Keynote)
Shijun Zhao*, Jun Zhang; *City University of Hong Kong*

16:30 (S1-07) A Deep Learning Interatomic Potential Developed for Atomistic Simulation of Zirconia (Invited)
Chao Wang; *Harbin Institute of Technology*

16:55 (S1-08) Quantifying Configurational Entropy of High Entropy Ceramics Enabled by Machine-Learned Cluster Expansion Method (Invited)
Yanhui Zhang; *School of materials science and engineering, Yanshan University*

17:20 (S1-09) The Effect of Impurities on the Structural Transitions in MgO Grain Boundaries
Qian Chen[1], Mitsuhiro Saito[2], Kazuaki Kawahara[2], Kazutoshi Inoue[1], Atsutomo Nakamura[3], Yuichi Ikuhara[1, 2, *]
[1]*Advanced Institute for Materials Research, Tohoku University*
[2]*Institute of Engineering Innovation, The University of Tokyo*
[3]*Graduate school of Engineering Science, Osaka University*

Symposium 2: Advanced Characterization, Testing, and Analysis of Materials
(Location: Tang 2)

Session Chair: Yunseok Kim, *Sungkyunkwan University*

13:30 (S2-01) Grain Boundary Atomic Structures and their Dynamics in Ceramics (Keynote)
Yuichi Ikuhara[1, 2, 3]
[1]*Institute of Engineering Innovation, The University of Tokyo*

[2]WPI, Advanced Institute for Materials Research, Tohoku University
[3]Nanostructures Research Laboratory, Japan Fine Ceramic Center

14:00 (S2-02) Tuning the Microstructure of Halide Perovskites for Better Performance and Stability (Keynote)
Fang Zeng[1, 2], Tiebin Yang[1], Weiyu Kong[2], Yuhang Liang[1], Yuze Lvtao[1], Feng Li[1], Tao Wang[2], Binguo Peng[2], Xudong Yang[2], Rongkun Zheng[1, *]
[1]School of Physics, The University of Sydney
[2]School of Materials Science and Engineering, Shanghai Jiao Tong University

14:30 (S2-03) In-situ Stressing and Biasing Transmission Electron Microscopy of Ferroelectrics (Keynote)
Xiaozhou Liao[1, *], Zibin Chen[1, 2], Qianwei Huang[1], Ying Liu[1]
[1]School of Aerospace, Mechanical and Mechatronic Engineering, University of Sydney
[2]Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University

15:00 (S2-04) Direct Observation of Cation Diffusion using In Situ Scanning Transmission Electron Microscopy (Invited)
Xiahan Sang; *Wuhan University of Technology*

15:25 (S2-05) Combinatorial Material Chip Synthesis and High Throughput Screening on $Ta_xHf_{1-x}C$ Ternary Ceramics: Exploration of Chemical Composition with Optimized Hardness and Oxidation Resistance
Xirui Lv, Yiming Lei, Jie Zhang*, Jingyang Wang
Advanced Ceramics and Composites Division, Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

15:45 Break

Session Chair: Yuichi Ikuhara, *Japan Fine Ceramic Center*

16:00 (S2-06) Highly Enhanced Ferroelectricity in HfO_2-based Ferroelectrics via Defect Engineering (Keynote)
Yunseok Kim; *School of Advanced Materials Science and Engineering, Sungkyunkwan University (SKKU)*

16:30 (S2-07) Correlation Between Local Subtle Structure Fluctuation and Properties in Functional Materials (Invited)
Qiang Zheng; *National Center for Nanoscience and Technology*

16:55 (S2-08) Spin Polarization-assisted Dopant Segregation at a Coherent Phase Boundary
Yixiao Jiang[1, 2], Hongping Li[3, 4], Tingting Yao[1, 2], Yujia Wang[1], Deqiang Yin[3], Chunlin Chen[1, 2, 3, *], Xiuliang Ma[1, 5, *], Hengqiang Ye[2], Yuichi Ikuhara[3, 6, 7]
[1]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences
[2]Jihua Lab
[3]Advanced Institute for Materials Research, Tohoku University
[4]Institute for Advanced Materials, School of Materials Science and Engineering, Jiangsu University
[5]State Key Lab of Advanced Processing and Recycling on Non-ferrous Metals, Lanzhou University of Technology
[6]Institute of Engineering Innovation, The University of Tokyo
[7]Nanostructures Research Laboratory, Japan Fine Ceramics Center

17:15 (S2-09) High Temperature X-ray Diffraction Study on Incommensurate Composite Crystal $(Mn,Fe,V)Si_\gamma$
Toshiaki Chiba*, Kei Hayashi, Yuzuru Miyazaki
Department of Applied Physics, Graduate School of Engineering, Tohoku University

17:35 (S2-10) Atomic-level Structural Fluctuation and Controllable Magnetism in High-entropy Oxides
Ning Guo, Hanbin Gao, Yue Gong, Dongwei Wang, Qiang Zheng*
National Centre for Nanoscience and Technology

Symposium 3: Advanced Powder Processing and Green Manufacturing Technologies
(Location: Banquet Hall 2)

Session Chair: Jingxian Zhang, *Shanghai Institute of Ceramics, Chinese Academy of Sciences*

13:30 (S3-01) Dense Silicon Carbide Ceramics for Ultra-high Temperature Applications (Keynote)
Pavol Šajgalík[1, *], Ondrej Hanzel[1], Michal Hičák[1], Alexandra Kovalčíková[1], Chengyu Zhang[2], Alexander Mukasyan[3], Young-Wook Kim[4]
[1]Slovak Academy of Sciences
[2]North Western Polytechnic University
[3]University of Notre Dame
[4]University of Seoul

14:00 (S3-02) In-situ Investigation on Crack-initiation and Deformation of Alumina Green Bodies during Dewaxing Process by Combined OCT-TG-FTIR and TMA (Keynote)

Junichi Tatami[1, *], Mariko Minami[1], Motoyuki Iijima[1], Takuma Takahashi[2], Tatsuki Ohji[3]
[1]*Yokohama National University*
[2]*Kanagawa Institute of Industrial Science and Technology*
[3]*National Institute of Advanced Industrial Science and Technology (AIST)*

14:30 (S3-03) Development of Silicon-based Non-oxide Ceramics with High Thermal Conductivity (Invited)

Yinsheng Li[1, 2, *], Ha-Neul Kim[2], Binwei Huang[1], Hai-Doo Kim[2], Qing Huang[1]
[1]*Engineering Laboratory of Advanced Energy Materials, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences*
[2]*Engineering Ceramics Research Group, Korea Institute of Materials Science*

14:55 (S3-04) Laser 3D Printing and Properties of SiC Ceramics (Invited)

Jie Yin*, Xuejian Liu, Zhengren Huang
Shanghai Institute of Ceramics, Chinese Academy of Sciences

15:20 (S3-05) The Efficiency and Spectral Optimization for GAGG: Cr^{3+} NIR Ceramic Phosphors (Invited)

Zhaohua Luo; *Ningbo Institute of Materials Technology and Engineering, CAS*

15:45 Break

Session Chair: Wai-Yeung Wong, *The Hong Kong Polytechnic University*
Jiangong Li, *Lanzhou University*

16:00 (S3-06) Metallated Graphynes: Synthesis, Characterization and Application Studies (Keynote)

Wai-Yeung Wong
Department of Applied Biology and Chemical Technology and Research Institute for Smart Energy, The Hong Kong Polytechnic University

16:30 (S3-07) Rapid Fabrication of Ceramic Molds with Integral Core/shell Structures for the Investment Casting of Advanced Turbine Blades (Invited)

Kai Miao; *State Key Laboratory for Manufacturing Systems Engineering, Xi'an Jiaotong University*

16:55 (S3-08) Wet Chemical Preparation of 2D Sheets-oxides Powders for the Deformation-sensing Ceramic Composites (Invited)

Wentao Xu[1, 2, 3], Youfu Zhou[1, 2, 3, *], Tianwen Dong[1], Jiawen Wu[1], Ming Jin[1]
[1]*Key Laboratory of Optoelectronic Materials Chemistry and Physics, Fujian Institute of Research on the Structure of Mater, Chinese Academy of Sciences*
[2]*State Key Laboratory of Structure Chemistry, Fujian Institute of Research on the Structure of Mater, Chinese Academy of Sciences*
[3]*Fujian Science & Technology Innovation Laboratory for Optoelectronic Information of China*

17:20 (S3-09) The Role of Carbon in the Synthesis of AlN Powder by Carbothermal Reduction and Nitridation Technique

Sang-Min Lee, Dang-Hyok Yoon*
School of Materials Science and Engineering, Yeungnam University

17:40 (S3-10) Surface Passivation of Alumina Powder to Improve the Aqueous Slurry Rheology and Sintering Properties

Eun chae You, Dang-Hyok Yoon*; *School of Materials Science and Engineering, Yeungnam University*

Symposium 4: Novel and Strategic Processing and Manufacturing Technologies for Ceramics (Location: Wu 2)

Session Chair: Guanghua Liu, *Tsinghua University*

13:30 (S4-01) Multifunctional Materials for Emerging Technologies (Keynote)

Federico Rosei
Centre for Energy, Materials and Telecommunications, Institut National de la Recherche Scientifique

14:00 (S4-02) Reactive Sintering of Diboride-carbide Composites with Enhanced Densification and Mechanical Properties (Invited)

Sijia Huo*, Yujin Wang*, Xinrui Liu, Lei Chen, Yu Zhou
School of Material Science and Engineering, Harbin Institute of Technology

14:25 (S4-03) High-Performance Colossal Permittivity for Textured (La+Nb) and (Al+Nb) Co-doped Rutile TiO_2 Ceramics Fabricated by Strong Magnetic Field Alignment (Invited)

Wen-Wen Wu*, Yue-Chan Song, Jin-Qiu Liu, Peng Liu
School of Physics and Information Technology, Shaanxi Normal University

14:50 (S4-04) Ablation Mechanism of C_f/SiBCN Composites and High-entropy Ceramics $(Hf_{0.2}Zr_{0.2}Ta_{0.2}Nb_{0.2}Ti_{0.2})C$ (Invited)

Qi Ding[1,*], Yuchi Fan[1], Na Ni[2], Dewei Ni[3], Shaoming Dong[3], Wan Jiang[1]
[1]*Institute of Functional Materials, Donghua University*
[2]*School of Material Science and Engineering, Shanghai Jiao Tong University*
[3]*Structural Ceramics and Composites Engineering Research Center, Shanghai Institute of Ceramics, CAS*

15:15 (S4-05) Crack Mitigation Strategies for Dense Freeze Casting of Near-Net Shape Ceramic Components (Invited)

Samuel Pinches[1], George V Franks[2,*]
[1]*Swinburne University of Technology*
[2]*The University of Melbourne*

15:40 Break

Session Chair: Sijia Huo, *Harbin Institute of Technology*

16:00 (S4-06) Direct Preparation of Dense Bulk Ceramics by Combustion Synthesis (Invited)

Guanghua Liu[1,*], Kexin Chen[1], Jiangtao Li[2]
[1]*School of Materials Science and Engineering, Tsinghua University*
[2]*Technical Institute of Physics and Chemistry, Chinese Academy of Sciences*

16:25 (S4-07) Advanced Sintering of UO_2 Composites based Fuel Pellets (Invited)

Chen Xu
Institute of Mateirals, China Academy of Engineering Physics

16:50 (S4-08) Polycrystalline 3YSZ Fabricated by Ultrafast High-temperature Sintering

Ryuhei Murakami[1,2,*], Bin Feng[1,2], Koji Matsui[1,2], Naoya Shibata[1,3], Yuichi Ikuhara[1,2,3,*]
[1]*Institute of Engineering Innovation, School of Engineering, The University of Tokyo*
[2]*Next Generation Zirconia Social Cooperation Program, Institute of Engineering Innovation, The University of Tokyo*
[3]*Nanostructure Research Laboratory, Japan Fine Ceramic Canter*

17:10 (S4-09) Investigation of Ultrafast High-Temperature Sintering (UHS)'s Densification Mechanism

Zonghao Guo, Richard I Todd*
University of Oxford

17:30 (S4-10) Aerosol Deposition - Novel Fields of Applications beyond Semiconductor Business

Daniel Stock*, Ilka Verena Luck*, Thomas Stoecker*
Heraeus High Performance Coatings

Symposium 5: Advanced Additive Manufacturing Technologies: Materials, Processes, and Systems

(Location: Zhou 1)

Session Chair: Le Hortense Ferrand, *Nanyang Technological University*

13:30 (S5-01) Additive Manufacturing of Ceramics from Liquid Feedstocks (Keynote)

Paolo Colombo[1,2]
[1]*Department of Industrial Engineering, University of Padova*
[2]*Department of Materials Science and Engineering, The Pennsylvania State University*

14:00 (S5-02) Biomineralized Structural Materials: Insights for Designing Structural and Functional Ceramic-based Materials (Keynote)

Ling Li
Department of Mechanical Engineering, Virginia Tech

14:30 (S5-03) 3D Printing of Close/Open-cell 3YSZ Ceramics for Thermal and Desalination Application (Invited)

Zehui Du[1,2,*], Terence Ho[2], Chee Lip Gan[1,2]
[1]*Temasek Laboratories, Nanyang Technological University*
[2]*School of Materials Science and Engineering, Nanyang Technological University*

14:55 (S5-04) 3D/4D Additive-subtractive Manufacturing of Ceramics (Invited)

Guo Liu*, Jian Lu

City University of Hong Kong

15:20 (S5-05) Photopolymerization-based Additive Manufacturing of SiC-based Ceramics (Invited)

Yong Yang*, Jie Tang, Zhengren Huang

Shanghai Institute of Ceramics, Chinese Academy of Sciences

15:45 Break

Session Chair: Ling Li, *Virginia Tech*

16:00 (S5-06) Design and Additive Manufacturing of Multi-functional Metamaterials (Keynote)

Huachen Cui

Smart Manufacturing Thrust, Hong Kong University of Science and Technology (Guangzhou)

16:30 (S5-07) 3D Printing of Ceramics with Locally Controlled Microstructure (Keynote)

Hortensen Le Ferrand

School of Mechanical and Aerospace Engineering, Nanyang Technological University

17:00 (S5-08) Additive Manufacturing of Advanced Porous Ceramics (Invited)

Zhangwei Chen

Shenzhen University

17:25 (S5-09) Vat Photopolymerization of High-performance Ceramics - Status Quo and Future Perspectives (Invited)

Martin Schwentenwein[1,*], Thomas Konegger[2], Raul Bermejo[3], Serkan Nohut[4], Johannes Homa[1]

[1]*Lithoz GmbH*

[2]*Institute of Chemical Technologies and Analytics, TU Wien*

[3]*Institut für Struktur-und Funktionskeramik, Montanuniversitaet Leoben*

[4]*Department of Mechanical Engineering, Piri Reis University*

Symposium 6: Engineering Ceramics and Ceramic Matrix Composites (CMCs): Processing, Design, Development, and Applications

(Location: Zhou 2)

Session Chair: Hui Mei, *Northwestern Polytechnical University*

13:30 (S6-01) Plastic and High-strength Si_3N_4 Ceramics (Keynote)

Kexin Chen

Department of Engineering and Material Sciences, National Natural Science Foundation of China

14:00 (S6-02) A Design Scheme of UHTCs with the Integrated Thermal Protection and Insulation Performance (Keynote)

Laifei Cheng*, Fang Ye, Kai Zhao

Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University

14:30 (S6-03) Reaction Assisted Flash Sintering of Al_2O_3/Y_2O_3 Composites (Invited)

Liying Chen[1,2], Shu Yao[3], Ke Zhao[1,2], Dianguang Liu[3], Jinling Liu[1,2,*]

[1]*School of Mechanics and Aerospace Engineering, Southwest Jiaotong University*

[2]*Applied Mechanics and Structure Safety Key Laboratory of Sichuan Province, Southwest Jiaotong University*

[3]*School of Materials Science and Engineering, Southwest Jiaotong University*

14:55 (S6-04) Introduction to Nano Composite Ceramics with Better Plasma Etching Resistance over Monolithic Y_2O_3 (Invited)

Young-Jo Park*, Ho Jin Ma, Jae-Wook Lee, Mi-Ju Kim, Ha-Neul Kim, Jae-Woong Ko

Engineering Ceramics Department, Korea Institute of Materials Science

15:20 (S6-05) Interfacial Bonding Mechanism and Joint Weakness Area of Brazed SiC and Nb with AuNi Filler Alloy: First-principles and Experimental Perspective

Peixin Li, Junlei Qi*

State Key Laboratory of Advanced brazinging and Joining, Harbin Institute of Technology

15:45-16:00 Break

Session Chair: Kexin Chen, *National Natural Science Foundation of China*

16:00 (S6-06) Lead-free KNN-based Piezoelectric Ceramics: Materials Design and Device Fabrication (Invited)
Jiagang Wu
College of Materials Science and Engineering, Sichuan University

16:25 (S6-07) Structure Design and Mechanism of Ceramic-based Stealth Metamaterials (Invited)
Hui Mei*, Li Yao, Minggang Zhang, Yuekai Yan, Dou Yang
Science and technology on Thermostructural Composite Materials Laboratory, School of Materials Science and Engineering, Northwestern Polytechnical University

16:50 (S6-08) Research on the Preparation and Performance of C/SiC Composites with High Thermal Conductivity via RMI Method (Invited)
Yejie Cao*, Liyang Cao, Yongsheng Liu*
Northwestern Polytechnical University

17:15 (S6-09) Design Concept for Prepreg-MI SiC_f/SiC Components in Gas Turbine Engine Applications Field with the Tensile Proportional Limit as Design Boundary
Yana Wang[1, 2], Jian Jiao[1, 2, *]
[1]Surface Engineering Division, AECC Beijing Institute of Aeronautical Materials
[2]Key Laboratory of Advanced Composites, AECC Beijing Institute of Aeronautical Materials

~~**17:35 (S6-10) Additive Manufacturing of Fiber Reinforced Ceramic Matrix Composites**~~
~~Kai Liu*, Zhao Hu~~
~~*Wuhan University of Technology*~~

17:55 (S6-11) Phase Field Simulation of Interfacial Phase Failure for SiC_f/SiC Composites
Jin Gao, Yuelei Bai *, Haolong Fan, Guangping Song, Yongting Zheng, Xiaodong He
National Key Laboratory of Science and Technology on Advanced Composites in Special Environments and Center for Composite Materials and Structures, Harbin Institute of Technology

Symposium 7: Advanced Structural Ceramics and CMCs for Ultra Extreme Environments
(Location: Banquet Hall 1)

Session Chair: Zbigniew Pedzich, *AGH University of Krakow*
Ji Zou, *Wuhan University of Technology*

13:30 (S7-01) Entropy-driven Expansion of the Thermodynamic Stability of Compositionally Complex Ceramics (Keynote)
Frederic Monteverde
Institute of Science, Technology and Sustainability for Ceramics - National Research Council of Italy

14:00 (S7-02) Reactive Synthesis of High Entropy Ceramics Composites (Invited)
Cheng Fang*, Feilong Huang, Hailong Wang
School of Materials Science and Engineering, Zhengzhou University

14:25 (S7-03) Achieving Superhardness and Enhanced Toughness in High-entropy Boride-based Composites by Tailoring their Multi-scale Microstructures
Shuaihang Qiu[1], Ji Zou[1, *], Yanchun Zhou[2], Weimin Wang[1], Zhengyi Fu[1]
[1]State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology
[2]School of Materials Science and Engineering, Zhengzhou University

14:45 (S7-04) High-toughness $(Hf_{0.2}Zr_{0.2}Ta_{0.2}Nb_{0.2}Ti_{0.2})B_2$ Ceramics Prepared at a Low Temperature
Liang Xu[1], Ji Zou[1, *], Weiming Guo[2, *], Yang Liu[2], Huayue Liang[1], Shuaihang Qiu[1], Hua-Tay Lin[2], Zhengyi Fu[1]
[1]State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology
[2]School of Electromechanical Engineering, Guangdong University of Technology

15:05 (S7-05) Synthesis of Monodispersed ZrC Nanoparticles Derived from MOF-801
Yun Zou[1, 2], Hee-Jung Lee[3], Sea-Hoon Lee[1, 2, *]
[1]Department of Advanced Materials Engineering, University of Science and Technology
[2]Extreme Materials Institute, Korea Institute of Materials Science
[3]Composites Research Division, Korea Institute of Materials Science

15:25 (S7-06) Microstructure Evolution, High-temperature Oxidation and Ablation Mechanism of Nano-Ta_4HfC_{5p}/SiBCN Ceramics

Bingzhu Wang[1, 2], Daxin Li[2, *], Dechang Jia[2, *], Zhihua Yang[2], Jianjun Sha[1], Yu Zhou[2]
[1]*State Key Laboratory of Structural Analysis for Industrial Equipment, Dalian University of Technology*
[2]*School of Materials Science and Engineering, Harbin Institute of Technology*

15:45 Break

Session Chair: Frederic Monteverde, *National Research Council of Italy*
Dewei Ni, *Shanghai Institute of Ceramics, CAS*

16:00 (S7-07) The Influence of Different Sintering Additives on ZrB_2-HfB_2 Composites Densification Process and their Final Properties (Keynote)

Zbigniew Pedzich[1, *], Agnieszka Gubernat[1, *], Dariusz Zientara[1], Lukasz Zych[1], Kamil Kornaus[1], Kamil Wojteczko[1], Norbert Moskala[1], Piotr Klimczyk[2], Marcin Podsiadlo[2], Jerzy Morgiel[3]
[1]*Department of Ceramics and Refractory Materials, AGH University of Krakow*
[2]*Lukasiewicz Research Network, Krakow Technological Institute*
[3]*Insititute of Metallurgy and Materials Science, Polish Academy of Sciences*

16:30 (S7-08) Novel Carbon and Boron Nitride Materials with High Plasticity and High Strength Designed by Functional Motifs Ordering (Keynote)

Zhisheng Zhao
Center for High Pressure Science, State Key Laboratory of Metastable Materials Science and Technology, Yanshan University

17:00 (S7-09) Thermal Shock and Ablation Behavior of BN Composite Ceramics (Invited)

Delong Cai[1], Dechang Jia[2, *]
[1]*College of Materials Science and Chemical Engineering, Harbin Engineering University*
[2]*Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology*

17:25 (S7-10) Insight into Hexacelsian-to-Celsian Transformation in Hot-pressed h-BN/BAS Composites

Qian Li[1], Zhihua Yang[2], Dechang Jia[2, *], Yu Zhou[2]
[1]*School of Architectural and Civil Engineering, Harbin University of Science and Technology*
[2]*School of Materials Science and Engineering, Harbin Institute of Technology*

17:45 (S7-11) Ablation Behavior of Si_3N_4/BN fiber Monolithic Ceramics in an Oxyacetylene Combustion Flame

Qingqing Chen[1], Guobing Ying[2, *]
[1]*School of Electronic Engineering and Intelligent Manufacturing, Anqing Normal University*
[2]*College of Mechanics and Materials, Hohai University*

Symposium 8: Polymer Derived Ceramics (PDCs) and Composites
(Location: Wen 1)

Session Chair: Zhaoju Yu, *Xiamen University*

13:30 (S8-01) Accelerated Moisture-curing of Polysilazanes for Functional Coating Applications (Keynote)

Ralf Riedel
Department of Materials and Earth Sciences, Technical University of Darmstadt

14:00 (S8-02) Synthesis of Silicon-containing Polymer Precursors for 3D-Printed Ceramic Metamaterials (Invited)

Ruizhe Xing, Rui Zhou, Jie Kong*
School of Chemistry and Chemical Engineering, Northwestern Polytechnical University

14:25 (S8-03) Modification of Organosilicon Polymers by Transition Metal Complexes towards Self-Supported Catalysts for Clean Energy (Invited)

Marwan Ben Miled, Maxime Cheype, Samuel Bernard*
Institute of Research for Ceramics (CNRS, University of Limoges)

14:50 (S8-04) Synthesis and Pyrolysis Behavior of High entropy Carbide ceramic Precursors and properties of Composite Materials Prepared by PIP Process (Invited)

Rongjun Liu*, Chenyi Xie, Huaming Miao, Fan Wan
College of Aerospace Science and Engineering, National University of Defense Technology

15:15 (S8-05) Designing and Fabrication of SiBNO Ultrafine Fiber with Excellent High-temperature Thermal Insulation and Wave-transparent Performances

Xiaoshan Zhang*, Bing Wang, Yingde Wang*

Science and Technology on Advanced Ceramic Fiber and Composites Laboratory, College of Aerospace Science and Engineering, National University of Defense Technology

15:35 Break

Session Chair: Ralf Riedel, *Technical University of Darmstadt*

16:00 (S8-06) Si-based Ceramic Nanocomposites: Synthesis, Microstructural Evolution and Properties (Keynote)

Zhaoju Yu[1, 2]

[1]*College of Materials, Key Laboratory of High-performance Ceramic Fibers, Xiamen University*

[2]*College of Materials, Xiamen Key Laboratory of Electronic Ceramic Materials and Devices, Xiamen University*

16:30 (S8-07) Synthesis, Characterization and Application of Polymer-derived Ceramic Aerogels (Invited)

Gian Domenico Soraru

Department of Industrial Engineering, University of Trento

16:55 (S8-08) Preparation and Conductivity Regulation of SiBCN Coatings (Invited)

Xingang Luan[1, *], Shaomin Gu[1], Qinghua Zhao[1], Ralf Riedel[2]

[1]*Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University*

[2]*Institut für Materialwissenschaft, Technische Universität Darmstadt*

17:20 (S8-09) Preparation of BN Fibers, Coatings, and Nanomaterials based on Novel Polyborazane Precursors

Yiang Du*, Bing Wang, Yingde Wang*

Science and Technology on Advanced Ceramic Fibers and Composites Laboratory, College of Aerospace Science and Engineering, National University of Defense Technology

17:40 (S8-10) Microstructure and Properties Changes of KD-SA SiC Fibers after Long-time Annealing at High Temperature

Shuang Wu, Yanzi Gou*, Yingde Wang*

Science and Technology on Advanced Ceramic Fibers and Composites Laboratory, College of Aerospace Science and Engineering, National University of Defense Technology

Symposium 9: Novel Ceramic Coatings and Technology

(Location: Xia)

Session Chair: Wei Pan, *Tsinghua University*

13:30 (S9-01) A Novel Radio-frequency Inductively Coupled Plasma (RF-ICP) Source for Treating Ceramic Powders (Keynote)

Javad Mostaghimi

University of Toronto

14:00 (S9-02) Improving Oxidation Resistance of Bond Coat for Durable Thermal Barrier Coatings (Invited)

Guan-Jun Yang*, Chang-Jiu Li

School of Materials Science and Engineering, Xi'an Jiaotong University

14:25 (S9-03) Investigating Thermal Conduction Mechanisms of Ferroelastic High-entropy Oxides for Enhanced Thermal Barrier Coatings

Guoliang Ren[1], Yao Yao[1], Fan Yang[2], Xiaofeng Zhao[1, *]

[1]*Shanghai Key Laboratory of High Temperature Materials and Precision Forming, School of Materials Science and Engineering, Shanghai Jiao Tong University*

[2]*School of Mechanical Engineering, Shanghai Jiao Tong University*

14:45 (S9-04) Corrosion Behavior of Al_2O_3-modified Yb_2SiO_5 Environmental Barrier Coating Under Water Vapor Conditions at 1500 ℃

Hongkang Ou, Jia Sun*, Qiangang Fu*

School of Materials, Northwestern Polytechnical University

15:05 (S9-05) Phase Distribution and Properties Evolution of $La_{1-x}Yb_xZr_{1-y}Ce_yO_7$ TBC

Wei Pan*, Shuoyan Zhai

School of material science and technology, Tsinghua university

15:25 (S9-06) A promising Radiation Thermal Protection Coating Based on Ca-Cr Doped Y_3NbO_7 Ceramic

Guoliang Chen[1, 2], Shuqi Wang[1, 2], Yongchun Zou[1, 2], Yaming Wang[1, 2, *], Jiahu Ouyang[1, 2], Dechang Jia[1, 2], Yu Zhou[1, 2]

[1]Institute for Advanced Ceramics, Harbin Institute of Technology

[2]Key Laboratory of Advanced Structure-Function Integrated Materials and Green Manufacturing Technology, Harbin Institute of Technology

15:45 Break

Session Chair: Guan-Jun Yang, *Xi'an Jiaotong University*

16:00 (S9-07) Metallization of Ceramic Substrates using Atmosphere Plasma Spraying (Keynote)

Wei Pan

Tsinghua university

16:30 (S9-08) Effect of Gradient Structure on Mechanical Performance of Multilayer Hard Coatings (Invited)

Rong Tu[1, 2, *], Mingquan Jiang[2], Baifeng Ji[3], Song Zhang[1, 2], Lianmeng Zhang[1, 2]

[1]Chaozhou Branch of Chemistry and Chemical Engineering Guangdong Laboratory

[2]State Key Lab of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology

[3]School of Civil Engineering and Architecture, Wuhan University of Technology

16:55 (S9-09) Oxidative Ablation Resistance of ZrC Based Ceramic Coatings on C/C Composites (Invited)

Jia Sun

Northwestern Polytechnical University

17:20 (S9-10) Improving CMAS Resistance of Environmental Barrier Coatings through RE Constituent Modification

Guangheng Zhang[1, 2], Jie Zhang[1, *], Jingyang Wang[1]

[1]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

[2]School of Materials Science and Engineering, University of Science and Technology of China

Symposium 10: Nano-laminated Ternary Carbides, Nitrides, Borides, and MXenes/MBenes

(Location: Yuan 1)

Session Chair: Ping-An Hu, *Harbin Institute of Technology*
Hao-Bin Zhang, *Beijing University of Chemical Technology*

13:30 (S10-01) Refining Crystal Defects & Surface Chemistry of MXenes for Electronic Applications (Keynote)

Chong Min Koo

Department of Advanced Materials Science and Engineering, Sungkyunkwan University

14:00 (S10-02) 3D Printing of Multifunctional MXene Architectures for Electromagnetic Interference Shielding (Keynote)

Hao-Bin Zhang

State Key Laboratory of Organic-Inorganic Composites, Beijing University of Chemical Technology

14:30 (S10-03) Bio-inspired Skin Electronics and Optoelectronics Based on 2D Materials (Invited)

PingAn Hu*, Jia Zhang, Yunxia Hu

School of Materials Science and Engineering, Harbin Institute of Technology

14:50 (S10-04) Nanocellulose-assisted Construction of Multi-cavity Structured $Ti_3C_2T_x$/Melamine Composite Foam for Ultra-efficient Electromagnetic Interference Shielding (Invited)

Daqiang Zhao, Dong Wen, Xu Zhou, Xiao-Ai Ye, Gui-Gen Wang*

School of Materials Science and Engineering, Harbin Institute of Technology, Shenzhen

15:10 (S10-05) Finely Design and Functionalization of MXene-Based Electromagnetic Wave Absorption Materials

Xiaojun Zeng

School of Materials Science and Engineering, Jingdezhen Ceramic University

15:25-16:00 Break

Session Chair: Junjie Wang, *Northwestern Polytechnical University*
Guorui Zhao, *Songshan Lake Materials Laboratory*

16:00 (S10-06) Discovery of Hexagonal MAB Phases and Two-dimensional Mbenes (Keynote)
Junjie Wang*, Nanxi Miao
Northwestern Polytechnical University

16:30 (S10-07) Stabilizing MXene Suspension with Polyhydric Alcohols (Invited)
Renfei Cheng[1], Junchao Wang[1, 2], Tao Hu[3, *], Yiming Zhao[1, 2], Yan Liang[1], Xiaohui Wang[1, *], Yanchun Zhou[4, *]
[1]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences
[2]School of Materials Science and Engineering, University of Science and Technology of China
[3]Institute of Mater Sci & Devices, School of Mater Sci & Eng, Suzhou University of Science and Technology
[4]School of Materials Science and Engineering, Zhengzhou University

16:50 (S10-08) Grain Size Effect on Oxidation Behavior Ti_2AlC and its Atomic Level Decomposition Mechanism (Invited)
Wenbo Yu; *Beijing Jiaotong University*

17:10 (S10-09) A New Method for Fabricating Metallic Whiskers from Layered Crystal Precursors (Invited)
Peigen Zhang*, Haifeng Tang, Pei Ding, Zhihua Tian
School of Materials Science and Engineering, Southeast University

17:30 (S10-10) REB_2C_2: A Novel Class of Ternary Layered Ultrahigh Temperature Ceramics with High Damage Tolerance (Invited)
Guorui Zhao; *Songshan Lake Materials Laboratory*

17:50 (S10-11) DFT-assisting Discovery and Characterization of a Hexagonal MAB-phase V_3PB_4 (Invited)
Hang Yin, Xiaodong He, Jinze Zhang, Guangping Song, Yongting Zheng, Yuelei Bai*
National Key Laboratory of Science and Technology on Advanced Composites in Special Environments and Center for Composite Materials and Structures, Harbin Institute of Technology

Symposium 11: High Entropy Ceramics and Composites
(Location: Wen 2)

Session Chair: Yujin Wang, *Harbin Institute of Technology*

13:30 (S11-01) Practical Design of High-entropy Ceramics for Structural and Functional Applications in High and Ultrahigh Temperature Environments (Keynote)
Yanchun Zhou*, Huimin Xiang
School of Materials Science & Engineering, Zhengzhou University

14:00 (S11-02) Annealing of a (Hf,Ta,Ti,Nb,Zr)C High-entropy Ceramic up to 2100℃: In-situ Removal of Oxide Impurities and Microstructural Modification (Invited)
Huifen Guo[1], Dmitry Moskovskikh[2], Sergey Yudin[2, 3], Zanlin Cheng[1], Weiheng Zou[1], Sergey Volodko[2], Chengyu Zhang[1, *]
[1]NPU-SAS Joint Research Center, School of Materials Science, Northwestern Polytechnical University
[2]National University of Science and Technology MISiS
[3]Moscow Polytechnic University

14:25 (S11-03) Ultra-high Strength of Medium-entropy Ultra-high Temperature Ceramics up to 1900°C (Invited)
Xingang Wang*, Xiaofei Wang, Danyu Jiang
Shanghai Institute of Ceramics, Chinese Academy of Sciences

14:50 (S11-04) Optimization Design and Hardening-toughening Approach of Multi-component Carbide (Invited)
Lei Chen[1, 2], Yujin Wang[1, 2, *]
[1]Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology
[2]Key Laboratory of Advanced Structure-Function Integrated Materials and Green Manufacturing Technology, HIT

15:15 (S11-05) Effect of Entropy on the Mechanical Properties and Irradiation Behavior of ZrC-based Solid Solution Ceramics (Invited)
Fangfang Xu[1, *], Xiaojie Guo[1], Xiaoting Xin[1], Weichao Bao[1], Guo-Jun Zhang[2]
[1]Shanghai Institute of Ceramics
[2]Donghua University

15:40-16:00 Break

Session Chair: Yanchun Zhou, *Zhengzhou University*

16:00 (S11-06) High Toughness High Entropy Diboride Ceramics Densified at Lower Temperature (Keynote)
Ji Zou*, Jie Liu, Liang Xu, Zhengyi Fu
Wuhan University of Technology

16:30 (S11-07) The Oxidation Behaviors of High Entropy Carbide Ceramics (Invited)
Yiguang Wang*
Institute of Advanced Structure Technology, Beijing Institute of Technology

16:55 (S11-08) Oxidation Resistance of High Entropy Ceramics: Influence of Entropy Stabilization and Composition Design (Invited)
Yichen Wang[1, 2, *], Xiang Xiong[1], Michael John Reece[2]
[1]*State Key Laboratory of Powder Metallurgy, Central South University*
[2]*School of Engineering and Materials Science, Queen Mary University of London*

17:20 (S11-09) Anti Ablation High-entropy Oxides, Carbides and Borides Coatings on C/C Composites
Lingxiang Guo*, Bing Liu, Hongkang Ou, Shiwei Huang, Jia Sun*
Shaanxi Key Laboratory of Fiber Reinforced Light Composite Materials, Northwestern Polytechnical University

17:40 (S11-10) Non-Equimolar (Hf, Zr, Ta, W)B_2 High-entropy Diborides Enable Superior Oxidation Resistance
Zihao Wen, Yanhui Chu*
School of Materials Science and Engineering, South China University of Technology

Symposium 13: Piezoelectric, Ferroelectric/Multiferroic Materials & Components
(Location: Shang)

Session Chair: Jing-Feng Li, *Tsinghua University*
Jing Ma, *Tsinghua University*

13:30 (S13-01) *h*-$RFeO_3$ Room Temperature Single Phase Multiferroic Ceramics and Thin Films (Keynote)
Xiangming Chen
School of Materials Science and Engineering, Zhejiang University

14:00 (S13-02) High Entropy Effect in $BaTiO_3$-$BiFeO_3$-based Dielectrics (Invited)
Soonil Lee
School of Materials Science and Engineering / Department of Materials Convergence and System Engineering, Changwon National University

14:25 (S13-03) Design of $AgNbO_3$ and $NaNbO_3$ Antiferroelectrics (Invited)
Nengneng Luo*, Li Ma, Gengguang Luo
School of Resources, Environment and Materials, Guangxi University

14:50 (S13-04) Enhanced Energy Storage Performance in $BaTiO_3$ Glass-Ceramics by Nanosized Cubic $BaTiO_3$ Phase (Paraelectric Phase) Precipitating
Fei Shang*, Jiwen Xu*
Electronical Information Materials and Devices Engineering Research Center of Ministry of Education, Guangxi Key Laboratory of Information Materials, and School of Material Science and Engineering, Guilin University of Electronic Technology

15:05 (S13-05) The Study of Energy Storage Properties of Mg-doped NBCT Lead-free Ceramics through a Viscous Polymer Process
Yingjie Fan, Quan Li*, Gang Liu
School of Materials and Energy, Southwest University

15:20 (S13-06) Study on the Dielectric Behavior of Flexible Ferroelectric Composites for Energy Storage and Electrocaloric Effect Performance
Hailong Hu[1, *], Fan Zhang[2], Chun-Hui Wang[3], Dou zhang[4]
[1]*Research Institute of Aerospace Technology, Central South University*
[2]*School of Minerals Processing and Bioengineering, Central South University*
[3]*School of Mechanical and Manufacturing Engineering, University of New South Wales*
[4]*State Key Laboratory of Powder Metallurgy, Central South University*

15:35 (S13-07) Giant and Temperature-Insensitive Strain and Energy-Storage Density in Fine $PbHfO_3$

Zenghui Liu[1, *], Hongyan Wan[1], Jingrui Li[1], Wei Ren[1], Zuo-Guang Ye[2]
[1]*Electronic Materials Research Laboratory, Key Laboratory of the Ministry of Education & International Center for Dielectric Research, School of Electronic and Information Engineering, Xi'an Jiaotong University*
[2]*Department of Chemistry and 4D LABS, Simon Fraser University*

15:50 Break

Session Chair: Soonil Lee, *Changwon National University*
Nengneng Luo, *Guangxi University*

16:00 (S13-08) Relaxor-antiferroelectric HfO_2 Thin Films and its Applications (Keynote)

Jiyan Dai
Shenzhen Research Institute, Hong Kong Polytechnic University

16:30 (S13-09) Ultrahigh Energy Density of $PbZrO_3$-based Antiferroelectric Films at Low Electric Field (Invited)

Dongxu Li[1], Xiangyu Meng[1], Enhao Zhou[1], Xiaoxiao Chen[1], Zhonghui Shen[1], Qinghu Guo[2], Zhonghua Yao[1], Minghe Cao[1], Jinsong Wu[1], Shujun Zhang[3, *], Hanxing Liu[1], Hua Hao[1, 2, *]
[1]*State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, School of Material Science and Engineering, International School of Material Science and Engineering, Wuhan University of Technology*
[2]*Foshan Xianhu Laboratory of the Advanced Energy Science and Technology Guangdong Laboratory*
[3]*Institute for Superconducting and Electronic Materials, Australian Institute of Innovative Materials, University of Wollongong*

16:55 (S13-10) "Polar Nano-Regions" Originated from Local Displacive Correlations in Relaxor-ferroelectrics (Invited)

Nan Zhang*, Zhen Wang, Zheyi An, Fei Li
Electronic Materials Research Laboratory, Key Laboratory of the Ministry of Education & International Center for Dielectric Research, School of Electronic and Information Engineering, Xi'an Jiaotong University

17:20 (S13-11) Enhanced Energy Storage Performance of NBT-based Ferroelectric Ceramics by the Inhibition of Oxygen Vacancy

Chen Wu, Xiaoming Qiu, Haoyu Tang, Wenwei Ge*
School of Materials Science and Engineering, Jilin University

17:35 (S13-12) Characteristics of Acoustic Resonators using YbAlN and YbGaN Epitaxial Piezoelectric Thin Films

Zitai Feng[1, 2], Song Li[1, 2, *], Junjun Jia[1, *], Takahiko Yanagitani[1, 2, 3, 4, *]
[1]*Waseda University*
[2]*ZAIKEN*
[3]*JST-CREST*
[4]*JST-FOREST*

17:50 (S13-13) RF Power Durability of Polarization-inverted C-axis Zigzag ScAlN Piezoelectric Multilayers

Saneyuki Shibata[1, 2], Takahiko Yanagitani[1, 2, 3, 4, *]
[1]*Waseda University*
[2]*ZAIKEN*
[3]*JST-CREST*
[4]*JST-FOREST*

18:05 (S13-14) Robust Thermal Neutron Detection by $LiInP_2Se_6$ Bulk Single Crystals

Ziwan Du[1], Yuxuan Lai[2], Ruirong Bai[3], Bolun Wang[1], Qiang Zheng[4], Chuan Xu[5], Teng Lu[6], Jun Pei[1], Wei Li[1], Yu-Ning Wu[3, *], Kai Liu[1], Yun Liu[6], Engang Fu[5], Jing-Feng Li[1, *], Yigang Yang[2, *], Qian Li[1, *]
[1]*State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University*
[2]*Department of Engineering Physics Ministry of Education Key Laboratory of Particle & Radiation Imaging, Tsinghua University*
[3]*Key Laboratory of Polar Materials and Devices (MOE) Department of Electronics, East China Normal University*
[4]*CAS Key Laboratory of Standardization and Measurement for Nanotechnology, CAS Center for Excellence in Nanoscience National, Centre for Nanoscience and Technology*
[5]*State Key Laboratory of Nuclear Physics and Technology School of Physics, Peking University*
[6]*Research School of Chemistry, The Australian National University*

Symposium 14: Thermoelectric Materials and Devices for Sustainable Energy Utilization
(Location: Yuan 3)

Session Chair: Lidong Chen, *Shanghai Institute of Ceramics, Chinese Academy of Sciences*

13:30 (S14-01) Thermoelectrics: from Polar Intermetallics Crystals to Material Engineering (Keynote)
Franck Gascoin
CNRS, CRISMAT Laboratory, University of Caen Normandie

14:00 (S14-02) Optimizing Carrier Concentration toward Improved ZT on Metallic $W_{18}O_{49}$ with Inherently Low Lattice Thermal Conductivity (Keynote)
Michitaka Ohtaki[1, 2]
[1]*Interdisciplinary Graduate School of Engineering Sciences, Kyushu University*
[2]*Transdisciplinary Research and Education Center for Green Technologies, Kyushu University*

14:30 (S14-03) The Real Origin of Donor-like Effect in Bismuth-Telluride-Based Thermoelectric Materials (Keynote)
Tiejun Zhu*, Feng Liu, Chenguang Fu
School of Materials Science and Engineering, Zhejiang University

15:00 (S14-04) Achieving Enhanced Thermoelectric Performance in Multi-phase Materials (Keynote)
Qingyu Yan; *School of Materials Science and Engineering, Nanyang Technological University*

15:30 Break

Session Chair: Wenqing Zhang, *Southern University of Science and Technology*

15:45 (S14-05) Interface and Grain Boundary Effects on Thermoelectrics (Keynote)
Jeffrey Snyder; *Northwestern University*

16:15 (S14-06) Flexible Thermoelectric Materials and Devices for Sustainable Energy and Refrigeration (Keynote)
Zhigang Chen; *Queensland University of Technology*

16:45 (S14-07) Magnetism-Enhanced Thermoelectric Performance (Keynote)
Guoyu Wang; *College of Physics and Center of Quantum Materials & Devices, Chongqing University*

17:15 (S14-08) Thermoelectric Performance Enhancement by Lattice Defect Engineering (Keynote)
Jing-Feng Li; *School of Materials Science and Engineering, Tsinghua University*

17:45 (S14-09) A Computational Study of Unconventional Lattice Thermal Transport in Crystals with Complex Structures (Invited)
Yue Chen; *Department of Mechanical Engineering, The University of Hong Kong*

Symposium 15: Perovskites for Solar Cells, LEDs, and Other Applications
(Location: Yuan 2)

Session Chair: Shengzhong (Frank) Liu, *Dalian Institute of Chemical Physics, CAS*

13:30 (S15-01) High Voltage Lead-based and Lead-free Perovskite Solar Cells (Keynote)
Tsutomu Miyasaka
Toin University of Yokohama

14:00 (S15-02) Composition Design and Interface Modulation of Perovskite Solar Cells (Keynote)
Baomin Xu
Department of Materials Science and Engineering, Southern University of Science and Technology

14:30 (S15-03) Uniformity of Halide Perovskite Photovoltaic Materials and Devices (Invited)
Qi Chen
School of Materials Science and Engineering, Beijing Institute of Technology

14:55 (S15-04) Development of Stability Perovskite Solar Cells (Invited)
Zhu Zhang[1], Liguo Gao[3], Tingli Ma[2, *]
[1]*China Jiliang University*
[2]*Kyushu Institute of Technology*
[3]*Dalian University of Technology*

15:20 (S15-05) Introduction of Halogen in Spiro-based Hole-transporting Materials Enable Highly Efficient and Stable Perovskite Solar Cells

Kunpeng Guo; *Taiyuan University of Technology*

15:40 Break

Session Chair: Tsutomu Miyasaka, *Toin University of Yokohama*

16:00 (S15-06) Perovskite: A Wonder Material for Solar Cells (Keynote)

Minyong Du[1], Dexu Zheng[2, *], Lianjie Duan[1], Lei Peng[2], Hui Wang[1], Sajian Wu[2], Kai Wang[1], Jishuang Liu[2], Yuexian Cao[1], Shizhen Wang[2], Yuxiao Jiao[1], Zhipeng Li[2], Xiao Jiang[1], Likun Wang[1], Youming Sun[1], Shengzhong (Frank) Liu[1, *]

[1]Dalian Institute of Chemical Physics, Chinese Academy of Sciences
[2]China National Nuclear Power Co., Ltd.

16:25 (S15-07) Supramolecule Host-Guest Inclusion Strategy for Enhancing the Stability and Biocompatibility of Perovskite Materials and Devices (Invited)

Wuqiang Wu; *School of Chemistry, Sun Yat-sen University*

16:50 (S15-08) Lead-free Tin Halide Perovskite Solar Cells (Invited)

Xiangyue Meng; *University of Chinese Academy of Sciences*

17:15 (S15-09) Modified spiro HTL for improved stability of perovskite solar cells (Invited)

Xiaojing Hao*, Xu Liu, Meng Zhang

School of Photovoltaic and Renewable Energy Engineering, UNSW

17:35 (S15-10) Phase Control of Organometal Halide Perovskite Solar Cells with Superlattice (Invited)

Satoshi Uchida*, Hiroshi Segawa

Research Center for Advanced Science and Technology, The University of Tokyo

18:05 (S15-11) Perovskite Solar Cells on the Way to Space: Ultrahigh Radiation Hardness of Complex Lead Halides (Invited)

Victoria V. Ozerova[1], Marina I. Ustinova[1], Nikita A. Emelianov[1], Dmitry P. Kirukhin[1], Ivan S. Zhidkov[2, 3], Lyubov A. Frolova[1], Pavel A. Troshin[4, *]

[1]Federal Research Center for Problems of Chemical Physics and Medicinal Chemistry of the Russian Academy of Sciences (FRC PCP MC RAS)
[2]Institute of Physics and Technology, Ural Federal University
[3]M. N. Mikheev Institute of Metal Physics of Ural Branch of Russian Academy of Sciences
[4]Zhengzhou Research Institute, Harbin Institute of Technology

Symposium 16: Transparent Ceramics and Luminescent Materials

(Location: Jing)

Session Chair: Yiquan Wu, *Alfred University*

13:30 (S16-01) Invention of Polycrystalline Optical Ceramics Exceeding High Quality Single Crystal (Keynote)

Akio Ikesue

World Lab Co Ltd, Japan

14:00 (S16-02) Contact Damage in Glasses (Keynote)

Ivar Reimanis

Metallurgical and Materials Engineering Department, Colorado School of Mines

14:30 (S16-03) Properties and Applications of Transparent Lead Based Relaxor Ferroelectric Ceramics (Invited)

Yongcheng Zhang*, YaLin Qin, Xue Tian, YaQi Wang

College of Physics, Qingdao University

14:50 (S16-04) Engineering of Layered Rare-earth Hydroxide for Low-temperature Sintering of Oxysulfide Ceramics and Photoluminescence (Invited)

Ji-Guang Li[1, *], Xuejiao Wang[2]

[1]Research Center for Electronic and Optical Materials, National Institute for Materials Science
[2]College of Chemistry and Materials Engineering, Bohai University

15:10 (S16-05) Structural Modification, Luminescence and Uses of Rare Earth Ions Doped Synthetic Mica (Invited)
Shikao Shi*, Junshan Liu
College of Chemistry and Materials Science, Hebei Key Laboratory of Inorganic Nanomaterials, Hebei Normal University

15:30 (S16-06) Synthesis and Photoluminescence of Cr^{3+} Activated Broadband Near-infrared Phosphors
Xuejiao Wang*, Jiantong Wang, Bowen Wang, Changshuai Gong
College of Chemistry and Materials Engineering, Bohai University

15:45 Break

Session Chair: Do Kyung Kim, *Korea Advanced Institute of Science and Technology (KAIST)*

16:00 (S16-07) Highly Non Stoichiometric Garnet Materials with Modified Optical Properties (Invited)
Mathieu Allix[1, *], Weiwei Cao[1], Ana Becerro[2], Victor Castaing[2], Xue Fang[1], Cécile Genevois[1], Pierre Florian[1], Franck Fayon[1], Didier Zanghi[1], Michael Pitcher[1]
[1]CEMHTI, CNRS
[2]ICMS, CSIC

16:20 (S16-08) Transparency and Luminescence of Rare-earth Doped α-SiAlON Ceramics (Invited)
Junichi Tatami[1, *], Kohei Aminaka[1], Motoyuki Iijima[1], Takuma Takahashi[2]
[1]Yokohama National University
[2]Kanagawa Institute of Industrial Science and Technology

16:40 (S16-09) Glasses and Fibers for Detection Applications (Invited)
Shifeng Zhou
School of Materials Science and Engineering, South China University of Technology

17:00 (S16-10) Manipulation of Energy Transfer and Luminescence Performance in Mn^{2+} Doped Metal Halide Micro-nanocrystals (Invited)
Yibo Chen
School of Chemistry and Chemical Engineering, Guangzhou University

17:20 (S16-11) Fabrication of High Strength IR Transparent Ceramics using Spark-Plasma-Sintering (SPS) Technique (Invited)
Koji Morita
National Institute for Materials Science (NIMS), Research Center for Electronic and Optical Materials

17:40 (S16-12) Computational Materials Science and Optical Materials (Invited)
Mikhail G. Brik[1, 2, 3, 4, 5]
[1]College of Sciences & CQUPT-BUL Innovation Institute, Chongqing University of Posts and Telecommunications
[2]Centre of Excellence for Photoconversion, Vinča Institute of Nuclear Sciences - National Institute of the Republic of Serbia, University of Belgrade
[3]Institute of Physics, University of Tartu
[4]Faculty of Science and Technology, Jan Długosz University
[5]Academy of Romanian Scientists

Symposium 17: Materials for Advanced Nuclear Energy Systems and Nuclear Waste Management
(Location: Song 2.2)

Session Chair: Guo-Jun Zhang, *Donghua University*

13:30 (S17-01) Cold Immobilization and High Entropy Adsorbents for Radioactive Waste Management (Keynote)
Sujeong Lee[1], Tien-Shee Chee[1], Min Seok Lee[2], Hyun Woo Seong[2], Ho Jin Ryu[1, 2]
[1]Department of Materials Science and Engineering, KAIST
[2]Department of Nuclear and Quantum Engineering, KAIST

14:00 (S17-02) Phosphate Cements for Stabilization of Nuclear Wastes (Invited)
Henry A. Colorado
Universidad de Antioquia

14:25 (S17-03) Volatilization and Precipitation Studies for HLLW Vitrification (Invited)
Kai Xu*, Chenchen Niu, Wenfeng Song, Ziqiang Jia, Liyan Xu
Wuhan University of Technology State Key Laboratory of Silicate Materials for Architectures (SMART), Wuhan University of Technology

14:50 (S17-04) Progress in Development of Glass Formulations for High Level Waste Vitrification by Cold Crucible Induction Melter Technology (Invited)

Shengheng Tan[1,*], Jiong Chang[1], Cheng He[1], Hua Zhang[1], Minzhi Ruan[2], Zhongdi Li[2]
[1]*Department of Radiochemistry, China Institute of Atomic Energy*
[2]*China Nuclear Power Engineering Co Ltd*

15:15 (S17-05) Chemical Durability and Structural Evolution of Rare Earth Titanite Pyrochlore ($REE_2Ti_2O_7$) Nuclear Wasteform (Invited)

Kun Yang
Department of Nuclear Science and Technology, Nanjing University of Aeronautics and Astronautics

15:40 Break

Session Chair: Weichao Bao, *Shanghai Institute of Ceramics*

16:00 (S17-06) Immobilisation of High-level Waste in Zirconolite-based Wasteforms (Invited)

Shi-Kuan Sun[1,*], Lewis Blackburn[2], Neil Hyatt[2], Wei-Ming Guo[3]
[1]*School of Material Science and Energy Engineering, Foshan University*
[2]*Immobilisation Science Laboratory, Department of Materials Science and Engineering, University of Sheffield*
[3]*School of Electromechanical Engineering, Guangdong University of Technology*

16:25 (S17-07) Multi-scale Modeling of the Irradiation-induced Deformation Behaviors of Porous Carbons (Invited)

Jing Zhang[1], Zekun Li[1], Shurong Ding[1,*], Yiran Xie[2], Qisen Ren[2], Jiaxiang Xue[2]
[1]*Institute of Mechanics and Computational Engineering, Department of Aeronautics and Astronautics, Fudan University*
[2]*Department of ATF R&D, Nuclear Fuel Research and Development Center, China Nuclear Power Technology Research Institute Co., Ltd., China General Nuclear Power Corporation (CGN)*

16:50 (S17-08) Rare Earth Aluminate Ceramics For Neutron Absorbing Materials

Wugang Fan[1], Xiaojiao Wang[1], Xiangyang Chen[2], Junqiang Lu[2], Zhaoquan Zhang[1,*]
[1]*Shanghai Institute of Ceramics, Chinese Academy of Sciences*
[2]*Shanghai Nuclear Engineering Research & Design Institute Co*

17:10 (S17-09) Investigation of Molybdenum Species in the Simplified Nuclear Waste Glass Under Reducing Condition

Ziqiang Jia, Chenchen Niu, Kai Xu*
State Key Laboratory of Silicate Materials for Architectures, Wuhan University of Technology

17:30 (S17-10) First-principles Study on the Property of Interface Reaction Phases for Cr Coating on SiC Substrate

Hengfeng Gong*, Jun Yan, Daxi Guo, Sigong Li, Zhanwei Wang, Jianhan Zhai, Rongkun Yang, Jiaxiang Xue, Yehong Liao
Nuclear Fuel and Materials Department, China Nuclear Power Technology Research Institute Co.

17:50 (S17-11) Molecular Dynamics Simulation of Chemical Vapor Deposition Process and Irradiation Behavior of Silicon Carbide Materials

Zefan Yan, Yu Tian, Rongzheng Liu, Bing Liu, Youlin Shao, Malin Liu*
Institute of Nuclear and New Energy Technology, Tsinghua University

Symposium 18: Solid Oxide Fuel Cells and Hydrogen Technologies

(Location: Song 2.1)

Session Chair: Naoki Shikazono, *the University of Tokyo*
Di Chen, *Tsinghua University*

13:30 (S18-01) Operando Observations of SOC Fuel Electrodes (Keynote)

Naoki Shikazono
Institute of Industrial Science, the University of Tokyo

14:00 (S18-02) Submicron GDC Barrier Layer Fabrication via In-situ Hydrothermal Growth: Mechanism, Performance and Durability (Invited)

Tenglong Zhu*, Qiuqiu Lyu, Haoyu Zhao, Qin Zhong
School of Chemistry and Chemical Engineering, Nanjing University of Science and Technology

14:25 (S18-03) Preparation and Performance Optimization of Bi_2O_3-YSZ Composite Electrolyte for Solid Oxide Fuel Cells

Shuangshuang Liu*, Guifang Han*, Jingde Zhang*

Key Laboratory for Liquid-Solid Structural Evolution and Processing of Materials, Ministry of Education, School of Material Science and Engineering, Shandong University

14:45 (S18-04) Fabrication of Tri-layer GDC/YSZ/GDC Electrolytes for SOFCs through Reactive Sputtering in an Industrial Setup

Fuyuan Liang, Haiqing Wang, Junwei Wu*

School of Materials Science and Engineering, Harbin Institute of Technology (Shenzhen)

15:05 (S18-05) Pt-based Oxygen Reduction Reaction Catalysts with High Efficiency and High Durability for Proton Exchange Membrane Fuel Cells

Ye Xiao, Mingjie Xu, Jiewen Liu, Yanhao Dong*, Chang-An Wang*

State Key Lab of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University

15:25 (S18-06) Fe-Sm Co-doped Ceria as Electrolytes for Anode-supported SOFC

Lijie Zhang, Changrong Xia*

Department of Materials Science and Engineering, University of Science and Technology of China

15:45 Break

Session Chair: Xianwen Mao, *National University of Singapore*
Sihyuk Choi, *Kumoh National Institute of Technology*

16:00 (S18-07) Understanding Electrochemically-Driven Exsolution in Perovskite Oxides by Designing Graded Oxygen Chemical Potential (Invited)

Ying Lu, Qiyang Lu*; *Westlake University*

16:25 (S18-08) Electrostatic Spray Deposition Based Interface Engineering for High Performance Solid Oxide Electrochemical Cells (Invited)

Hyun Sik Yoo[1], Yonas Tsegaye Megra[1, 2], Joon Gyu Kim[1], Ji Won Suk[1, 2, 3], Wonyoung Lee[1, 4, *]

[1]Department of Mechanical Engineering, Sungkyunkwan University
[2]Department of Smart Fab. Technology, Sungkyunkwan University
[3]SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University
[4]SKKU Institute of Energy Science and Technology (SIEST), Sungkyunkwan University

16:50 (S18-09) Lattice Boltzmann Study of Solid Oxide Fuel Cell Anode Degradation Based on Three Dimensional Reconstruction (Invited)

Shixue Liu[1, 2, *], Zhijing Liu[1, 2], Shuxing Zhang[1, 2], Hao Wu[1, 2]

[1]Hydrogen Energy Industrial Technology Innovation Center, China Nuclear Power Technology Research Institute
[2]Shenzhen Engineering Research Center for Hydrogen Safety, China Nuclear Power Technology Research

17:15 (S18-10) Multi-rare-earth Oxide Doped Zirconia: A Design Strategy of Improving Anti-ageing Performance of Solid Oxide Fuel Cell Electrolyte Materials

Jiefu Lang, Yiguang Wang*

Institute of Advanced Structure Technology, Beijing Institute of Technology

Symposium 19: Ionic and Mixed Conducting Ceramics

(Location: Tang 4)

Session Chair: Zhaoyin Wen, *Shanghai Institute of Ceramics, Chinese Academy of Science*
~~Masaaki Hirayama, *Tokyo Institute of Technology*~~

13:30 (S19-01) Opportunities and Challenges of All Solid-State Batteries (Keynote)

Xueliang Andy Sun

University of Western Ontario

14:00 (S19-02) Application of Thin Films to Fundamental Studies on Solid-state Batteries (Keynote)

Kazunori Takada*, Tsuyoshi Ohnishi

National Institute for Materials Science

14:30 (S19-03) Design of High Performance Solid State Lithium Batteries by Ultrathin Composite Solid Electrolytes (Invited)

Stefan Adams; *Department of Materials Science and Engineering, National University of Singapore*

14:55 (S19-04) Hydride Ion Conducting Materials: Development of Solid Electrolytes and Electrodes (Invited)
Genki Kobayashi
Cluster for Pioneering Research, RIKEN

15:20 (S19-05) Solid State Ionics for Information, Energy and Environmental Applications (Invited)
Xin Guo
Huazhong University of Science and Technology

15:45 Break

Session Chair: Xin Guo, *Huazhong University of Science and Technology*
Stefan Adams, *National University of Singapore*

16:00 (S19-06) R&Ds of Oxide-based All-Solid-State Batteries using Aerosol Deposition (Keynote)
Yasutoshi Iriyama
Department of Materials Design Innovation Engineering, Graduate School of Engineering, Nagoya University

~~**16:30 (S19-07) Neutron Reflectometry Studies on Fast Lithium Intercalation Mechanism at Surface-Modified Cathodes for Lithium-ion Batteries (Invited)**~~
~~Masaaki Hirayama[1,*], Norifumi L. Yamada[2], Kota Suzuki[3], Ryoji Kanno[3]~~
~~[1]School of Materials and Chemical Technology, Tokyo Institute of Technology~~
~~[2]Institute of Materials Structure Science, High Energy Accelerator Research Organization~~
~~[3]Institute of Innovative Research, Tokyo Institute of Technology~~

16:55 (S19-08) Fabrication and characterization of cathode-electrolyte interfaces in all-solid-state thin-film lithium-ion batteries (Invited)
Yumi Ikuhara[1,*], Shunsuke Kobayashi[1], Kei Nakayama[1], Craig Fisher[1], Akihide Kuwabara[1], Yuichi Ikuhara[1,2]
[1]*Japan Fine Ceramics Center*
[2]*The University of Toky*

17:20 (S19-09) Integrating Garnet Oxide Ceramics into Composite Solid Electrolytes for All-Solid-State Lithium-metal Batteries
Rong-ao Tong, Linhui Chen, Yanhao Dong*, Chang-An Wang*
State Key Lab of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University

Symposium 20: Multifunctional Nanomaterials and Heterostructures for Sensing Devices
(Location: Tang 1)

Session Chair: Ping Wang, *Zhejiang University*

13:30 (S20-01) Synaptic Features of Transparent Memristor for Neuromorphic Computing (Keynote)
Tseung-Yuen Tseng
Institute of Electronics, Yang Ming Chiao Tung University

14:00 (S20-02) Functional Transistors for Ultra-sensitive and Low-power Sensors (Keynote)
Wei Huang
School of Automation Engineering, University of Electronic Science and Technology of China

14:30 (S20-03) Graphene-based Field-effect Transistors for Optoelectronic Sensing (Invited)
Lin Jiang[1,*], Qinyong Dai[3], Gang Hu[3], Grégory F. Schneider[2], Yingquan Peng[1]
[1]*School of Microelectronics, Shanghai University*
[2]*Leiden Institute of Chemistry, Leiden University*
[3]*Institute of Microelectronics, College of Optical and Electronic Technology, China Jiliang University*

14:55 (S20-04) Dual-parameter Gas Sensing with Functional Graphene Field-effect Transistors
Shen Ao, Wangyang Fu*
School of Materials Science and Engineering, Tsinghua University

15:15 (S20-05) Ultrasensitive Detection of Unamplified Target miRNA Using Duplex-specific Nuclease and Graphene Field-effect Transistors
Qianlong Wang[1], Lei Bao[1], Lishuang Wang[2], Xiaoyan Zhang[2], Weipeng Wang[1], Yunhan Ling[1], Zhengjun Zhang[1], Wangyang Fu[1,*]
[1]*School of Materials Science and Engineering, Tsinghua University*
[2]*School of Pharmaceutical Sciences, Capital Medical University*

15:35 (S20-06) $Ce_{0.8}Gd_{0.2}O_{1.95}$ based Mixed Potential Gas Sensor: AgRu Bimetallic Co-regulated WO_3 for H_2 Sensing under High Temperature

Tong Wang*, Xishuang Liang*, Geyu Lu*

State Key Laboratory of Integrated Optoelectronics, Key Laboratory of gas sensors, College of Electronic Science and Engineering, Jilin University

15:55 Break

Session Chair: Chen Wang, *Tsinghua University*

16:00 (S20-07) Bioelectronic Nose and Bioelectronic Tongue with Hetero-sensitive Devices (Keynote)

Ping Wang

Biosensor National Special Laboratory, Key Laboratory for Biomedical Engineering of Ministry of Education, Department of Biomedical Engineering, Zhejiang University

16:30 (S20-08) Limit of Detection in Field-effect Biosensors (Invited)

Wangyang Fu

School of Materials Science and Engineering, Tsinghua University

16:55 (S20-09) On-chip Integrated Biosensing for Rapid and Accurate Detection of Biomarkers (Invited)

Lizhou Xu[1, 2]

[1]*ZJU-Hangzhou Global Scientific and Technological Innovation Center, Zhejiang University*
[2]*College of Biosystems Engineering and Food Science, Zhejiang University*

17:20 (S20-10) Expanding Selectivity Functionality of a ZnO Nanotetrapod-Based Volatile Organic Compound Sensor using Au Nanoparticle Decoration

Fang Xu; *Shenzhen Technology University*

17:40 (S20-11) Detection of Disease Biomarkers with Graphene Transistors: What's Next? (Keynote)

Sami Ramadan; *Imperial College London*

Symposium 21: Ceramics for Environmental Conservation, Energy and Environmental catalysis, Pollution Control, and Critical Materials

(Location: Banquet Hall 3)

Session Chair: Chun-Hong Kuo, *National Yang Ming Chiao Tung University*

13:30 (S21-01) Preparation and Properties of SiC Ceramic Membrane for High Temperature Gas Purification (Keynote)

Kaiqi Liu

State Key Laboratory of multiphase Complex Systems, Institute of Process Engineering, Chinese Academy of Sciences

14:00 (S21-02) Synthesis, Characteristics, and Detection Properties of Metal Phosphates (Invited)

Pi Chen Wei, Ying Li, Chih Min Wang*

National Taiwan Ocean University

14:25 (S21-03) Stability and charge mobility optimization of tin-based perovskites (Invited)

Ming-Hui Shang

[1]*Ningbo University of Technolog*

14:50 (S21-04) Defect Chemistry in Highly-efficient Titanium-based Nitrogen Fixation Photocatalyst

Ming Feng

Key Laboratory of Functional Materials Physics and Chemistry of the Ministry of Education, Jilin Normal University

15:10 (S21-05) Coating of Phosphide Catalysts on p-Silicon by a Necking Strategy for Improved Photoelectrochemical Characteristics in Alkaline Media

Hongmei Wu, Feng Li*, Yanqi Yuan*, Jing Liu*

Materials Science and Engineering, Shanghai Jiao Tong University

15:30 (S21-06) Confinement Effect of Mesopores: In Situ Synthesis of Cationic Tungsten-vacancies for a Highly Ordered Mesoporous Tungsten Phosphide Electrocatalyst

Baoshan Liu, Feng Li, Jing Liu*, Peng Zhang*

School of Materials Science and Engineering, Shanghai Jiao Tong University

15:50-16:00 Break

Session Chair: Chih Min Wang, *National Taiwan Ocean University*

16:00 (S21-07) (Mg, Mn, Fe, Co, Ni)O: A New Rocksalt High-entropy Oxide (Invited)

Yuguang Pu, Duncan Moseley, Zhen He, K. C. Pitike, M. E. Manley, J. Yan, V. R. Cooper, V. Mitchell, V. Peterson, B. Johannessen, R. P. Hermann, Peng Cao*

The University of Auckland

16:25 (S21-08) Application of Nano-sized Metal Oxide Powder on Steam Reforming of Methanol (Invited)

Chung-Lun Yu[1, 2], Kuan-Jun Ke[1, 2], Te-Wei Chiu[1, 2, *]

[1]Department of Materials and Mineral Resources Engineering, National Taipei University of Technology
[2]Institute of Materials Science and Engineering, National Taipei University of Technology

16:50 (S21-09) Nanoarchitectonic Engineering towards Small Molecule Conversion (Invited)

Chun-Hong Kuo[1, 2, *]

[1]Department of Applied Chemistry, National Yang Ming Chiao Tung University
[2]National Synchrotron Radiation Research Center

17:15 (S21-10) Catalysis Enhancement by MOF Confinement Effects at Room Temperature (Invited)

Lien-Yang Chou

ShanghaiTech University

17:40 (S21-11) Surface Phosphorization for Enhanced Photoelectrochemical Performance of Fe_2O_3/Si Photocathode

Yanqi Yuan, Jing Liu*, Peng Zhang*

School of Materials Science and Engineering, Shanghai Jiao Tong University

Symposium 22: Ceramic Integration and Joining Technologies

(Location: Wu 1)

Session Chair: Peng He, *Harbin Institute of Technology*
Qian Wang, *Osaka University*

13:30 (S22-01) Advanced Glass and Ceramics as Joining and Coating Materials for Energy Conversion: Integration Issues, Challenges and Perspectives (Keynote)

Federico Smeacetto

Politecnico di Torino

14:00 (S22-02) Measurement and Understanding the Residual Stress Distribution in Ceramic/metal Joint (Invited)

Chun Li

State key laboratory od advanced welding and joining, Harbin Institute of Technology

14:20 (S22-03) Strength Optimization Strategies on Ti-6Al-4V/Si_3N_4 Dissimilar Joint Engineered for Spacecraft Thruster Application (Invited)

Fei Shen Ong[1, *], Eiichi Sato[2]

[1]Department of Materials Engineering, The University of Tokyo
[2]Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency

14:40 (S22-04) Investigation on the Microstructure and Mechanical Properties of SiC_f/SiC Composites/Gh536 Superalloy Joints Brazed with $(CoFeNiCrMn)_{100-x}Nb_x$ High-entropy Alloy Filler

Shuai Zhao, Haiyan Chen*

School of Materials Science and Engineering, Northwestern Polytechnical University

14:55 (S22-05) Research on the Brazing Process and Mechanism of C/C Composites and Nb Assisted by Carbon Nanotubes

Qing Chang

State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

15:10 (S22-06) Active Metal Brazing of Silicon Nitride with Oxygen-free Copper Foil

Liangliang Tang, Yu-Ping Zeng*

State Key Laboratory of High-Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences

15:25 (S22-07) Switching Ultra-Stretchability and Sensitivity in Metal Films for Electronic Skins: A Pufferfish-inspired, Interlayer Regulation Strategy

Tianming Sun[1, 2], Bin Feng[2], Wenxian Wang[1, *], Guisheng Zou[2, *], Lei Liu[2, *]
[1]*Taiyuan University of Technology*
[2]*Tsinghua University*

15:40 Break

Session Chair: Federico Smeacetto, *Politecnico di Torino*
Chun Li, *Harbin Institute of Technology*

15:55 (S22-08) Advanced Joining Technologies for New and Heterogeneous Materials (Keynote)

Peng He*, Panpan Lin, Tiesong Lin, Ce Wang
State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

16:25 (S22-09) Preparation and Property Study of Glass Frits for Electronic Pastes (Invited)

Huidan Zeng *, Ao Li, Qi Jiang, Yijing Chen, Jingtao Yan, Yali Yang
School of Materials Science and Engineering, East China University of Science and Technology

16:45 (S22-10) Flash Joining of the Transparent Ceramics (Invited)

Yan Liu
Shanghai Institute of Ceramics, Chinese Academy of Sciences

17:05 (S22-11) Corrosion Behavior Monitoring and Mechanism Analysis of Heterogeneous Brazed Joints

Yaotian Yan, Junlei Qi*
State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

17:20 (S22-12) Fast Joining of 8YSZ Ceramic to NiCrFe Medium Entropy Alloy using Threshold Electric Field

Junbo Xia
College of Science, Xi'an University of Posts and Telecommunications

17:35 (S22-13) The Carbon-coated Silicon Nanoparticle Structure is Utilized as a Joining Layer for C_f/SiC Composites

Lianghao Chen, Xiaobing Zhou*
Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences

17:50 (S22-14) Joining Ti_3AlC_2 Ceramic to Zr-4 alloy using Copper as an Interlayer

Bo Yang, Chun Li, Xiaoqing Si, Jian Cao*
State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

Symposium 24: Advanced Refractories and Traditional Ceramics

(Location: Yuan 5)

Session Chair: Wen Yan, *Wuhan University of Science and Technology*

13:30 (S24-01) Refractory Solutions to "the Carbon Challenge" (Keynote)

Yawei Li
The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology

14:00 (S24-02) Simulation of Marangoni Effect for Refractory Materials (Invited)

Sandra Vollmann
Chair of Ceramics, Montanuniversität Leoben

14:25 (S24-03) Densification Mechanism and Properties of h-BN/ZrO_2 Composites by Spark Plasma Sintering (Invited)

Mao Chen, Fan Zhang, Bingbing Fan, Yongqiang Chen*
Zhengzhou University

14:45 (S24-04) Effect of α-Al_2O_3 Content on Microstructures, Mechanical Properties and Purification Efficiency on Molten Steel of MgO-based Ceramic Filters

Ying Liu, Wen Yan*
The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology

15:05 (S24-05) Study on the Preparation and Properties of Typical Tailings and Fine Mud Synergistic Low Temperature Sintering Ceramics in Chengde Area

Xin Min*, Yupeng Duan

Materials Science and Engineering, China University of Geosciences (Beijing)

15:25 (S24-06) Interaction Behavior of Periclase-hercynite Material with Cement Clinker

Yuchi Liu, Hongfeng Yin*

College of Materials Science and Engineering, Xi'an University of Architecture &Technology

15:45 Break

Session Chair: Yueming Li, *Jingdezhen Ceramic University*

16:00 (S24-07) Estimation of Production Places of Unknown Excavated Porcelains Based on the Difference in Solubility of Metals during Elutriation Process (Keynote)

Masaaki Tabata

Faculty of Science and Engineering, Saga University

16:30 (S24-08) Studies on High-temperature In-situ Preparation of TiO_2 Superhydrophilic Self-cleaning Glaze and Photocatalytic Synergistic Enhancement Mechanism (Keynote)

Weixia Dong

Jingdezhen Ceramic University

17:00 (S24-09) In-situ Synthesis of SiAlON Based Ceramics for Thermal Storage by Aluminothermic or Silicothermic Nitridation of Aluminosilicate Wastes (Invited)

Xinbin Lao*, Xiaoyang Xu, Zhi Tu, Yujie Deng, Zhihuan Mao, Yali Zhao, Jian Liang

Jingdezhen Ceramic University

17:25 (S24-10) Chemical Composition and Color Analysis of White and Black Wares from Xinan Kilns in Henan Province

Qingyu Wang, Tian Wang*, Fen Wang*, Jianfeng Zhu, Ying Wang, Zhao Ren

School of Antiquities Preservation Science & Technology, Shaanxi University of Science & Technology

17:45 (S24-11) Improvement of Thermal Shock Resistance by Prestress Developed in Sandwich Structure Bone-China Body

Hongbing Wei[1], Yueming Li[1,*], Yi Sun[1], Kai Li[1], Yiwang Bao[2], Detian Wan[2]

[1]*Jingdezhen Ceramic University*

[2]*China Building Material Academy*

Symposium 27: Biomimetics and Bioinspired Processing of Advanced Ceramics

(Location: Tang 3)

Session Chair: Zhaoyong Zou, *Wuhan University of Technology*

13:30 (S27-01) Convergent Biological Designs for Advanced Materials (Keynote)

David Kisailus

University of California

14:00 (S27-02) Bio-inspired Multi-Structured Hollow Ceramic Nanofibers for Energy and Catalysis (Invited)

Yong Zhao

School of Chemistry, Beihang University

14:25 (S27-03) Biological and Bioinspired Energy Absorption and Impact Resistant Structures and Materials (Invited)

Wei Huang

Huazhong University of Science and Technology

14:50 (S27-04) Self-assembled Silica Colloids as Lightweight and Tough Bioinspired Composites

Victoria Vilchez, Shitong Zhou, Florian Bouville*

Imperial College London

15:10 (S27-05) Pressure-induced Crystallization and Densification of Amorphized Calcium Carbonate Hexahydrate Controlled by Interfacial Water

Qihang Wang, Zhaoyong Zou*, Zhengyi Fu*

Wuhan University of Technology

15:30-16:00 Break

Session Chair: Yong Zhao, *Beihang University*

16:00 (S27-06) Biomineralisation in Bivalves: Inspiring Blueprints for Advanced Hybrid and Graded Ceramics (Keynote)
Stephan E Wolf; *Friedrich-Alexander University Erlangen-Nürnberg (FAU)*

16:30 (S27-07) Spontaneous Oriented Growth of Amorphous Calcium Phosphate and its Implications in Biomineralization (Invited)
Bing-Qiang Lu; *Tenth People's Hospital, Tongji University*

16:55 (S27-08) Bioinspired Photonic Thermal Regulation Materials (Invited)
Han Zhou; *Shanghai Jiao Tong University*

17:20 (S27-09) Bioprocessing-Inspired Synthesis of Nanoporous Hematite Mesocrystals with Hierarchical Nanostructures for Energy Storage
Rongjie Wang, Wenhao Chi, Jingjing Xie*, Zhengyi Fu*
Wuhan University of Technology

Symposium 28: PACRIM Young Scholars Forum
(Location: Yuan 4)

Session Chair: Jing Feng, *Kunming University of Science and Technology*

13:30 (S28-01) Design, Fabrication, and Application of Nitride-based Functionally Graded Materials for Extreme Environments (Keynote)
Fei Chen[1, *], Zhifeng Huang[2], Mingyong Jia[1], Yueqi Wu[1], Binhua Xiang[1], Qiang Shen[1], Lianmeng Zhang[1]
[1]State Key Lab of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology
[2]International School of Materials Science and Engineering, Wuhan University of Technology

14:00 (S28-02) Atomic Structure and Chemistry of Ceramic Grain Boundaries Studied using Atomic-resolution STEM-EDS (Invited)
Bin Feng[1, *], Naoya Shibata[1, 2], Yuichi Ikuhara[1, 2]
[1]Institute of Engineering Innovation, The University of Tokyo
[2]Nanostructures Research Laboratory, Japan Fine Ceramics Center

14:25 (S28-03) Contributions of Bonding Heterogeneity to Mechanical and Thermal Properties of Rare Earth Molybdates for Thermal Barrier Coatings (Invited)
Yiran Li*
Shanghai University

14:50 (S28-04) Effect of Post-annealing on High Temperature Performances of $LaMgAl_{11}O_{19}/Yb_2Si_2O_7$ Thermal/environmental Barrier Coatings (Invited)
Shujuan Dong*, Xueqiang Cao
State Key Laboratory of Silicate Materials for Architectures, Wuhan University of Technology

15:15 (S28-05) Design and Realization of Interface Strengthening to GNPs/YSZ Nanocomposite Coating (Invited)
Chenkun Sun, Xiaodong Zhang*, You Wang
School of Materials Science and Engineering, Harbin Institute of Technology

15:40 Break

Session Chair: Fei Chen, *Wuhan University of Technology*

16:00 (S28-06) Synthesizable Discovery of Unconventional Proton-conducting Oxides by Computation and Machine Learning for Defect Chemistry (Keynote)
Susumu Fujii[1, 2, *], Yuta Shimizu[3], Junji Hyodo[3], Akihide Kuwabara[2], Yoshihiro Yamazaki[3]
[1]Division of Materials and Manufacturing Science, Osaka University
[2]Nanostructures Research Laboratory, Japan Fine Ceramics Center
[3]INAMORI Frontier Research Center, Kyushu University

16:30 (S28-07) Opportunities of In Situ Transmission Electron Microscopy for Measuring Microstructural Changes of Memristive Devices during Operation (Invited)
Baoming Wang
School of Materials Science and Intelligent Engineering, Nanjing University

16:55 (S28-08) Preparation and Characterization of Nanostructured $Lu_2Si_2O_7$ Feedstocks for Plasma-sprayed Environmental Barrier Coatings (Invited)

Feifei Zhou[1, *], Donghui Guo[2], Baosheng Xu[2], Jie Xu[1], You Wang[3]

[1]Zhenzhou Research Institute, Harbin Institute of Technology
[2]Institute of Advanced Structure Technology, Beijing Institute of Technology
[3]School of Materials Science and Engineering, Harbin Institute of Technology

17:20 (S28-09) Preparation and Properties of Low-temperature Co-fired Ceramics via Digital Light Processing Technology (Invited)

Zhifeng Huang[1, 2, *], Yujuan Zhou[2], Fei Chen[1, 2], Qiang Shen[2]

[1]International School of Materials Science and Engineering, Wuhan University of Technology
[2]State Key Lab of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology

17:45 (S28-10) Analyzing Grain Boundary Diffusivity of Nanocrystalline Alumina and Zirconia Ceramics from Sintering Models

Yilei Huang, Hongbing Yang, Chang-An Wang, Yanhao Dong*

State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University

Symposium 1: Virtual Materials Design and Ceramic Genome
(Location: Ming)

Session Chair: Yanhui Zhang, *Yanshan University*

08:30 (S1-10) Stability and Properties of the MAX and MAB Phases: from Understanding to Prediction by DFT Simulations (Keynote)
Yuelei Bai*, Hang Yin, Zhiyao Lu, Xinxin Qi, Guangping Song, Yongting Zheng, Xiaodong He
Harbin Institute of Technology

09:00 (S1-11) Modeling and High-throughput Design of Complex-Structure Ceramics for Thermal/Environmental Barrier Coatings Applications (Invited)
Yixiu Luo, Luchao Sun, Jiemin Wang, Jingyang Wang*
Institute of Metal Research, Chinese Academy of Sciences

09:25 (S1-12) Thermodynamics of Surface and Oxygen Vacancy in Rare Earth Stannates by First-principles Calculations (Invited)
Juanli Zhao[1, 2], Bin Liu[2, *]
[1]Key Laboratory for Optoelectronics and Communication of Jiangxi Province, Jiangxi Science & Technology Normal University
[2]School of Materials Science and Engineering, Shanghai University

09:50 (S1-13) Screening Rare Earth Aluminates as Promising Thermal Barrier Coatings by High-throughput First-principles Calculations
Kaili Chu, Bin Liu*; *Shanghai University*

10:10 Break

Session Chair: Yixiu Luo, *Institute of Metal Research, Chinese Academy of Sciences*

10:30 (S1-14) Design of Electron-rich Intermetallic Compounds for Catalysis and Energy Applications (Keynote)
Junjie Wang; *Northwestern Polytechnical University*

11:00 (S1-15) Microstructural Design of $BaTiO_3$ Based Ceramics for Multilayer Ceramic Capacitor (Invited)
Juanjuan Xing[1, *], Jiayan Huang[1], Faqiang Zhang[2], Hui Gu[1]
[1]Shanghai University
[2]Shanghai Institute of Ceramics, Chinese Academy of Sciences

11:25 (S1-16) Investigation on Composition-dependent Optical and Mechanical Properties of $Mg_{5x}Al_{23-5x}O_{27+5x}N_{5-5x}$ by First Principles Calculations Combined with Bond Valence Models
Lu Ren[1, 2], Hao Wang[1, *], Bingtian Tu[1]
[1]Wuhan University of Technology
[2]Jingchu University of Technology

11:45 Lunch

Session Chair: Bin Liu, *Shanghai University*

13:30 (S1-17) Material Discovery with Machine Learning Trained from a Small Database (Keynote)
Shuzhou Li; *Nanyang Technological University*

14:00 (S1-18) Application of Machine Learning Potentials in Materials Science (Invited)
Fu-Zhi Dai; *AI for Science Institute*

14:25 (S1-19) CALPHAD as a Foundational Tool for Genomic Design of Ceramics (Invited)
Qing Chen[1, *], Weiwei Zhang[2], Lina Kjellqvist[1], Huahai Mao[1], Johan Bratberg[1]
[1]Thermo-Calc Software AB
[2]Thermo-Calc Software Inc

14:50 (S1-20) Theoretical Guided Discovery of 2D Materials: from Metal to MXene and XMene Layers (Invited)
Weiwei Sun[1, 2, *], Jiawei Tang[1], Hui Li[2, 3], Xiaomin Zhang[4], Jin Yu[2, 3], Litao Sun[1]
[1]SEU-FEI Nano-Pico Center, Key Laboratory of MEMS of Ministry of Education, Southeast University
[2]Jiangsu Province Key Laboratory of Advanced Metallic Materials, Southeast University
[3]School of Materials Science and Engineering, Southeast University
[4]School of Physics, Southeast University

15:15 (S1-21) First-principles Investigation of Structural, Mechanical and Thermal Properties for Rare Earth Oxides RE_2O_3 (RE = La - Lu)

Yanning Zhang, Yiran Li*, Bin Liu*
School of Materials Science and Engineering, Shanghai University

15:35 Break

Session Chair: Yuanyuan Cui, *Shanghai University*

16:00 (S1-22) Unveiling Structural Features and Mechanical Properties of Amorphous SiBCN Ceramics (Keynote)

Bin Liu[1,*], Yuchen Liu[1,2], Dechang Jia[2], Yu Zhou[2]
[1]*School of Materials Science and Engineering, Shanghai University*
[2]*Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology*

16:30 (S1-23) Theoretical Investigation of Water Molecule Adsorption Behavior on X_2-RE_2SiO_5 (RE=Lu, Yb, Tm, Er, Ho, Dy, Tb) Surface (Keynote)

Jiemin Wang[1,*], Mei Liu[1,2], Jingyang Wang[1]
[1]*Advanced ceramic and composite division, Institute of Metal Research, CAS*
[2]*School of Materials Science and Engineering, University of Science and Technology of China*

17:00 (S1-24) Theoretical Insight into the Solar Thermal Absorption Property of M_2AlC MAX Phases (Invited)

Huimin Xiang[1,*], Yanchun Zhou[2,*]
[1]*Science and Technology on Advanced Functional Composite Laboratory, Aerospace Research Institute of Materials and Processing Technology*
[2]*School of Materials Science and Engineering, Zhengzhou University*

17:25 (S1-25) Influence of Chemical Disorder on Mechanical and Thermal Properties of Multi-component Rare Earth Zirconate Pyrochlores (Invited)

Yiran Li, Qi Wu, Bin Liu*
Shanghai University

17:50 (S1-26) Theoretical and Experimental Determination of Rare Earth Stannates $RE_2Sn_2O_7$ (RE = La - Lu) for High-temperature Wave-transparent Material Applications

Shuping Wen, Zhilin Tian*, Bin Li*
School of Materials, Shenzhen Campus of Sun Yat-sen University

Symposium 2: Advanced Characterization, Testing, and Analysis of Materials

(Location: Tang 2)

Session Chair: Masatomo Yashima, *Tokyo Institute of Technology*

08:30 (S2-11) Ultrafast Dynamics Studies of Ferroelectric Materials (Invited)

Qian Li
Tsinghua University

08:55 (S2-12) X-Ray Imaging and Multi-Scale Heterogeneous Reaction: from Liquid-Electrolyte Batteries to All-Solid-State Batteries (Invited)

Shuaifeng Lou
School of Chemistry and Chemical Engineering, Harbin Institute of Technology

09:20 (S2-13) Grain Boundaries in Nanotwinned Diamond: Structure, Transition, and Migration (Invited)

Wentao Hu, Ke Tong, Xiang Zhang, Bo Xu*, Yongjun Tian*
Center for High Pressure Science (CHiPS), State Key Laboratory of Metastable Materials Science and Technology, Yanshan University

09:45 (S2-14) Subsurface Oxygen at Transition Metal Surfaces: its Direct Atom-resolved Imaging and Role in Metal Oxidation

Tingting Yao, Chunlin Chen*
Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

10:05-10:30 Break

Session Chair: Yongchun Zou, *Harbin Institute of Technology*

10:30 (S2-15) Search for High Ion Conductors and their Crystal Structure Analyses (Keynote)
Masatomo Yashima
Department of Chemistry, School of Science, Tokyo Institute of Technology

11:00 (S2-16) Atomic Insights into the Growth of Energy Materials (Invited)
Yue Lin
Hefei National Research Center for Physical Sciences at the Microscale, University of Science and Technology of China

11:25 (S2-17) Amorphization in Hard Ceramics (Invited)
Madhav Reddy Kolan
School of Materials Science and Engineering, Shanghai Jiao Tong University

12:00 Lunch

Session Chair: Chunlin Chen, *University of Science and Technology of China*

13:30 (S2-18) Atomic Structural Visualization on $Ho_2Si_2O_7$ Using iDPC-STEM Technique and its Correlation with Thermal Expansion as Advanced Environmental Barrier Coating (Keynote)
Xirui Lv, Yixiu Luo, Jingping Cui, Jie Zhang*, Lei Zhang, Jingyang Wang
Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

14:00 (S2-19) Atomistic Manufacturing of Color Center in Silicon Carbide by Energetic Beam Direct Writing (Invited)
Zongwei Xu
State Key Laboratory of Precision Measuring Technology and Instruments, Tianjin University

14:25 (S2-20) Domain Morphology Characterizations of High-performance Textured Piezoelectric Ceramics (Invited)
Yingchun Liu[1, *], Hongjun Zhang[1, *], Bin Yang[1], Wenwu Cao[1, 2], Jiubin Tan[3]
[1]School of Instrumentation Science and Engineering, Harbin Institute of Technology
[2]Materials Research Institute, The Pennsylvania State University
[3]Center of Ultra-precision Optoelectronic Instrument Engineering, Harbin Institute of Technology

14:50 (S2-21) Direct Observation of Thermally Induced Low-speed Martensitic Transformation in Yttria-Stabilized Zirconia
Hiromu Shibaguchi[1], Shun Kondo[1], Bin Feng[1], Naoya Shibata[1, 2], Yuichi Ikuhara[1, 2, *]
[1]Institute of Engineering Innovation, The University of Tokyo
[2]Nanostructures Research Laboratory, Japan Fine Ceramics Center

15:10 (S2-22) Atomic-scale Structural Variation in a New Superconducting Ternary Boride
Hanbin Gao[1], Yang Song[1], Yue Gong[1], Er-Jia Guo[2], Li-Zhi Zhang[1], Qiang Zheng[1, *]
[1]National Centre for Nanoscience and Technology
[2]Institute of Physics

15:30 (S2-23) In Situ Electron Microscopy Characterization of High Performance Ni-rich Layered Oxide Cathodes
Jiayi Tang, Meiyu Wang*, Yu Deng*
College of Engineering and Applied Sciences, Nanjing University

15:50 Break

Session Chair: Jie Zhang, *Chinese Academy of Sciences*

16:00 (S2-24) Atomic and Electronic Structures of Boundaries in AlN Thin Films (Keynote)
Chunlin Chen
Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

16:30 (S2-25) Microstructure and Bioactivity of the Si-Doped Hydroxyapatite Nanorods In Situ Formed on the Taitanium Based Microarc Coating (Invited)
Qing Du
Department of Civil Engineering, School of Architecture and Civil Engineering, Harbin University of Sci & Technol

16:55 (S2-26) In-situ Monitoring of Stress Evolution in Sealing Glass Based on Fiber Bragg Grating Sensors
Keqian Gong, Yangyang Cai, Zheng Liu, Yong Zhang*
Beijing Key Laboratory of Fine Ceramics, State Key Laboratory of New Ceramics and Fine Processing, Institute of Nuclear and New Energy Technology, Tsinghua University

17:15 (S2-27) Description of Fracture Features in the Presence of Small Cracks and Dynamic Loads Based on the Structural-temporal Approach

Anastasiia Chevrychkina*, Natalia Mikhailova, Yuri Petrov
Faculty of Mathematics and Mechanics, Saint Petersburg State University

17:35 (S2-28) Microstructure and Formation Mechanism of $BiFeO_3$-$BaTiO_3$ Ceramics

Weixiong Qian[1], Tao Liu[1], Juanjuan Xing[2,*], Ying Jiang[3,*], Hui Gu[2]
[1]*Materials Genome Institute, Shanghai University*
[2]*School of Materials Science and Engineering, Shanghai University*
[3]*State Key Laboratory of Silicon Materials and Center of Electron Microscopy, School of Materials Science and Engineering, Zhejiang University*

Symposium 3: Advanced Powder Processing and Green Manufacturing Technologies

(Location: Banquet Hall 2)

Session Chair: Hui Gu, *Shanghai University*
Linli Xu, *The Hong Kong Polytechnic University*

08:30 (S3-11) The Ubiquitous Core-rim Structures and the Control of Transforming Microstructures in High-performance Si-based Ceramics (Keynote)

Hui Gu
School of Materials Science & Engineering, Shanghai University

09:00 (S3-12) Grain Growth and Microstructural Evolution: the Mixed Control Mechanism of Atom Transport (Keynote)

Suk-Joong L. Kang
Department of Materials Science and Technology, KAIST

09:30 (S3-13) Research and Industrialization of High Thermal Conductivity Silicon Nitride Ceramic Substrates (Invited)

Jingxian Zhang*, Yusen Duan, Dongliang Jiang
Structural Ceramics Engineering Research Center, Shanghai Institute of Ceramics

09:55 (S3-14) Preparation of Graphene@h-BN Nanosheet Composites and their Property of Radiative Heat Dissipation

Hua Su[1], Kang Yuan[1], Hui Yang[3], Yong Li[2,*], Linli Xu[1,*]
[1]*Department of Applied Biology and Chemical Technology and Research Institute for Smart Energy, The Hong Kong Polytechnic University*
[2]*Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences*
[3]*Laboratory of Bio-inspired Smart Interface Science, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences*

10:15 Break

Session Chair: Yuchi Fan, *Donghua University*
Yanhao Dong, *Tsinghua University*

10:30 (S3-15) Cold Sintering of Highly Transparent Calcium Fluoride Nanoceramic as a Universal Platform for High-power Lighting (Invited)

Yuchi Fan
Donghua University

10:55 (S3-16) Sintering Nanocrystalline Materials with Ultra-uniform Microstructure (Invited)

Yanhao Dong
Tsinghua University

11:20 (S3-17) Design, Regulation and Lithium Storage Properties of SiOC Ceramics

Wen Lei
Wuhan University of Science and Technology

11:40 (S3-18) Mechanical and Thermal Properties of Liquid Phase Sintering SiC with Y_2O_3-RE_2O_3 (RE=Ho and Sc)

Yuhong Chen*, Wubin Qi, Xiuling Zhan, Wanxiu Hai
School of MSE, North Minzu University

12:00 Lunch

Session Chair: Hiroaki Furuse, *National Institute for Materials Science*
Jianfeng Hu, *Shanghai University*

13:30 (S3-19) Fabrication of Non-cubic Fluorapatite Laser Ceramics with Fine Microstructure (Keynote)
Hiroaki Furuse*, Koji Morita, Byung-Nam Kim, Tohru S. Suzuki
National Institute for Materials Science

14:00 (S3-20) Towards Tough Al_2O_3 Ceramics (Keynote)
Jiangong Li
School of Materials and Energy, Lanzhou University

14:30 (S3-21) A General Mechanism of Grain Growth and its Implications (Invited)
Jianfeng Hu
School of materials science and engineering, Shanghai University

14:55 (S3-22) Preparation of High Hardness $AlMgB_{14}$ Ceramic Material
Tianxing Sun[1, 2], Jingxian Zhang[2, *]
[1]*University of Chinese Academy of Sciences*
[2]*Structural Ceramics Engineering Research Center, Shanghai Institute of Ceramics*

15:15 (S3-23) Bonding of AlN Ceramic and Cu via A Disordered Atomic Layer under Ultrasonic Cavitation
Shu Chen, Zhiwu Xu*
State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

15:35 Break

Session Chair: Yuwei He, *DKSH (Shanghai) Ltd.Technology Scientific Instruments*
Honghua Li, *Technical Institute of Physics and Chemistry*

15:50 (S3-24) Key Factors Determining Good Dispersion of Particles in a Pure Solvent or Polymer Solution, and Evaluation and Control Methods (Invited)
Yuwei He; *DKSH (Shanghai) Ltd.Technology Scientific Instruments*

16:15 (S3-25) Flow Property Characterization of Advanced Ceramics (Invited)
Xiangyun Lu; *Micromeritics Instrument Corporation*

16:40 (S3-26) AlON Transparent Ceramics from Powders Synthesized by Improved Direct Nitridation
Jian Yang[1, 2], Youfu Zhou[1, 2, *]
[1]*Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences (FJIRSM, CAS)*
[2]*Fujian Science & Technology Innovation Laboratory for Optoelectronic Information of China*

17:00 (S3-27) MnAl Layered Double Hydroxides: A Robust Host for Aqueous Ammonium-ion Storage with Stable Plateau and High Capacity
Qiang Liu[1], Fei Ye[1], Kailin Guan[1], Yun ting Yang[1], Hongliang Dong[2], Yuping Wu[3], Zilong Tang[4], Linfeng Hu[1, *]
[1]*School of Materials Science and Engineering, Southeast University*
[2]*Center for High Pressure Science and Technology Advanced Research*
[3]*School of Energy and Environment, Southeast University*
[4]*State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University*

17:20 (S3-28) Method and Application for Evaluating the Consistency of Silicon Nitride Powder Properties by Combustion Synthesis
Honghua Li[1], Wanru Dong[2], Zengchao Yang[1], Jiangtao Li[1, *]
[1]*Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Science*
[2]*Institute of Optical Physics and Engineering Technology*

17:40 (S3-29) Preparation of Unidirectional Porous AlN Ceramics via the Combination of Freeze Casting and Combustion Synthesis
Zhilei Wei, Tao Li, Jiabin Hu, Zhongqi Shi*
State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University

18:00 (S3-30) Preparation and Thermal Properties of Diamond Particles Reinforced Silicon Carbide Substrate
Pengfei Liu*, Zhao Han
School of Metallurgical Engineering, Anhui University of Technology

Symposium 4: Novel and Strategic Processing and Manufacturing Technologies for Ceramics
(Location: Wu 2)

Session Chair: Yi-Tao Liu, *Donghua University*

08:30 (S4-11) Exsolution and Coarsening in Metal Oxide Systems (Keynote)
Ivar Reimanis
Metallurgical and Materials Engineering Department, Colorado School of Mines

09:00 (S4-12) Making Ultra-Tough Al_2O_3/ZrO_2 Nanoceramics through Columnar Submicrocrystals with Three-level Micro-nano Structures (Invited)
Yongting Zheng*, Yongdong Yu, Xudong Liu, Yuchen Yuan, Renjie Wang
Center for Composite Materials and Structures, Harbin Institute of Technology

09:25 (S4-13) Two-step Sintering of $Gd_2Zr_2O_7$ Nanoceramics by Self-propagating Chemical Furnace and its Aqueous Durability Analysis (Invited)
Kuibao Zhang; *Southwest University of Science and Technology*

09:50 (S4-14) AC Flash Sintering of 1.5 mol% Yttria-Stabilized Zirconia with High Toughness through Current-ramp Control
Fei Shen Ong[1, 2, *], Kohta Nambu[3, 4], Kohei Hosoi[1, 5], Kenta Kawamura[1, 5], Bin Feng[1, 6], Koji Matsui[1, 5], Yuichi Ikuhara[1, 6], Hidehiro Yoshida[1, 2]
[1]*Next Generation Zirconia Social Cooperation Program, Institute of Engineering Innovation, The University of Tokyo*
[2]*Department of Materials Engineering, The University of Tokyo*
[3]*Department of Materials Science and Engineering, Kyushu University*
[4]*Research Center for Functional Materials, National Institute for Material Science*
[5]*Inorganic Materials Research Laboratory, Tosoh Corporation*
[6]*Institute of Engineering Innovation, The University of Tokyo*

10:10 Break

Session Chair: Ivar Reimanis, *Colorado School of Mines*

10:30 (S4-15) Flexible/Elastic Oxide Ceramic Nanofiber Materials for Thermal Insulation (Invited)
Yi-Tao Liu; *Innovation Center for Textile Science and Technology, Donghua University*

~~**10:55 (S4-16) Uniform Flash Sintering by Material System Design (cancel)**~~
~~Shenghuan Ding*, Richard Todd*; *University of Oxford*~~

11:15 (S4-17) Rapid Densification Kinetics of 3 mol% Yttria-Stabilized Zirconia during Current-surge Stage of Flash Sintering
Ke Ren[1, *], Dianguang Liu[2], Ziting Niu[1], Jinling Liu[2], Yiguang Wang[1, *]
[1]*Beijing Institute of Technology*
[2]*Southwest Jiao tong University*

11:35 (S4-18) High-pressure Sintering Strategies for Enhanced Ceramic Materials: Case Studies with $Hf_{0.95}Ta_{0.05}B_2$ and $Hf_{0.95}Nb_{0.05}B_2$ Systems
Qiqi Zhu[1, 2], Wei Ji[1, 2, *], Zhengyi Fu[1, 2]
[1]*State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology*
[2]*Hubei Longzhong Laboratory, Wuhan University of Technology Xiangyang Demonstration Zone*

11:55 Lunch

Session Chair: Wei Ji, *Wuhan University of Technology*

13:30 (S4-19) Porous Si_3N_4-based Ceramics by Gelcasting and Self-Propagating High-temperature Synthesis (SHS) (Keynote)
Chang-An Wang; *School of Materials Science and Engineering, Tsinghua University*

14:00 (S4-20) Objective-Orientated Automatic Design Guided Fast Fabrication of High-Property VO_2-based Multilayered Smart Coatings (Invited)
Baoshun Liu*, Xiujian Zhao, Minghua Qin, Jun Wang
State Key Laboratory of Silicate Materials for Architectures, Wuhan University of Technology

14:25 (S4-21) Applications of Visualization High-temperature Deformation Analysis Technique in the Inorganic Materials Field (Invited)

Xin Wang, Haiyuan Zhang*
Tianjin Zhonghuan Electric Furnace Co., Ltd.

14:50 (S4-22) Porous Silicon Carbide Ceramics were Prepared by Gel Casting Process using PMMA as Pore-making Agent (Invited)

Yinghan Zheng*, Hailin Liu, Xiaoting Huang, Peiyan Yuan
China Building Materials Academy Co., Ltd.

15:15 (S4-23) Confined Synthesis of Ceramic-encapsulated Perovskite Phosphors with High Quantum Yield and Excellent Stabilities

Zesheng Pan, Lianjun Wang*, Wan Jiang*
State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, College of Materials Science and Engineering, Donghua University

15:35 Break

Session Chair: Chang-An Wang, *Tsinghua University*

15:50 (S4-24) Densification, Microstructure and Properties of Advanced Ceramics Sintered under Ultra-high Pressure (Invited)

Wei Ji
State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology

16:15 (S4-25) Effect of W Content and Brazing Temperature on the Microstructure and Mechanical Behavior of B_4C/TC_4 Joints

Zhaoran Chen
Shanghai institute of Ceramics, Chinese Academy of Sciences

16:35 (S4-26) Effect of Drying Condition and Printing Patterns on Mechanical Property of Dense Monolithic Si_3N_4 Ceramics Fabricated by Direct Ink Writing

Yitian Yang[1, 2, *], Zhihua Yang[2, 3, 4], Dechang Jia[2, 3, *], Yu Zhou[2, 3], Haibo Wu[1], Zhengren Huang[1]
[1]*Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences*
[2]*Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology*
[3]*Key Laboratory of Advanced Structural-Functional Integration Materials & Green Manufacturing Technology, Harbin Institute of Technology*
[4]*Chongqing Institute of Harbin Institute of Technology*

16:55 (S4-27) Application of Natural Graphite in Bulk Graphite and C/C Composite

Junzhuo Wang, Wan Jiang*
State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, College of Materials Science and Engineering, Donghua University

17:15 (S4-28) Effect of Pressure on the Microstructure and Sintering Kinetics of TaC Ceramics

Junfeng Gu
Wuhan University of Technology

Symposium 5: Advanced Additive Manufacturing Technologies: Materials, Processes, and Systems

(Location: Zhou 1)

Session Chair: Chang-Jun Bae, *Korea Institute of Materials Science (KIMS)*

08:30 (S5-10) How the Densification Processes of Ceramic Matrix Composite Materials can Empower the Additive Manufacturing of Complex Silicon Carbide Components (Keynote)

Alberto Ortona
University of Applied Sciences (SUPSI): Mechanical Engineering and Materials Technology Institute (MEMTi), Polo Universitario Lugano

09:00 (S5-11) Laser Additive Manufacturing of Ultra-high Temperature Oxide Eutectic Composite Ceramics base on Melt Growth (Keynote)

Haijun Su*, Zhonglin Shen, Hao Jiang, Minghui Yu, Zhuo Zhang
State Key Laboratory of Solidification Processing, Northwestern Polytechnical University

09:30 (S5-12) Additive Manufacturing of Electromagnetic Wave Absorption Ceramic Composites via SLS (Invited)

Tao Zeng[1, 2, *], Siwen Yu[3], Zuzheng Chen[1], Yipeng Yang[1]
[1]*Department of Civil and Environmental Engineering, College of Engineering, Shantou University*
[2]*Intelligent Manufacturing Key Laboratory of Ministry of Education, Shantou University*
[3]*School of Materials Science and Chemical Engineering, Harbin University of Science and Technology*

09:55 (S5-13) Vat Photopolymerisation of Pickering Emulsions for Hierarchically Porous Silicon Carbide Structures

Terence Yan King Ho[1, *], Kah Sheng Pung[1], Zehui Du[1, 2, *], Chee Lip Gan[1, 2, *]
[1]*School of Materials Science and Engineering, Nanyang Technological University*
[2]*Temasek Laboratories, Nanyang Technological University*

10:15 Break

Session Chair: Alberto Ortona, *Polo Universitario Lugano*

10:30 (S5-14) In-situ Monitoring of Multi-Physical Dynamics in Ceramic Additive Manufacturing (Keynote)

Jihyun Lee, Sujin Park, Seongwan Jang, Chang-Jun Bae*
Department of 3DPritng Materials, Korea Institute of Materials Science (KIMS)

11:00 (S5-15) Microstructure and Properties of Ceramic Core for Turbine Engine Blades Prepared via Stereolithography 3D Printing (Keynote)

Jinguo Li[1, 2, *], Qiaolei Li[1], Jingjing Liang[1, 2], Yizhou Zhou[1], Xiaofeng Sun[1]
[1]*Institute of Metal Research, Chinese Academy of Sciences*
[2]*Space Manufacturing Technology (CAS Key Lab)*

11:30 (S5-16) Vat Photopolymerization 3D Printing of Ceramics: Materials, Equipment, Process and Applications (Invited)

Wenli Li[1], Weiwei Liu[1], Zhanwen Xing[1, 2, *]
[1]*School of Mechanical and Electrical Engineering, Soochow University*
[2]*ZRapid Technologies Co., Ltd*

11:55 Lunch

Session Chair: Soshu Kirihara, *Osaka University*

13:30 (S5-17) 3D Printing of Transparent Ceramics (Keynote)

Yiquan Wu
Kazuo Inamori School of Engineering, New York State College of Ceramics-SUNY, Alfred University

14:00 (S5-18) 3D Printed SiOC Ceramic-based Radar/Infrared Stealth Metamaterials (Keynote)

Hui Mei*, Li Yao, Hongxia Liu, Minggang Zhang, Yuekai Yan
Science and technology on Thermostructural Composite Materials Laboratory, School of Mater Sci & Eng, Northwestern Polytechnical University

14:30 (S5-19) FeCuNi based Cermets Prepared by Fused Deposition Molding: From High-qualified Composite Feedstock to Dense Sintered (Invited)

Huiwen Xiong*, Ting Shen, Lei Zhang, Kechao Zhou*
State Key Laboratory of Powder Metallurgy, Central South University

14:55 (S5-20) Preparation and Properties of Si_3N_4 Ceramics by Additive Manufacturing (Invited)

Jia-Min Wu[1, 2, *], Hai-Lu Huang[1, 2], Meng Li[1, 2], Ya-Ru Wu[1, 2], Chong Tian[1, 2], Yu-Sheng Shi[1, 2]
[1]*State Key Laboratory of Materials Processing and Die & Mould Technology, School of Materials Science and Engineering, Huazhong University of Science and Technology*
[2]*Engineering Research Center of Ceramic Materials for Additive Manufacturing, Ministry of Education*

15:20 (S5-21) Embedded 3D Printing of Microstructured Multi-material Composites (Invited)

Shitong Zhou*, Florian Bouville, Eduardo Saiz*; *Department of Materials, Imperial College London*

15:45 Break

Session Chair: Yiquan Wu, *Alfred University*

16:00 (S5-22) Additive Manufacturing and Properties of Silica-based aerogels (Keynote)

Junzong Feng*, Lukai Wang, Yonggang Jiang, Liangjun Li, Yijie Hu, Jian Feng*
Science and Technology on Advanced Ceramic Fibers and Composites Laboratory, College of Aerospace Science and Engineering, National University of Defense Technology

16:30 (S5-23) Stereolithographic Additive Manufacturing of Ceramic Components with Functional Geometries (Keynote)

Soshu Kirihara

Joining and Welding Research Institute, Osaka University

17:00 (S5-24) Metal-doped polymer-derived SiOC composites with inorganic metal salt as the metal source by digital light processing 3D printing (Invited)

Anran Guo[1, *], Chong He[2], Jiachen Liu[1], Liwen Yan[1]

[1]School of Materials Science and Engineering, Key Lab of Advanced Ceramics and Machining Technology of Ministry of Education, Tianjin University

[2]School of Textile Science and Engineering, State Key Laboratory of New Textile Materials and Advanced Processing Technology, Wuhan Textile University

17:25 (S5-25) Design and Additive Manufacturing of Ceramic Metamaterials with Programmable Thermal Expansion (Invited)

Keqiang Zhang; *School of Materials Science and Engineering, Tsinghua University*

17:45 (S5-26) Design of Lithium Ion diffusivity in Structured Electrodes Fabricated by Direct Ink Writing

Sujin Park, Yangyang Li, Seongwan Jang, Chang-Jun Bae*

Department of 3D Printing Materials, Korea Institute of Materials Science (KIMS)

Symposium 6: Engineering Ceramics and Ceramic Matrix Composites (CMCs): Processing, Design, Development, and Applications

(Location: Zhou 2)

Session Chair: Jianjun Sha, *Dalian University of Technology*

08:30 (S6-12) Multilevel Design of Environmental Barrier Coatings for SiC_f/SiC Composite (Keynote)

Jingyang Wang

Institute of Metal Research, Chinese Academy of Sciences

09:00 (S6-13) The Abaltion Behaviors of C/SiC Composites in Plasma Wind Tunnel (Invited)

Yiguang Wang*, Zuozheng Chen; *Beijing Institute of Technology*

09:25 (S6-14) The In-service Behavior of 2D SiC/SiC with Si/Mullite/BSAS Environmental Barrier Coatings under Simulated Conditions (Invited)

Jianzhang Li[1, *], Xinxin Cao[1], Yulei Wang[1], Xingang Luan[2], Ziqi Zhang[1], Laifei Cheng[2], Litong Zhang[2]

[1]National Engineering Research Center of Ceramic Matrix Composite Manufacture Technology, Northwestern Polytechnical University

[2]Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University

09:50 (S6-15) Correlation Study of Tensile Properties and Microstructure Evolution of Fibre Bundle SiC/SiC

Xiangyun Gao[1, *], Chen Zhang[2], Xuehan Ma[1], Bojie You[1]

[1]Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University

[2]School of Materials Science and Engineering. Chang'an University

10:10 Break

Session Chair: Jingyang Wang, *Institute of Metal Research, Chinese Academy of Sciences*

10:30 (S6-16) Microstructure and Mechanical Properties of Continuous Carbon Fiber-reinforced UHTC Composites (Invited)

Jianjun Sha[1, 2, *], Yingjun Liu[1], Cheng Su[1], Yufei Zu[1], Jixiang Dai[1]

[1]Key Laboratory of Advanced Technology for Aerospace Vehicles of Liaoning Province, Dalian University of Technology

[2]State Key Laboratory of Structural Analysis, Optimization and CAE Software for Industrial Equipment, Dalian University of Technology

10:55 (S6-17) Design, Preparation and Performance of Anti-oxidation Coatings for C_f/C-SiC Composites (Invited)

Sufang Tang*, Chenglong Hu

Institute of Metal Research, Chinese Academy of Sciences

11:20 (S6-18) Novel Fabrication Process for SiO_{2f}/SiO_2 Composites

Tengteng Xu, Rubing Zhang*

Institute of Engineering Mechanics, Beijing Jiaotong University

11:40 (S6-19) The Effect of Different Ball Milling Methods on the Properties of h-BN Matrix Composites

Wenlong Bai[1], Boxin Wei[1,*], Lei Chen[2,*], Wen Zhang[2,*], Yujin Wang[2,*]
[1]*School of Materials Science and Chemical Engineering, Harbin University of Science and Technology*
[2]*Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology*

12:00 Lunch

Session Chair: Sufang Tang, *Institute of Metal Research, Chinese Academy of Sciences*

13:30 (S6-20) Effect of Electric Fields on Crack Healing Behavior in Polycrystalline ZrO_2(8Y) (Invited)

Koji Morita
National Institute for Materials Science (NIMS), Research Center for Electronic and Optical Materials

13:55 (S6-21) Design and Construction of Highly Hard yet Toughened TMB_2 based Nanocomposite Thin Films (Invited)

Kan Zhang*, Weitao Zheng
State Key Laboratory of Superhard Materials, Department of Materials Science, Jilin University

14:20 (S6-22) Microstructure Evolution and Grain Growth Mechanisms of Pure h-BN Ceramic and h-BN Composite Ceramics during Hot-Pressing (Invited)

Xiaoming Duan[1,2,3,*], Zhuo Zhang[1,2,3], Baofu Qiu[1,2,3], Dechang Jia[1,2,3,*], Yu Zhou[1,2,3]
[1]*School of Materials Science and Engineering, Harbin Institute of Technology (HIT)*
[2]*Key Laboratory of Advanced Structural-Functional Integration Materials & Green Manufacturing Technology, HIT*
[3]*Institute for Advanced Ceramics, Harbin Institute of Technology*

14:45 (S6-23) Efficient Machine Learning Approach for Defect Characterization and Mechanical Property Prediction of Unidirectional Ceramic Matrix Composites

Bo Zhang, Changqi Liu*, Duoqi Shi, Xiaoguang Yang
School of Energy and Power Engineering, Beihang University

15:05 (S6-24) Intelligent Identification of High-temperature Tensile Damage in CVI-2D SiC/SiC Composites

Bojie You[1,*], Xiangyun Gao[1],Xuehan Ma[1],Chen Zhang[2],Yi Zhang[3]
[1] *School of Materials, Northwestern Polytechnical University*
[2] *School of Materials Science and Engineering, Chang'an University*
[3] *Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University*

15:25 (S6-25) Fabrication and Characterization of Mullite Foamed Ceramics with Low Thermal Conductivity

Wenying Zhou[1,*], Degang Zhao[1], Changcun Li[1], Zheng Zhang[2]
[1]*School of Materials Science and Engineering, University of Jinan*
[2]*CNRS, CEMHTI UPR3079, Univ. Orl´eans*

15:45 Break

Session Chair: Xiaoming Duan, *Harbin Institute of Technology*

16:00 (S6-26) Conceptual Design and Strength Assessment of SiC/SiC Ceramic Matrix Composite Turbine Blade for Advanced Aeroengines (Invited)

Changqi Liu*, Duoqi Shi, Zhenyu Wang, Xiaoguang Yang
School of Energy and Power Engineering, Beihang University

16:25 (S6-27) Preparation of (HfZrCeTi-Ln)O_{2-x} Nanocrystals and Robust Aerogel Spiral Fibers (Invited)

Fangwei Guo[1,2,3,*], Xing Zhang[2], Ruiji Zhang[1]
[1]*Shanghai Key Laboratory of Advanced High-temperature Materials and Precision Forming, School of Materials Science and Engineering, Shanghai Jiao Tong University*
[2]*Aerospace System Engineering Shanghai*
[3]*Laboratory for Multifunctional Materials, Department of Materials, ETH Zürich*

16:50 (S6-28) Fabrication and Properties of C_f/($Ti_{0.2}Zr_{0.2}Hf_{0.2}Nb_{0.2}Ta_{0.2}$)C-SiC High-Entropy Ceramic Matrix Composites via Precursor Infiltration and Pyrolysis

Feiyan Cai[1,2,3], Dewei Ni[1,2,*], Shaoming Dong[1,2,*]
[1]*State Key Laboratory of High Performance Ceramics & Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences*
[2]*Structural Ceramics and Composites Engineering Research Center, Shanghai Institute of Ceramics, Chinese Academy of Sciences*
[3]*University of Chinese Academy of Sciences*

17:10 (S6-29) Novel (Zr, Ti)(C, N)-SiC Ceramics via Reactive Hot-pressing and its Enhanced Oxidation Resistance at 850-950 °C

Boxin Wei[1,*], Liwei Wang[1], Mengmeng Zhang[1], Dong Wang[2], Lei Chen[3], Yujin Wang[3]
[1]*School of Materials Science and Chemical Engineering, Harbin University of Science and Technology*
[2]*School of Materials Science and Engineering, Anhui University of Technology*
[3]*Key Laboratory of Advanced Structural-Functional Integration Materials & Green Manufacturing Technology, Harbin Institute of Technology*

Symposium 7: Advanced Structural Ceramics and CMCs for Ultra Extreme Environments

(Location: Banquet Hall 1)

Session Chair: Zhisheng Zhao, *Yanshan University;*
Yongsheng Liu, *Northwestern Polytechnical University*

08:30 (S7-12) Investigation on the Ultra-high Temperature Ceramic Matrix Composites Fabricated by Reactive Melt Infiltration (Keynote)

Xiang Xiong; *State Key Laboratory of Powder Metallurgy, Central South University*

09:00 (S7-13) Ultra-high Temperature Ceramics Coatings with High Oxygen-blocking Ability (Invited)

Xuanru Ren; *Henan Academy of Sciences*

09:25 (S7-14) Design and Performance of Ultra-High Temperature Ceramic Matrix Composites based on Improved Reactive Melt Infiltration (Invited)

Dewei Ni*, Bowen Chen, Shaoming Dong
Shanghai Institute of Ceramics, Chinese Academy of Sciences

09:50 (S7-15) An Unusual Carbon-Ceramic Composite with Gradients in Composition and Porosity Delivering Outstanding Thermal Protection Performance up to 1900°C (Invited)

Chenglong Hu, Meng Yan, Sufang Tang*
Institute of Metal Research, Chinese Academy of Sciences

10:15 Break

Session Chair: Xiang Xiong, *Central South University*
Xuanru Ren, *Henan academy of sciences*

10:30 (S7-16) Research of Ultra-high Temperature Ceramic Matrix Composites Prepared by Organic-inorganic Transformation (Keynote)

Yuchen Pei
Research Institute of Aerospace Special Materials and Processing Technology

11:00 (S7-17) Preparation, Microstructure and Properties of Ultra-high Temperature Carbide Ceramic Matrix Composites (Invited)

Fan Wan*, Rongjun Liu
College of Aerospace Science and Engineering, National University of Defense Technology

11:25 (S7-18) Characterization of the Temperature Dependence of the Mechanical Properties of the Laminated Ultra-high Temperature Ceramic Matrix Composites (Invited)

Ruzhuan Wang[1,*], Mingyu Gu[1], Bi Jia[1], Weiguo Li[2]
[1]*Chongqing University of Science and Technology*
[2]*Chongqing University*

11:50 (S7-19) Design and Properties of Reusable Ultra-high Temperature Ceramic Matrix Composites

Bowen Chen*, Dewei Ni, Shaoming Dong
Shanghai Institute of Ceramics, Chinese Academy of Sciences

12:10 Lunch

Session Chair: Xiaohong Sun, *Tianjin University;*
Chenglong Hu, *Institute of Metal Research, CAS*

13:30 (S7-20) Grain Boundary Mobility Control in Zirconia Ceramics (Keynote)

Yanhao Dong
Tsinghua University

14:00 (S7-21) Oxidation and Corrosion Behaviors of Yttrium Silicate Modified SiC_f/SiC Composites in Water-oxygen Environments (Invited)

Yongsheng Liu

Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University

14:25 (S7-22) Low-temperature Sintered (Ti, Zr, Nb, Ta, Mo)C-based Composites Toughened with Damage-free SiC_w

Yang Liu[1], Weiming Guo[1,*], Liang Xu[1], Shikuan Sun[2], Hua-Tay Lin[1,*]

[1]School of Electromechanical Engineering, Guangdong University of Technology

[2]School of Material Science and Energy Engineering, Foshan University

14:45 (S7-23) Reactive Sintering of 2.5D C_f/ZrC-SiC Ceramic Matrix Composites

Haoyang Wu[1], Ji Zou[1,*], Jingjing Liu[1], Mirva Eriksson[2], Weimin Wang[1], Zhengyi Fu[1]

[1]State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology

[2]Department of Materials and Environmental Chemistry, Stockholm University

15:05 (S7-24) Preparation and Properties of $C_f/(Ti_{0.2}Zr_{0.2}Hf_{0.2}Nb_{0.2}Ta_{0.2})B_2$-SiC High Entropy Ceramic Matrix Composites by Spark Plasma Sintering

Feilong Huang, Cheng Fang*, Hailong Wang*

School of Materials Science and Engineering, Zhengzhou University

15:25 (S7-25) Preparation and Oxidation Behavior of SiC-HfB_2-Lu_2O_3/SiC Coatings for Carbon/Carbon Composites

Wei Xie[1,2], Qiangang Fu[2,*], Caixiang Xiao[2], Hailong Wang[1,*]

[1]Zhongyuan Critical Metals Laboratory, Zhengzhou University

[2]Shaanxi Province Key Laboratory of Fiber Reinforced Light Composite Materials, Northwestern Polytechnical University

15:45 Break

Session Chair: Yanhao Dong, *Tsinghua University;*
Wenwen Wu, *Shaanxi Normal University*

16:00 (S7-26) Pre-research on Powder Synthesis, 3D Printing, and Application of Some Oxide and Nitride Ceramics (Invited)

Xiaohong Sun

Tianjin University

16:25 (S7-27) Dynamic Oxidation Mechanism of ZrB_2-20 vol% SiC in High-enthalpy Plasma Wind Tunnel

Zuozheng Chen, Yiguang Wang*

Institute of Advanced Structural Technology, Beijing Institute of Technology

16:45 (S7-28) The Mechanical Properties and Toughening Mechanism of ZrB_2-SiC Spiral Fibers Composite Prepared by Combining Liquid Rope Effect with Non-solvent Induced Phase Separation Method

Ruiji Zhang, Fangwei Guo*, Xiaofeng Zhao

School of Materials Science and Engineering, Shanghai Jiao Tong University

17:05 (S7-29) Water and Oxygen Corrosion Resistance of SiC_f/SiC-SiYBC Composites Prepared by Reactive Melt Infiltration at 1300~1500°C

Binghui Zhang, Yongsheng Liu*

Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University

17:25 (S7-30) Development of Novel Environmental Barrier Coatings for SiC-based Ceramics to Enable Temperatures above 1450°C

Zhenya Zhang[1,2], Shihong Zhang[1,*], Eungsun Byon[2,*]

[1]Key Laboratory of Green Fabrication and Surface Technology of Advanced Metal Materials, Ministry of Education, Anhui University of Technology

[2]Department of Extreme Environmental Coatings, Korea Institute of Materials Science

17:45 (S7-31) Tailoring of the Electrical Properties of Silicon Carbide Ceramics

Ming Zhu, Jian Chen*, Zhengren Huang*

State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences

Symposium 8: Polymer Derived Ceramics (PDCs) and Composites
(Location: Wen 1)

Session Chair: Dušan Galusek, *Alexander Dubček University of Trenčín*

08:30 (S8-11) Polymer-derived Porous Ceramics Prepared via Pickering Emulsions (Keynote)
Philippe MIELE
IEM-University of Montpellier

09:00 (S8-12) Functional Coatings based on Polymer Derived Ceramics: Preparation and Application (Invited)
Zongbo Zhang
Institute of Chemistry, Chinese Academy of Sciences

09:25 (S8-13) Precursor-derived Nearly Stoichiometric Polycrystalline SiC Fibers and their High-temperature Properties (Invited)
Yanzi Gou
Science and Technology on Advanced Ceramic Fibers and Composites Laboratory, College of Aerospace Science and Engineering, National University of Defense Technology

09:50 (S8-14) Synthesis of Polyborocarbosilane and Investigation of its Pyrolysis Process
Gaoming Mo
Engineering Laboratory of Advanced Energy Materials, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences

10:10 Break

Session Chair: Philippe Miele, *University of Montpellier*

10:30 (S8-15) Molecular Design towards SiC/(Ti, Zr, Hf, Ta)C-based Ultrahigh Temperature Ceramic Nanocomposites with Multi-principal Elements (Invited)
Qingbo Wen[1, *], Li Lu[1], Zhaoju Yu[2], Yalei Wang[1], Yi Zeng[1], Xiang Xiong[1], Ralf Riedel[3]
[1]*State Key Laboratory of Powder Metallurgy, Central South University*
[2]*College of Materials, Xiamen University*
[3]*Institut für Materialwissenschaft, Technische Universität Darmstadt*

10:55 (S8-16) Silicate Ceramics from Organosilicon Precursors (Invited)
Enrico Bernardo[1], Dušan Galusek[2, *]
[1]*Department of Materials Engineering, University of Padova*
[2]*Centre for Functional and Surface Functionalized Glass, Alexander Dubček University of Trenčín*

11:20 (S8-17) Effect of Zr on the Solid Sintering Process of SiBCN Ceramics
Meng Zhang, Dechang Jia*
Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology

11:40 (S8-18) Fabrication of Polymer-derived SiBCN Ceramic Temperature Sensor with Excellent Sensing Performance
Qiang Yan, Jinping Li*
National Key Laboratory of Science and Technology on Advanced Composites in Special Environments, Harbin Institute of Technology

12:00 Lunch

Session Chair: Gang Shao, *Zhengzhou University*

13:30 (S8-19) Towards Functional Microstructured Systems via 3D-Printed Photocurable Preceramic Formulations (Keynote)
Dong-Pyo Kim
POSTECH

14:00 (S8-20) Fine Processing of Polymer-derived SiAlCN Ceramics and their Application in High-temperature Sensors (Invited)
Yejie Cao[1, *], Yigao Chen[1], Yiguang Wang[2]
[1]*Northwestern Polytechnical University*
[2]*Beijing Institute of Technology*

14:25 (S8-21) Characteristics of the Decomposition and Deformation Behavior of Polycarbosilan with Different Polymeric Properties during the Organic-inorganic Conversion Process (Invited)

Yoonjoo LEE

Korea Institute of Ceramic Engineering and Technology

14:50 (S8-22) Functionalized Boron Nitride Nanosheets Modified SiBNO Fibers with Enhanced High-temperature Stability

Quzhi Song, Xin Long, Bing Wang, Yingde Wang*

Science and Technology on Advanced Ceramic Fiber and Composites Laboratory, College of Aerospace Science and Engineering, National University of Defense Technology

15:10 (S8-23) Preparation of SiN_x Film via Room-temperature Photochemical Conversion

Pengfei Li, Zongbo Zhang*, Caihong Xu

Laboratory of High-tech Polymer Materials, Institute of Chemistry, Chinese Academy of Sciences

15:30 Break

Session Chair: Dong-Pyo Kim, *Pohang University of Science and Technology*

16:00 (S8-24) In Situ Formation of Si_3N_4-SiC Nanocomposites through Polymer-derived Ceramics Method and Spark Plasma Sintering (Invited)

Gang Shao*, Daoyang Han, Chao Ma

School of Materials Science and Engineering, Zhengzhou University

16:25 (S8-25) Polymer-derived Functional Inorganic Materials for Catalytic Small Molecule Activation (Invited)

Shotaro Tada[1,*], Samuel Bernard[3], Ravi Kumar N V[1], Yuji Iwamoto[2]

[1]Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras
[2]Department of Life Science and Applied Chemistry, Graduate School of Engineering, Nagoya Institute of Technology
[3]University of Limoges

16:50 (S8-26) High-strength Boron Nitride Fibers Derived from Novel Polyborazine Precursor (Invited)

Bing Wang*, Yiang Du, Yingde Wang

National University of Defense Technology

17:15 (S8-27) Refractory Metal Polymer-derived Ultra-high Temperature Ceramic Fibers

Cheng Han*, Xiaozhou Wang, Yingde Wang

Science and Technology on Advanced Ceramic Fibers and Composites Laboratory, National University of Defense Technology

17:35 (S8-28) Single-source Precursor Synthesis, Mechanical Properties and Oxidation Behavior of SiCN/(Hf, Zr, Ti, Ta)C_xN_{1-x} High Entropy Ceramic Nanocomposite

Tianxing Jiang, Qingbo Wen*, Li Lu, Yi Zeng, Xiang Xiong

State Key Laboratory of Powder Metallurgy, Central South University

Symposium 9: Novel Ceramic Coatings and Technology

(Location: Xia)

Session Chair: Hongbo Guo, *Beihang University*

08:30 (S9-11) Surface Engineering and Study of Coatings for High Temperature Applications (Keynote)

Ping Xiao

Department of Materials and Henry Royce Institute, University of Manchester

09:00 (S9-12) Strategies for Improving the Lifetime of Air-plasma Sprayed Thermal Barrier Coatings (Invited)

Xiaofeng Zhao

Shanghai Jiao Tong University

09:25 (S9-13) Tailoring the Surface Structures of Functional Coatings Deposited via Liquid Plasma Spray (Invited)

Pengyun Xu*, Xiaomu Sui, Guijie Liu

Department of Mechanical and Electrical Engineering, Ocean University of China

09:50 (S9-14) High Temperature Corrosion Behavior and Degradation Mechanism of $Yb_2Si_2O_7$ Environmental Barrier Coatings (Invited)

Jian Wu[1], Siqin Yan[2], Xi Tan[1], Xiaofeng Zhang[1,*]

[1]National Engineering Laboratory for Modern Materials Surface Engineering Technology & The Key Lab of Guangdong for Modern Surface Engineering Technology, Institute of New Materials, Guangdong Academy of Science
[2]School of Materials Science and Chemical Engineering, State Key Laboratory Base of Novel Functional Materials and Preparation Science, Ningbo University

10:15 Break

Session Chair: Xiaofeng Zhao, *Shanghai Jiaotong University*

10:30 (S9-15) Thermal Barrier Coatings Produced by Plasma Spray-physical Vapor Deposition (Keynote)

Hongbo Guo

Beihang University

11:00 (S9-16) Phase Composition and Thermal Properties of Yb-Gd Co-doped $SrZrO_3$ Coatings Prepared by Solution Precursor Plasma Spray (Invited)

Wen Ma*, Zhefeng Li, Min Li, Xianglong Zhang, Yuanming Gao, Yu Bai

Inner Mongolia Key Laboratory of Thin Film and Coatings, School of Materials Science and Engineering, Inner Mongolia University of Technology

11:25 (S9-17) High-temperature Corrosion Behaviors of Rare-earth Monosilicate Ceramic for Environmental Barrier Coatings Applications

Shuqi Wang[1,2], Jiahu Ouyang[1,2,*], Guoliang Chen[1,2], Yongchun Zou[1,2], Yaming Wang[1,2], Dechang Jia[1,2], Yu Zhou[1,2]

[1]Institute for Advanced Ceramics, Harbin Institute of Technology (HIT)
[2]Key Laboratory of Advanced Structure-Function Integrated Materials and Green Manufacturing Technology, HIT

11:45 (S9-18) High Temperature Properties of High-entropy Rare-Earth Monosilicate Environmental Barrier Coatings

Xin Zhong*, Yaran Niu, Xuebin Zheng, Chuanxian Ding

Key Laboratory of Inorganic Coating Materials CAS, Shanghai Institute of Ceramics, Chinese Academy of Sciences

12:05 Lunch

Session Chair: Mikhail Zheludkevich, *Helmholtz-Zentrum Hereon*

13:30 (S9-19) Design, Fabrication and Heat Dissipation Performance of PEO High Emissivity Ceramic Coatings for Thermal Management Application (Invited)

Yaming Wang[1,2,*], Shuqi Wang[1,2], Yongchun Zou[1,2], Guoliang Chen[1,2], Yu Zhou[1,2]

[1]Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology
[2]Key Laboratory of Advanced Structure-Function Integrated Materials and Green Manufacturing Technology, Harbin Institute of Technology

13:55 (S9-20) Photoactive Aerosol Coatings for Green Hydrogen Generation (Invited)

Thomas Klassen[1,2,*], Andreas Elsenberg[2], Frank Gärtner[2], Mauricio Schieda[1], Alessia Bruera[3], Giovanni Bolelli[3], Luca Lusvarghi[3]

[1]Helmholtz-Zentrum Hereon GmbH
[2]Helmut Schmidt University, University of the Federal Armed Forces Hamburg
[3]Universita di Modena e Reggio Emilia - UNIMORE

14:20 (S9-21) Research on Thermal Expansion Coefficient and Dielectric Breakdown Strength of CaO-ZnO-B_2O_3-SiO_2 Coating for High Temperature Resistant Electrical Wire

Minglu Feng, Haomin Li*, Yingsan Geng, Jianhua Wang

State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University

14:40 (S9-22) Anisotropic Thin Films/coatings from Restacking of Electrochemically Produced Monolayer Two-dimensional Materials

Jianyun Cao

School of Materials and Energy, Yunnan University

15:00 (S9-23) Study on HfB_2-SiC Oxidation and Ablation Protective Coating for Carbon/Carbon Composites

Jiaping Zhang*, Jiaqi Hou, Lei Zhou

Shaanxi Key Laboratory of Fiber Reinforced Light-Weight Composites, Northwestern Polytechnical University

15:20 (S9-24) Initial Microstructure and Composition Evolution of Ceramic Coatings Fabricated by Cathode Plasma Electrolytic Deposition

Yanpeng Xue*, Man Zheng, Tengfei Yu, Benli Luan
University of Science and Technology Beijing

15:40 Break

Session Chair: Yaming Wang, *Harbin Institute of Technology*

16:00 (S9-25) Functionalization of PEO Coatings via Conversion Post-treatments (Keynote)

Mikhail Zheludkevich*, Carsten Blawert, Maria Serdechnova, Valeryia Kasneryk, Bahram Vaghefinazari, Sviatlana Lamaka
Institute of Surface Science, Helmholtz-Zentrum Hereon

16:30 (S9-26) Applications of Acidity Ratio to the Design of Plasma Electrolytic Oxidation Coatings on Mg Alloys (Invited)

Tao Zhang
Northeastern university

16:55 (S9-27) "Smart" Nano Container-based Self-healing Micro-arc Oxidation Coatings on Magnesium Alloys (Invited)

Liang Wu[1, 2, *], Wenhui Yao[1, 2], Fusheng Pan[1, 2]
[1]*College of Materials Science and Engineering, Chongqing University*
[2]*National Engineering Research Center for Magnesium Alloys, Chongqing University*

17:20 (S9-28) The Fabrication of Functional Coatings by Microarc Oxidation

Hui Tang
School of Materials and Energy, University of Electronic Science and Technology of China

Symposium 10: Nano-laminated Ternary Carbides, Nitrides, Borides, and MXenes/MBenes

(Location: Yuan 1)

Session Chair: Yi Liu, *Shaanxi University of Science and Technology*
Shuai Lin, *Hefei Institutes of Physical Science, CAS*

08:30 (S10-12) Crystal-defect Engineering in MAX and Mxene (Invited)

Hui Zhang[1, 2]
[1]*Electron Microscopy Center, South China University of Technology*
[2]*School of Emergent Soft Matter, South China University of Technology*

08:50 (S10-13) Entropy-driven Morphology Regulation of MAX Phase Solid Solutions with Enhanced Microwave Absorption and Thermal Insulation Performance (Invited)

Wei Luo[1], Yi Liu[2]
[1]*School of Electronic Information and Electrical Engineering, Shanghai Jiao Tong University*
[2]*School of Material Science and Engineering, Shaanxi University of Science and Technology*

09:10 (S10-14) Synthesis, Characterization, and Applications of Few-layer $M_4C_3T_x$ (M=V, Nb, Ta) MXenes (Invited)

Shuai Lin
Institute of Solid State Physics, Hefei Institutes of Physical Science, Chinese Academy of Sciences

09:30 (S10-15) New Layered Ternary Selenide Synthesis in Nb-C-Se System

Junchao Wang[1, 2], Renfei Cheng[1, 2], Xinyue Tang[5], Yan Liang[1], Tao Hu[3, *], Zhiqing Yang[4, *], Xiaohui Wang[1, *]
[1]*Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences*
[2]*School of Materials Science and Engineering, University of Science and Technology of China*
[3]*Institute of Materials Science and Devices, School of Materials Science and Engineering, Suzhou University of Science and Technology*
[4]*Ji Hua Laboratory*
[5]*School of Materials Science and Engineering, Shenyang Ligong University*

09:45 (S10-16) Enhancing the Oxidation Resistance of MoAlB: Exploring Anisotropic Oxidation Mechanisms and Doping Strategies

Hanchao Zhang[1], Guoliang Ren[2], Lin Li[2], Yinchun Shi[2], Xiaofeng Zhao[2], Na Ni[1, *]
[1]*School of Mechanical Engineering, Shanghai Jiao Tong University*
[2]*Shanghai Key Laboratory of High Temperature Materials and Precision Forming, Shanghai Jiao Tong University*

10:00-10:30 Break

Session Chair: Jun Yan, *Harbin Engineering University*
Cheng-Yan Xu, *Harbin Institute of Technology, Shenzhen*

10:30 (S10-17) X-ray Exploring the Evolution in Mxenes (Keynote)
Changda Wang, Shiqiang Wei, Li Song*
National Synchrotron Radiation Laboratory, University of Science and Technology of China

11:00 (S10-18) MXene-Based Composites for Energy Storage Applications (Invited)
Jun Yan
College of Material Science and Chemical Engineering, Harbin Engineering University

11:20 (S10-19) MXenes: A Promising Electrode Materials for Sodium-ion Battery (Invited)
Kun Liang
Engineering Laboratory of Advanced Energy Materials, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences

11:40 (S10-20) The Pillar-structured Design of MXene for Electrochemical Energy Storage Applications (Invited)
Jianmin Luo; *College of Materials Science and Engineering, Zhejiang University of Technology*

12:00 Lunch

Session Chair: Aiguo Zhou, *Henan Polytechnic University*
Gui-Gen Wang, *Harbin Institute of Technology, Shenzhen*

13:30 (S10-21) Coupling CO_2/N_2 for Urea Electrocatalyze Synthesis on Dual Metal Mxene (Invited)
Yufei Yang, Neng Li*
State Key Laboratory of Silicate Materials for Architectures, Wuhan University of Technology, Wuhan, China

13:50 (S10-22) Construction of Mo_2C MXene Heterostructures as Photocatalysts for H_2 Production (Invited)
Aiguo Zhou*, Sen Jin
School of Materials Science and Engineering, Henan Polytechnic University

14:10 (S10-23) Anti-oxidant to Pro-oxidant Activity of MXenes for Biological Applications (Invited)
Weiwei He*
Institute of Surface Micro and Nano Materials, College of Chemical and Materials Engineering, Xuchang University

14:30 (S10-24) Study on the Lithium Storage Properties of Submicron Ti_2AlC, Ti_2CT_x, and Super P Carbon Black (Invited)
Cong Cui, Xiaohui Wang*
Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

14:50 (S10-25) Design and Performance of Electrolyte and Electrode Materials for Aqueous Iodine-Based Batteries
Zishuai Zhang, Yan Huang*
School of Materials Science and Engineering, Harbin Institute of Technology (Shenzhen)

15:05 (S10-26) Mn-based MXene with High Lithium-ion Storage Capacity
Xingke Cai*; *Institute for Advanced study/Shenzhen University*

15:20 (S10-27) Synthesis of Mo_2C MXene with High Electrochemical Performance by Alkali Hydrothermal Etching
Yitong Guo, Aiguo Zhou*
School of Materials Science and Engineering, Henan Polytechnic University

15:35 (S10-28) 2D MXene for High-performance Microwave Absorption (Invited)
Meng Wu, Lei Rao, Guobing Ying*
Department of Materials Science and Engineering, College of Mechanics and Materials, Hohai University

Symposium 11: High Entropy Ceramics and Composites
(Location: Wen 2)

Session Chair: Yanhui Chu, *South China University of Technology*

08:30 (S11-11) From High-entropy Ceramics (HECs) to Compositionally Complex Ceramics (CCCs) (Keynote)
Jian Luo; *University of California San Diego*

09:00 (S11-12) Structural and Defect Properties in High-entropy Carbide Ceramics (Invited)
Shijun Zhao; *City University of Hong Kong*

09:25 (S11-13) Application of Machine Learning Potential in High-entropy Ceramics (Invited)
Fuzhi Dai; *AI for Science Institute*

09:50 (S11-14) Atomic-scale Fine Structure Characterization and Property Tuning in High-entropy Oxides (Invited)
Ning Guo, Hanbin Gao, Yue Gong, Dongwei Wang, Qiang Zheng*
National Center for Nanoscience and Technology

10:15 Break

Session Chair: Shijun Zhao, *City University of Hong Kong*

10:30 (S11-15) Formation Ability Descriptors for High-entropy Diborides Established through High-throughput Experiments and Machine Learning (Invited)
Yanhui Chu
School of Materials Science and Engineering, South China University of Technology

10:55 (S11-16) Understanding the Microstructure Features and Formation Mechanisms of High Entropy Oxides at the Atomic Scale (Invited)
Lei Su; *Xi'an Jiaotong University*

11:20 (S11-17) Fracture Mode Transition from Intergranular to Transgranular in (TiZrNbTaCr)C: the Grain Boundary Purification Effect of Cr Carbide
Wentao Su[1, 2], Lei Chen[1, 2, *], Yujin Wang[1, 2, *]
[1]*Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology* [2]*Key Laboratory of Advanced Structure-Function Integrated Materials and Green Manufacturing Technology, Harbin Institute of Technology*

11:40 (S11-18) Atomic-level Insights into the Initial Oxidation Mechanism of High-entropy Diborides by First-principles Calculations
Yiwen Liu, Yanhui Chu*
School of Materials Science and Engineering, South China University of Technology

12:00 Lunch

Session Chair: Ji Zou, *Wuhan University of Technology*

13:30 (S11-19) Preparation and Superhard Properties of High-entropy Monoborides (Keynote)
Hailong Wang
Materials Science and Engineering of Zhengzhou University

14:00 (S11-20) Ionic Transport in a Site High Entropy $AMnO_3$ and $ACoO_3$ Oxides: Implications for Sintering and Electrochemical Properties (Invited)
Na Ni[1, 2, *], Yinchun Shi[2], Yue Shui[1], Lei Zhu[1], Zhen Huang[1]
[1]*School of Mechanical Engineering, Shanghai Jiao Tong University*
[2]*School of Materials Science and Engineering, Shanghai Jiao Tong University*

14:25 (S11-21) Thermodynamics Aided Design of hBN-Capsulated Diboride Powders from Novel Nitrate Precursors for High Entropy Ceramics
Hailing Yang, Ji Zou*, Weimin Wang, Zhengyi Fu
State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology

14:45 (S11-22) The Effect of Carbon Content on Phase Decomposition and Mechanical Properties of $(Ti_{0.25}Zr_{0.25}V_{0.25}Nb_{0.25})C_x$ High-entropy Carbides
Qingyi Kong[1, 2], Yujin Wang[1, 2, *], Lei Chen[1, 2], Sijia Huo[1, 2]
[1]*Institute for Advanced Ceramics, School of Mater Sci & Eng, Harbin Institute of Technology (HIT)*
[2]*Key Laboratory of Advanced Structure-Function Integrated Materials and Green Manufacturing Technology, HIT*

15:05 (S11-23) Nonstoichiometric High-entropy Carbides: Preparation, Microstructures and Properties
Yuan Qin[1, 2], Jixuan Liu[2, *], Yongcheng Liang[3], Guojun Zhang[1, 2, *]
[1]*State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, College of Materials Science and Engineering, Donghua University*
[2]*Institute of Functional Materials, Donghua University*
[3]*College of Science, Donghua University*

15:25 (S11-24) The Phase, Microstructure and Mechanical Properties of High-entropy Carbonitride Ceramics
Lei Chen*, Yujin Wang*, Longhao Yang
School of Materials Science and Engineering, Harbin Institute of Technology

15:45 Break

Session Chair: Hailong Wang, *Zhengzhou University*

16:00 (S11-25) Optimization Design, Microstructure Evolution and Performance Improvement of High-entropy Carbide (Keynote)
Yujin Wang[1, 2]
[1]Institute for Advanced Ceramics, School of Mater Sci and Eng, Harbin Institute of Technology(HIT)
[2]Key Laboratory of Advanced Structure-Function Integrated Materials and Green Manufacturing Technology, HIT

16:30 (S11-26) Processing and Properties of (VNbTaMoW)C and Al_2O_3/(NbTaMoW)C High Entropy Ceramic Matrix Composites (Invited)
Junhu Meng[1, *], Diqiang Liu[2, *]
[1]State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences
[2]School of Materials Science and Engineering, Lanzhou University of Technology

16:55 (S11-27) Grain Growth Behavior of High-entropy Ceramics (Invited)
Jixuan Liu[1, *], Yongcheng Liang[2], Guojun Zhang[1]
[1]Institute of Functional Materials, Donghua University
[2]College of Sciences, Donghua University

17:20 (S11-28) The Phase Composition and Microstructure Evolution of Non-equimolar ($ZrHf_xVNbMoW$)C High-entropy Carbide Ceramics
Wen Zhang, Lei Chen*, Yujin Wang*
School of Materials Science and Engineering, Harbin Institute of Technology

17:40 (S11-29) Influence of Carbon Content on Microstructure evolution and Mechanical property of High-entropy Carbide Ceramics
Kunxuan Li, Lei Chen*, Yujin Wang*
School of Materials Science and Engineering, Harbin Institute of Technology

Symposium 12: Microwave Dielectric Ceramics and Applications
(Location: Tang 3)

Session Chair: Zhenxing Yue, *Tsinghua University*
Akinori Kan, *Meijo University*

08:30 (S12-01) Effects of Complex Ion Substitution on the Quality Factor of $MgTiO_3$- and Mg_4Nb_2O-based Ceramics at Microwave Frequencies (Keynote)
Eung Soo Kim; *Department of Advanced Materials Engineering, Kyonggi University*

09:00 (S12-02) Temperature-dependent Temperature Coefficient of Resonant Frequency in $MgTiO_3$-$CaTiO_3$-based Microwave Dielectric Composites (Invited)
Lei Li*, Shuang Yang, Shuya Wu, Xiangming Chen
Laboratory of Dielectric Materials, School of Materials Science & Engineering, Zhejiang University

09:25 (S12-03) Influence Mechanism of T_f in Microwave Dielectric Ceramics with Low ε_r (Invited)
Jie Li[1,2], Ying Tang[1,2], Liang Fang[1,2 *]
[1]Guangxi Key Laboratory of Optical and Electronic Materials and Devices, College of Material Science and Engineering, Guilin University of Technology
[2]Key Laboratory of New Processing Technology for Nonferrous Metal & Materials, Ministry of Education, Guilin University of Technology

09:50 (S12-04) Influence of Microstructure on Microwave Dielectric Properties of $(Ca_{1+x}Sm_{1-x})(Al_{1-x}Ti_x)O_4$ Ceramics
Mingyu Kim[1], Tauseef Ahmed[1], Jung Hyun Lee[1], Hyo Tae Kim[1], Ga-Yeon Lee[2], Dong-Hun Yeo[3], Soonil Lee[1, *]
[1]School of Materials Science and Engineering / Department of materials Convergence and System Engineering, Changwon National University
[2]Nano Composite Materials Center, Korea Institute of Ceramic Engineering and Technology
[3]Ceramic Total Solutions Center, Icheon Branch of Korea Institute of Ceramic Engineering and Technology

10:15-10:30 Break

Session Chair: Di Zhou, *Xi'an Jiaotong University*
Lei Li, *Zhejiang University*

10:30 (S12-05) Effects of the Addition of SiO_2 and B_2O_3 on the Electrical Properties of Low-temperature Sintered ZnO-Bi_2O_3 System Varistors (Invited)
Hsing-I Hsiang; *Department of Resources Engineering, National Cheng Kung University*

10:55 (S12-06) Structure, Defects, and Dielectric Properties of $Ca_{1-x}Sm_{2x/3}TiO_3$ Ceramics in the Microwave-terahertz Bands
Weijia Guo, Yutian Lu, Zhiyu Ma, Zhenxing Yue*
School of Materials Science and Engineering, Tsinghua University

11:15 (S12-07) Microstructure, Bonding Characteristics, Far-Infrared Spectra and Microwave Dielectric Properties of Co-Substituted $Ce_2Zr_3(MoO_4)_9$ Ceramics
Xiangyu Xu, Haitao Wu*
School of Environmental and Material Engineering, Yantai University

11:35 Lunch

Session Chair: Hsing-I Hsiang, *National Cheng Kung University*
Mingsheng Ma, *Shanghai Institute of Ceramics*

13:30 (S12-08) Synergistic Modification of Microwave Dielectric Characteristics by Ordered Domain Engineering for Ba-based Complex Perovskite Ceramics (Keynote)
Xiang Ming Chen; *School of Materials Science and Engineering, Zhejiang University*

13:55 (S12-09) P-V-L Theory and First Principle Density of States Calculation for Chemical Bond Evaluation of Microwave Dielectric Ceramics (Invited)
Enzhu Li[1,*], Hongcheng Yang[2], Hongyu Yang[3]
[1]*University of electronic science and technology of China*
[2]*Southwest petroleum University*
[3]*Xidian University*

14:20 (S12-10) Microwave Dielectric Properties of $(Mg_{1-x}A_x)_2TiO_4$ (A= Ni^{2+}, Mn^{2+}) Ceramics Prepared by Citrate-gelation
Jae Hoon Park, Eung Soo Kim
Department of Advanced Materials Engineering, Kyonggi University

14:45 (S12-11) Structural Analysis and Microwave Dielectric Properties of Ge-doped Cordierite for Millimeter-wave Applications
Millicent Appiah Appiah*, Yixing Yang, Burhan Ullah, Yuting Xiao, Daniel Qi Tan*
[1]*Department of Materials Science and Engineering, Guangdong Technion-Israel Institute of Technology*
[2]*Guangdong Provincial Key Laboratory of Materials and Technologies for Energy Conversion*
[3]*Department of Materials Science and Engineering, Technion-Israel Institute of Technology*

15:05 (S12-12) Synergistic Microwave Absorption Effect of Graphene-BN-Fe_3O_4 Composite
Lan Wang[1,2], Xiaoming Duan[1,2,3,*], Xinyuan Zhang[1,2], Xiaoxiao Huang[1,2], Dechang Jia[1,2,3], Yu Zhou[1,2]
[1]*Key Laboratory of Advanced Structural-Functional Integration Materials & Green Manufacturing Technology, Harbin Institute of Technology*
[2]*Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology*
[3]*State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology*

15:25 (S12-13) Intermetallic Compound M_xSi Modified SiCO Ceramic Microspheres Derived from Precursor Emulsion Forelectromagnetic Wave Absorption
Yongzhao Hou*, Cheng Zhong
School of Materials Science and Engineering, Shandong University of Technology

15:45 Break

Session Chair: Eung Soo Kim, *Kyonggi University*
Haitao Wu, *Yantai university*

16:00 (S12-14) $BiVO_4$ based Microwave Dielectric Ceramics (Invited)
Di Zhou
Xi'an Jiaotong University

16:25 (S12-15) Microwave Dielectric Ceramics Focused for LTCC and ULTCC Applications (Invited)
Jobin Varghese*, Steffen Ziesche, Uwe Partsch
Department of Hybrid Microsystems, Microsystems LTCC and HTCC, Fraunhofer IKTS

16:50 (S12-16) Microwave Dielectric Properties of MgO - Mg_2SiO_4 Ceramics for LTCC Application
SiHyun Kim, EungSoo Kim*
Department of Advanced Materials Engineering, Kyonggi University, Suwon

17:10 (S12-17) Sintering Behavior and Mechanism of Bi-Zn-Nb-O Microwave Dielectric Ceramics
Youran Zhang[1, 2], Jingjing Feng[1], Faqiang Zhang[1], Mingsheng Ma[1], Zhifu Liu[1, 2, *]
[1]*Shanghai Institute of Ceramics*
[2]*University of Chinese Academy of Sciences*

17:30 (S12-18) Microstructure and Dielectric Properties of Novel Alkali Metal Molybdate $NaEr(MoO_4)_2$ Ceramics
Yiyun Zhang, Haitao Wu*
School of Environmental and Materials Engineering, Yantai University

Symposium 13: Piezoelectric, Ferroelectric/Multiferroic Materials & Components
(Location: Shang)

Session Chair: Jiangyu Li, *Southern University of Science and Technology*
Yang Liu, *Huazhong University of Science and Technology*

08:30 (S13-15) What Do Halide Perovskites Have to Do with Ferroelectricity? (Keynote)
Zuo-Guang Ye
Department of Chemistry, Simon Fraser University

09:00 (S13-16) Growth and Characterisation of Alkali Niobate Lead-free Piezoelectric Single Crystals (Invited)
John G. Fisher[1, *], Trung Thành Đoàn[1], Eugenie Uwiragiye[1], Tran Thi Lan[1], Sang-Baek Ma[1], Yeon-Ji Shin[1], Yoon-Sang Jeong[1], Mi-Na Wi[1], Jong-Sook Lee[1], Jungwi Mok[2], Junseong Lee[2], Jie Gao[1, 3], Furqan Ul Hassan Naqvi[4], Jae-Hyeon Ko[4]
[1]*School of Materials Science and Engineering, Chonnam National University*
[2]*Department of Chemistry, Chonnam National University*
[3]*School of Materials Science and Engineering, Shandong University of Science and Technology*
[4]*School of Nano Convergence Technology, Hallym University*

09:25 (S13-17) Magnetoelectric Phase Transition Artificially Designed by Non-equivalent Superlattices (Invited)
Jinxing Zhang[1, 2, *]
[1]*Key Laboratory of Multiscale Spin Physics, Ministry of Education*
[2]*Department of Physics, Beijing Normal University*

09:50 (S13-18) Study on Fabrication and Energy Harvesting of Piezoelectric Transducer
Shengchao Cui, Leicai Lin, Huishuang Zhao, Qingna Ma, Feng Sun, Guangzheng Wang*
Field Engineering College, Army Engineering University of PLA

10:00 (S13-19) Spark Plasma Sintering of Ferroelectric Ceramics
Hua Tan[1, 2, *], Haibo Zhang[1,2], David Salamon[3]
[1]*State Key Laboratory of Material Processing and Die and Mould Technology, School of Materials Science and Engineering, Huazhong University of Science and Technology*
[2]*Guangdong HUST Industrial Technology Research Institute*
[3]*Central European Institute of Technology (CEITEC) Brno University of Technology*

10:20 Break

Session Chair: John G. Fisher, *Chonnam National University*
Jinxing Zhang, *Beijing Normal University*

10:30 (S13-20) Ferroelectric Materials and Emerging Applications (Keynote)
Yun Liu
Research School of Chemistry, The Australian National University

10:55 (S13-21) Flexoelectric Effect: from Scientific Curiosity to Protype Devices (Invited)
Jiangyu Li
Department of Materials Science and Engineering, Southern University of Science and Technology

11:20 (S13-22) Ferroelectric Polymer and Nanocomposites: New Structural Insights and Recent Development (Invited)

Yang Liu

State Key Laboratory of Material Processing and Die & Mould Technology, School of Materials Science and Engineering, Huazhong University of Science and Technology

11:45 (S13-23) Two-Dimensional Interfacial Nanocoatings Enable Layered Polymer Nanocomposites with High-performance Energy Storage at Elevated Temperatures

Yifei Wang

State Key Laboratory for Mechanical Behavior of Materials, School of Materials Science and Engineering, Xi'an Jiaotong University

12:00 (S13-24) Decode Intrinsic and Extrinsic Contributions for High Piezoelectricity of CBT-based Piezoelectric Ceramics

Hao Chen*, Jingwen Xi, Zhi Tan, Fei Wang, Xu Li, Jie Xing*, Jianguo Zhu*

College of Material Science and Engineering, Sichuan University

12:15 (S13-25) Lead-free $BiFeO_3$-$BaTiO_3$ Based High-*Tc* Ferroelectric Ceramics: Antiferroelectric Chemical Modification Leading to High Energy Storage Performance

Hongliang Wang, Jing-Feng Li*

School of Materials Science and Engineering, Tsinghua University

12:30 Lunch

Session Chair: Jianguo Zhu, *Sichuan University*
Lisha Liu, *University of Science and Technology*

13:30 (S13-26) Alkali Niobate-based Lead-free Piezoelectric Thin Films and Thermal-sprayed Coatings (Keynote)

Kui Yao

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

14:00 (S13-27) Scanning Probe Microscopic Technique for Probing and Manipulating Ferroic Topological Domains and their Associated Physical Properties (Invited)

Xingsen Gao

Institure of Advanced Materials, South China Normal University

14:25 (S13-28) Origin of Tetragonal Phase beyond Critical Thickness in (001)-oriented Epitaxial $BiFeO_3$ Film Grown by Hydrothermal Method with Suppressed Strain Relaxation

Yue-Yu-Shan Cheng[1, 2], Yuxian Hu[1], Taichi Murashita[1], Kazuki Okamoto[1], Hiroshi Funakubo[1, *], Jing-Feng Li[2]

[1]*Department of Materials Science and Engineering, Tokyo Institute of Technology*
[2]*State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University*

14:50 (S13-29) Characteristics of Piezoelectric $LiNbO_3$ Epitaxial Thin Films Grown on Off-angle Al_2O_3 Substrate

Zitai Feng[1, 2], Hiroki Uchida[1, 2, *], Junjun Jia[1, *], Takahiko Yanagitani[1, 2, 3, 4, *]

[1]*Waseda University*
[2]*ZAIKEN*
[3]*JST-CREST*
[4]*JST-FOREST*

15:05 (S13-30) Shear Mode Electromechanical Coupling Coefficient of C-axis Tilted $PbTiO_3$ Epitaxial Thin Film/Off-Angle La-$SrTiO_3$ Substrate

Sota Kuninobu[1, 2], Takahiko Yanagitani[1, 2, 3, 4, *]

[1]*Waseda University*
[2]*ZAIKEN*
[3]*JST-CREST*
[4]*JST-FOREST*

15:20 (S13-31) Arrayed Multi-layer Piezoelectric Sensor Based on Electrospun with Enhanced Piezoelectricity

Yu Chen, Chu Qin, Min Wang*

School of Microelectronics, Southern University of Science and Technology

15:35 (S13-32) $BiAlO_3$-modified $BiFeO_3$-$BaTiO_3$ High Curie Temperature Lead-free Piezoelectric Ceramics

Xiaoxiao Zhou, Xiaoyan Peng, Boping Zhang*

School of Materials Science and Engineering, University of Science and Technology Beijing

15:45-16:00 Break

Session Chair: Xingsen Gao, *South China Normal University*
Lei Zhao, *Hebei University*

16:00 (S13-33) Electrical-mediated Piezoelectricity with Unraveled Coupling Mechanism to the Domain Dynamics at Elevated Temperatures in Polycrystalline $BiFeO_3$ (Invited)
Lisha Liu*
Nanjing University of Science and Technology

16:25 (S13-34) High Energy Storage Performance in $AgNbO_3$-based Materials (Invited)
Lei Zhao
College of Physics Science and Technology, Hebei University

16:50 (S13-35) Simultaneously Improving Piezoelectric Properties and Temperature Stability of $Na_{0.5}K_{0.5}NbO_3$ (KNN)-based Ceramics Sintered in Reducing Atmosphere
Zhenyong Cen[1, 2], Ke Wang[1], Ze Xu[1], Longtu Li[1], Xiaohui Wang[1, *]
[1]*State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University*
[2]*School of Resources, Environment and Materials, Guangxi University*

17:05 (S13-36) Simultaneously Improving Piezoelectric Strain and Temperature Stability of KNN-based Ceramics via Defect Design
Zhenyong Cen[1, 2, *], Fuzhi Cao[2]
[1]*School of Civil Engineering and Architecture, Guangxi University*
[2]*School of Resources, Environment and Materials, Guangxi University*

17:20 (S13-37) Full Epitaxial ZnO, MgZnO and ScAlN Piezoelectric thin Film BAW Resonators Based on Epitaxial Acoustic Bragg Reflector
Satoshi Tokai[1, 2], Takahiko Yanagitani[1, 2, 3, 4, *]
[1]*Waseda University*
[2]*ZAIKEN*
[3]*JST-CREST*
[4]*JST-FOREST*

17:35 (S13-38) Structure Control and Electrical Behavior of Multiferroic $BiFeO_3$-based Ceramics with Morphotropic Phase Boundary
Jingxin Tian, Hua Ke*
School of Materials Science and Engineering, Harbin Institute of Technology

17:50 (S13-39) Polarization-inverted C-axis Zigzag ScAlN Multilayers for Transversal Type BAW Filter
Saneyuki Shibata[1, 2], Takahiko Yanagitani[1, 2, 3, 4, *]
[1]*Waseda University*
[2]*ZAIKEN*
[3]*JST-CREST*
[4]*JST-FOREST*

18:05 (S13-40) Effect of $BaZrO_3$ Doping on the Structure and Piezoelectricity of KNN-based Ceramics
Huan Liu[1, 2], Jing-Feng Li[2, *], Bo-Ping Zhang[1, *]
[1]*School of Materials Science and Engineering, University of Science and Technology Beijing*
[2]*School of Materials Science and Engineering, Tsinghua University*

Symposium 14: Thermoelectric Materials and Devices for Sustainable Energy Utilization
(Location: Yuan 3)

Session Chair: Qian Zhang, *Harbin Institute of Technology, Shenzhen*

08:30 (S14-10) Lattice Defect Engineering to Develop Highly-efficient Thermoelectric Single Crystals (Invited)
Kei Hayashi
Department of Applied Physics, Graduate School of Engineering, Tohoku University

08:50 (S14-11) Flexible silver selenide based thin films with high thermoelectric performance for energy harvesting (Invited)
Yue-Xing Chen*
College of Physics and Optoelectronic Engineering, Shenzhen University

09:10 (S14-12) Tuning Electron Transport via Localized Spin Moment Induced by Magnetic Nanoprecipitates (Invited)

Junphil Hwang[1, *], Jae Hyun Yun[2], Jong-Soo Rhyee[2], Woochul Kim[3], Sung-Jin Kim[4, *]
[1]*Green Energy R&D Division, Korea Construction Equipment Technology Institute (KOCETI)*
[2]*Department of Applied Physics, Kyung Hee University*
[3]*School of Mechanical Engineering, Yonsei University*
[4]*Department of Chemistry and Nano Science, Ewha Womans University*

09:30 (S14-13) Enhanced Thermoelectric Properties of SiGe-based Film via Energy Filtering Effect Combined with Modulation Doping Effect

Ying Peng[1], Lei Miao[2, *], Chengyan Liu[1], JongSoo Rhyee[3], Takao Mori[4, *]
[1]*Guilin University of Electronic Technology*
[2]*Guangxi University*
[3]*Kyung Hee University*
[4]*National Institute for Materials Science*

09:45 (S14-14) 3D Elastic Thermoelectric Network for Body Heat Harvesting

Xiaodong Wang
Harbin Institute of Technology (Shenzhen)

10:00 (S14-15) Achieving N-type Conduction in AMg_2Sb_2 (A = Yb, Eu, Ca, Sr, Ba) Zintl Phases

Xin Zheng[1], Airan Li[1], Zhongkang Han[1], Chenguang Fu[1, *], Tiejun Zhu[1,2, *]
[1]*State Key Laboratory of Silicon and Advanced Semiconductor Materials, School of Materials Science and Engineering, Zhejiang University*
[2]*Shanxi-Zheda Institute of Advanced Materials and Chemical Engineering*

10:15 Break

Session Chair: Yue Lin, *Fujian Institute of Research on The Structure, CAS*

10:30 (S14-16) P-type Inorganic Ductile Thermoelectric Materials (Invited)

Pengfei Qiu
Shanghai Institute of Ceramics, Chinese Academy of Sciences

10:50 (S14-17) Giant Phonon Anharmonicity Leading to Ultralow Lattice Thermal Conductivity in Ag_8SnSe_6 Argyrodites (Invited)

Qingyong Ren[1, 2, *], Mayanak Gupta[3], Yanzhong Pei[4], Olivier Delaire[3], Jie Ma[5]
[1]*Spallation Neutron Science Center*
[2]*Institute of High Energy Physics, Chinese Academy of Sciences*
[3]*Department of Mechanical Engineering and Materials Science, Duke University*
[4]*School of Materials Science and Engineering, Tongji University*
[5]*School of Physics and Astronomy, Shanghai Jiao Tong University*

11:10 (S14-18) Computational Survey of the Charge Carrier Scattering Mechanisms in Semiconductors for Thermoelectric Applications (Invited)

Tianqi Deng
Hangzhou Innovation Center & School of Materials Science and Engineering, Zhejiang University

11:30 (S14-19) Electrical Behavior Enhancement in Orientation-modulated Perovskite La-doped $SrTiO_3$ Thermoelectric Thin Films

Yunpeng Zheng, Yuan-Hua Lin*
School of Materials Science and Engineering, Tsinghua University

11:45 (S14-20) Study of the defect chemistry in Ag2Q (Q = S, Se, Te) by first-principle calculations

Hexige LijiWu
Shanghai Jiao Tong University

12:00 Lunch

Session Chair: Lei Miao, *Guangxi University*

13:30 (S14-21) High Performance Thermoelectric Devices towards Compact and Local Cooling Applications (Invited)

Sunmi Shin
Department of Mechanical Engineering, National University of Singapore

13:50 (S14-22) Strong Phonon Softening and Avoided Crossing in Aliovalence-doped Heavy-band Thermoelectrics (Invited)

Chenguang Fu*, Shen Han, Tiejun Zhu
Zhejiang University

14:10 (S14-23) Understanding the Chemical Instability of $Mg_3Sb_{2-x}Bi_x$-based Thermoelectric Materials (Invited)

Jun Mao
Harbin Institute of Technology, Shenzhen

14:30 (S14-24) Solution-synthesized Thermoelectric Materials and Devices (Invited)

Biao Xu
Nanjing University of Science and Technology

14:50 (S14-25) Synthesis Influence on Digenite ($Cu_{1.8}S$) Thermal Stability and its Thermoelectric Performance

Xinyuan Wang[1, 2], Cédric Bourgès[3, *], Takao Mori[1, 2, *]
[1]*International Center for Materials Nanoarchitectonics (WPI-MANA)*
[2]*Graduate School of Pure and Applied Sciences, University of Tsukuba*
[3]*International Center for Young Scientists (ICYS), National Institute for Materials Science*

15:05 (S14-26) High-performance Thermoelectrics: from Materials to Devices

Weidi Liu[1, 2], Lianzhou Wang[1, *], Zhi-Gang Chen[2, *]
[1]*Australian Institute for Bioengineering and Nanotechnology, The University of Queensland, Brisbane, Australia*
[2]*Queensland University of Technology*

15:20 (S14-27) Enhanced Thermoelectric Performance of $Cu_{1.95}S_{1-y}Se_y$ via Phase Regulation

Zhihang Shan[1], Hezhang Li[2, *], Shikuo Lu[1], Xingyuan Qi[1], Jun Pei[1, *], Bo-Ping Zhang[1, *]
[1]*School of Materials Science and Engineering, University of Science and Technology Beijing*
[2]*Department of Precision Instrument, Tsinghua University*

15:35 Break

Session Chair: Chenguang Fu, *Zhejiang University*

15:50 (S14-28) Persistently Self-powered Wearable Thermoelectric Generator (Invited)

Lei Miao[1, *], Sijing Zhu[2], Jie Gao[2]
[1]*School of Physical Science and Technology, Guangxi University*
[2]*School of Material Science and Engineering, Guilin University of Electronic Technology*

16:10 (S14-29) Non-equilibrium Strategy for Enhancing Thermoelectric Properties and Improving Stability of $AgSbTe_2$ (Invited)

Ady Suwardi[1, 2, *]
[1]*Institute of Materials Research and Engineering, Agency for Science, Technology and Research*
[2]*Department of Materials Science and Engineering, National University of Singapore.*

16:30 (S14-30) Highly Efficient Thermoelectric Cooling Performance of Ultrafine-Grained and Nanoporous Materials (Invited)

Zihang Liu*, Liangjun Xie, Jiehe Sui*
State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

16:50 (S14-31) Reinforcing Phonon Scatterings to Enhance ZT (Invited)

Min Hong
Centre for Future Materials & School of Engineering, University of Southern Queensland

17:10 (S14-32) Selective Scatterings of Phonons and Electrons in Defective Half-heusler $Nb_{1-\delta}CoSb$ for the Figure of Merit ZT > 1

Ziheng Gao, Chenguang Fu*, Tiejun Zhu*
State Key Laboratory of Silicon and Advanced Semiconductor Materials, School of Materials Science and Engineering, Zhejiang University

17:25 (S14-33) Large Transverse Thermoelectric Effect in Polycrystalline Mg_3Bi_2-based Materials

Tao Feng, Wenqing Zhang*, Weishu Liu*
Department of Materials Science and Engineering, Southern University of Science and Technology

17:40 (S14-34) Charge Transfer Engineering to Achieve Extraordinary Power Generation in GeTe-based Thermoelectric Materials

Chengyan Liu[1], Ying Peng[2], Lei Miao[3,*] Takao Mori[4]
[1]*School of Materials Science and Engineering, Guilin University of Electronic Technology*
[2]*School of Information and Communication, Guilin University of Electronic Technology*
[3]*School of Physical Science and Technology, Guangxi University*
[4]*International Center for Materials Nanoarchitectonics (WPI-MANA), National Institute for Materials Science (NIMS)*

17:55 (S14-35) Enhancing Thermoelectric Performance in P-type Mg_3Sb_2-based Zintls through Optimization of Band Gap Structure and Nanostructuring

Zhe Xu[2], Chengyan Liu[1,*], Lei Miao[2,*]
[1]*School of Material Science and Engineering, Guilin University of Electronic Technology*
[2]*School of Physical Science & Technology, Guangxi University*

Symposium 15: Perovskites for Solar Cells, LEDs, and Other Applications

(Location: Yuan 2)

Session Chair: Lianzhou Wang, *University of Queensland*

08:30 (S15-12) Efficient Perovskite Solar Cells via Charge Carrier Modulation and Defect Passivation (Keynote)

Jingbi You
Institute of Semiconductors, Chinese Academy of Sciences

09:00 (S15-13) Efficient Inverted Perovskite Solar Cells Enabled by Molecule Coordinations (Invited)

Zhubing He[1,2]
[1]*Department of Materials science and Engineering, Southern University of Science and Technology*
[2]*Institute of Innovative Materials (I2M), Southern University of Science and Technology*

09:25 (S15-14) Unlocking the Potential of Inverted Perovskite Solar Cells: Innovative Designs and Enhanced Performance (Invited)

Yi Hou[1,2]
[1]*Department of Chemical and Biomolecular Engineering, National University of Singapore*
[2]*Solar Energy Research Institute of Singapore (SERIS), National University of Singapore*

09:50 (S15-15) Issues on Industrialization of Perovskite Photovoltaic Technology

Bin Fan*, Qingyong Tian, Weizhong Chen
Kunshan GCL Optoelectronic Material Co., Ltd.

10:10 Break

Session Chair: Zhubing He, *Southern University of Science and Technology*

10:25 (S15-16) Perovskite Quantum Dots for Solar Cells and Beyond (Keynote)

Lianzhou Wang
The University of Queensland

10:50 (S15-17) High-performance Perovskite-CIGS Thin-film Tandem Solar Cells and Mini-modules (Invited)

Fan Fu
Swiss Federal Laboratories for Materials Science and Technology

11:15 (S15-18) Perovskite Module Upscaling towards Industrialization Based on Efficient Cell Architectures and Scalable Processes (Invited)

Yinghuan Kuang[1,2,3,*], Merve Tutundzic[1,2,3], Xin Zhang[1,2,3,4,5,6], Tamara Merckx[1,2,3], Aranzazu Aguirre[1,2,3], Anurag Krishna[1,2,3], Yiqiang Zhan[5,6], Jef Poortmans[1,2,3,4], Bart Vermang[1,2,3], Tom Aernouts[1,2,3]
[1]*Imec, imo-imomec*
[2]*EnergyVille, imo-imomec*
[3]*Hasselt University, imo-imomec*
[4]*Department of Electrical Engineering (ESAT), KU Leuven*
[5]*Center for Micro Nano Systems, School of Information Science and Technology (SIST), Fudan University*
[6]*Academy for Engineering & Technology (FAET), Fudan University*

11:40 (S15-19) Advancements and Prospects of Large-scale Perovskite-silicon Tandem Solar Cells (Invited)

Yiliang Wu; *Auner Technology*

12:05 Lunch

Session Chair: Wei Chen, *Huazhong University of Science and Technology*

13:30 (S15-20) High-performance Perovskite LEDs and their Applications (Invited)
Feng Gao
Linköping University

13:55 (S15-21) High Color-purity Perovskite LEDs Based on Strongly-confined Quantum Dots (Invited)
Jianjun Tian
University of Science and Technology Beijing

14:20 (S15-22) Advanced Manufacturing of Cesium Lead Halide Quantum Dot Luminescent Materials (Invited)
Jizhong Song
School of Physics and Microelectronics, Zhengzhou University

14:45 (S15-23) Technical and Economic Analysis for Perovskite Tandem Solar Modules (Invited)
Yun Zhang*, Xinlian Li, Mengjie Li, Zihe Cai, Zhengjing Zhao, Zizhen Lin, Xiongfei Chen, Zhiguo Zhao*
Huaneng Clean Energy Research Institute

15:10 (S15-24) Emergent of Developing Perovskite/CIGS Tandem Solar Cells
Yong Peng
Wuhan University of Technology

15:30 (S15- 25) Reactive Crystallization of Halide Perovskites
Shuang Xiao
Shenzhen Technology University

15:50 Break

Session Chair: Feng Gao, *Linköping University*

16:05 (S15-26) Heterointerface Modification of Tin Perovskite Solar Cell (Keynote)
Shuzi Hayase
The University of Electro-Communications

16:35 (S15-27) Stabilizing Strategies for Efficient Perovskite Solar Cells
Yanbo Wang
Shanghai Jiao Tong University

16:55 (S15-28) Emerging Perovskite X-ray Detectors: the Timing Property and Modulation Method (Invited)
Guangda Niu
Huazhong University of Science and Technology

17:20 (S15-29) Volatile Solution Enabling Highly Orientational Perovskite Crystalline Film (Invited)
Congcong Wu
Hubei University

17:45 (S15-30) Unlocking the Potential of Tin-based Perovskites: Properties, Progress, and Applications in New-Era Electronics
Shuzhang Yang[1, 2], Junhao Chu[1, 2, *], Wenwu Li[1, 2, *]
[1]State Key Laboratory of Photovoltaic Science and Technology, Department of Materials Science, Fudan University
[2]Shanghai Frontiers Science Research Base of Intelligent Optoelectronics and Perception, Institute of Optoelectronics, Department of Materials Science, Fudan University

Symposium 16: Transparent Ceramics and Luminescent Materials
(Location: Jing)

Session Chair: Rong-Jun Xie, *Xiamen University*

08:30 (S16-13) Large Size Transparent Ceramics for Extreme Applications (Keynote)
Jian Zhang[1, 2, 3, *], Xiaojian Mao[3], Shiwei Wang[3]
[1]*State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences*
[2]*Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences*
[3]*Research Center for Transparent Ceramics, Shanghai Institute of Ceramics, Chinese Academy of Sciences*

09:00 (S16-14) What Happened during Fs Laser Irradiation in Transparent Materials? (Keynote)
Jianrong Qiu
State Key Laboratory of Modern Optical Instrumentation, Zhejiang University

09:30 (S16-15) Solvothermal Synthesis and Broadband NIR Luminescence of Cr^{3+}-doped Scandium Fluoride Nanocrystals
Sihan Feng[1], Xuejiao Wang[2], Qi Zhu[1], Ji-Guang Li[3, *]
[1]*Key Laboratory for Anisotropy and Texture of Materials (Ministry of Education) and School of Materials Science and Engineering, Northeastern University*
[2]*College of Chemistry and Materials Engineering, Bohai University*
[3]*Research Center for Electronic and Optical Materials, National Institute for Materials Science*

09:45 (S16-16) Vertically Aligned $Gd_2O_2SO_4$: Ln and Gd_2O_2S: Ln Luminescent Films via a Novel Precursor Route (Ln = Pr, Eu, Tb)
Fan Li[1], Xuejiao Wang[2], Qi Zhu[1], Ji-Guang Li[3]
[1]*Key Laboratory for Anisotropy and Texture of Materials (Ministry of Education) and School of Materials Science and Engineering, Northeastern University*
[2]*College of Chemistry and Materials Engineering, Bohai University*
[3]*Research Center for Electronic and Optical Materials, National Institute for Materials Science*

10:00 (S16-17) Photoluminescence Evolution of Functional Silicon Quantum Dots Assembled in Sustainable Mechanochemical Process
Yuping Xu[1], Yunzi Xin[1], Takashi Shirai[1, 2, *]
[1]*Advanced Ceramics Research Center, Nagoya Institute of Technology*
[2]*Department of Life Science and Applied Chemistry, Graduate School of Engineering, Nagoya Institute of Technology*

10:15 Break

Session Chair: Akio Ikesue, *World Lab. Co.*

10:30 (S16-18) Coupling Ferroelectrics and Piezoelectrics to Luminescent and Optoelectronic Materials (Keynote)
Jianhua Hao[1, 2]
[1]*Department of Applied Physics and Photonics Research Institute, The Hong Kong Polytechnic University*
[2]*The Hong Kong Polytechnic University Shenzhen Research Institute*

11:00 (S16-19) Preparation of High-performance Magnesium Aluminate Spinel Transparent Ceramics via Particle Grading of Pre-sintered Powder Based on Isobam Gelcasting
Junyan Mao, Shiwei Wang*; *Shanghai Institute of Ceramics, Chinese Academy of Sciences*

11:15 (S16-20) Elaboration of Ce: $(Lu, Gd)_3Al_5O_{12}$-Al_2O_3 Transparent Nanoceramics through Full Glass Crystallization for High-power Warm White LED/LD Lighting
Jie Fu[1, 2], Jianqiang Li[1, 2]
[1]*School of Materials Science and Engineering, University of Science and Technology Beijing*
[2]*State Key Laboratory of Multiphase Complex Systems, Institute of Process Engineering, Chinese Academy of Sciences*

11:30 (S16-21) Fabrication, Microstructure Evolution and Optical Properties of Sm: YAG Transparent Ceramics for Cladding
Yanqiu Jing[1, 2], Feng Tian[1, 2], Lihao Guo[1, 2], Tingsong Li[1, 3], Junlin Wu[1, 2], Maxim Ivanov[4], Dariusz Hreniak[5], Jiang Li[1, 2, *]
[1]*Transparent Ceramics Research Center, Shanghai Institute of Ceramics, Chinese Academy of Sciences*
[2]*Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences*
[3]*School of Material Science and Engineering, Jiangsu University*
[4]*Institute of Electrophysics Ural branch of Russian Academy of Science*
[5]*Institute of Low Temperature and Structure Research, Polish Academy of Sciences*

11:45 (S16-22) Ultrafine-grained Al_2O_3-RE: YAG (RE = Ce; Ce/Gd) Composite Ceramics as Color Converters for High-power White LEDs/LDs

Anastasia A. Vornovskikh[1, *], Denis Yu. Kosyanov[1, 2], Oleg O. Shichalin[1], Evgeniy K. Papynov[1], Andrei A. Leonov[2], Alexey P. Zavjalov[1, 3], Yanbin Wang[4], Ziqiu Cheng[4], Xin Liu[4, 5], Jiang Li[4, 5]

[1]*Far Eastern Federal University*
[2]*Institute of Automation and Control Processes, Far Eastern Branch of the Russian Academy of Sciences*
[3]*Institute of Solid State Chemistry and Mechanochemistry, Siberian Branch of the Russian Academy of Sciences*
[4]*Shanghai Institute of Ceramics, Chinese Academy of Sciences*
[5]*University of Chinese Academy of Sciences*

12:00 Lunch

Session Chair: Shiwei Wang, *Shanghai Institute of Ceramics, Chinese Academy of Sciences*

13:30 (S16-23) Fabrication of Ho^{3+}: Y_2O_3 Laser Ceramics and Demonstration of Over-Hundred-Watt Operation of a 2.1um Ceramic Laser (Keynote)

J. Wang[1], C. Y. Ren[2], K. Zhou[1], C. H. Zhang[1], D. Y. Shen[2], D. Y. Tang[1, 3, *]

[1]*College of New Materials and New Energies, Shenzhen Technology University*
[2]*School of Physics and Electronic Engineering, Jiangsu Normal University*
[3]*Julong College, Shenzhen Technology University*

14:00 (S16-24) Non-resonant Directional Random Laser using a Scattering Cavity in Porous Nd: YAG Ceramics (Invited)

Do Kyung Kim[1, *], Hojin Ma[2], KyeoReh Lee[1], YongKeun Park[1]

[1]*Korea Advanced Institute of Science and Technology (KAIST)*
[2]*Korea Institute Materials Science*

14:20 (S16-25) Microstructure Control in Transparent Ceramics by Various Sintering Techniques (Invited)

Rémy Boulesteix[1, *], Louis Cornet[1, 2], Alexandre Maitre[1], Jean-Marc Heintz[2], Véronique Jubéra[2]

[1]*IRCER, Université de Limoges*
[2]*ICMCB, Université de Bordeaux*

14:40 (S16-26) Microstructure Control of Y_2O_3-MgO Transparent Ceramics (Invited)

Ze Luo[1, 2], Xi Zhang[1, 2], Yongzhi Luo[1, 2], Shengquan Yu[1, 2, *], Bin Kang[1, 2]

[1]*Sichuan Research Center of New Materials*
[2]*Institute of Chemical Materials*

15:00 (S16-27) Fluorescence Properties and Microstructure of Er^{3+}(/Yb^{3+})-doped MgAlON Transparent Ceramics with Functionalized Grain Boundaries

Bowen Chen, Hao Wang*, Bingtian Tu

State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology

15:15 (S16-28) Component Regulation and Performance Optimization of Al_2O_3-YAG: Ce Composite Ceramic Phosphors for High-power Laser Lighting

Ziqiu Cheng[1, 2], Yanbin Wang[1, 3], Xin Liu[1, 2], Zhengfa Dai[1, 2], Haohong Chen[1, 2], Feng Tian[1, 2], Penghui Chen[1, 2], Jiang Li[1, 2, *]

[1]*Key Laboratory of Transparent Opto-functional Inorganic Materials, Shanghai Institute of Ceramics, CAS*
[2]*Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences*
[3]*School of Material Science and Engineering, Jiangsu University*

15:30 (S16-29) Additives Doped AlON Ceramics for Simultaneously Enhanced Transparency and Luminescent Functionalization

Kailei Lu, Xiaolan Zhou, Xu Huang, Bing He, Wenxin Du, Jianqi Qi*, Tiecheng Lu*

School of Physics, Sichuan University

15:45 Break

Session Chair: Mathieu Allix, *CEMHTI, CNRS*

16:00 (S16-30) Grain Boundary Mobility Transition Underlying Pressureless Two-step Sintering (Invited)

Yanhao Dong

Tsinghua University

16:20 (S16-31) High-pressure Regulation of Luminescent Metal Halides (Invited)

Zewei Quan

Department of Chemistry, Southern University of Science and Technology

16:40 (S16-32) Construction of High-Performance Perovskite Quantum Dots for LED Displays (Invited)
Tongtong Xuan*, Rong-Jun Xie
College of Materials, Xiamen University

17:00 (S16-33) Microstructure Control in Transparent Ceramics by Colloidal Processing (Invited)
Tohru S. Suzuki
National Institute for Materials Science

17:20 (S16-34) High-performance Perovskite Optoelectronic Devices via Grain Boundary Defect Passivation (Invited)
Zhanhua Wei
Institute of Luminescent Materials and Information Displays, College of Materials Science and Engineering, Huaqiao University

17:40 (S16-35) YAG based Ceramics as Color Converter for High-power LEDs (Invited)
Youfu Zhou[1, 2, *], Maochun Hong[2]
[1]*Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences*
[2]*Fujian Science & Technology Innovation Laboratory for Optoelectronic Information of China*

Symposium 17: Materials for Advanced Nuclear Energy Systems and Nuclear Waste Management
(Location: Song 2.2)

Session Chair: Shi-Kuan Sun, *Foshan University*

08:30 (S17-12) Ultrafast Low-temperature Near-seamless Joining of SiC Ceramic Matrix Composites using a Sacrificial $RE_3Si_2C_2$ Filler via Electric Current Field-assisted Sintering Technique for Nuclear Applications (Invited)
Xiaobing Zhou
Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences

08:55 (S17-13) Structure and Performance Optimization of Advanced UO_2-based Ceramic Nuclear Fuel (Invited)
Rui Gao*, Zhenliang Yang, Bingqing Li, Liang Cheng, Biaojie Yan, Jingkun Xu, Yi Zhong, Liang Xie, Pengcheng Zhang, Bin Bai
Institute of Materials, China Academy of Engineering Physics

09:20 (S17-14) Process Informatics for CVD Ceramcis Coating on SiC/SiC for Nuclear Applications (Keynote)
Sosuke Kondo[1, *], Hirokazu Katsui[2], Kazuya Shimoda[3], Kiyohiro Yabuuchi[4]
[1]*Institute for Materials Research, Tohoku University*
[2]*National Institute of Advanced Industrial Science and Technology*
[3]*National Institute for Materials Science*
[4]*Institute of Advanced Energy, Kyoto University*

09:50 (S17-15) Correlation between Microstructure Evolution and Mechanical Degradation of SiC/SiC under Ion Irradiation: An In-situ TEM Study (Invited)
Ce Zheng*, Xiaoqiang Li, Yichun Bi, Shanshan Xu, Yiming Qin, Cheng Zhang, Chong Wei
Northwestern Polytechnical University

10:15 Break

Session Chair: Kai Xu, *Wuhan University of Technology*

10:30 (S17-16) Overview of Metal Hydrides for Nuclear Application (Invited)
Xunxiang Hu; *Sichuan University*

10:55 (S17-17) Design and Fabrication of High-performance Ceramic Coating as Tritium Permeation Barrier (Invited)
Heping Li; *School of Materials Science and Engineering, Huazhong University of Science and Technology*

11:20 (S17-18) Fabrication and Microstructure Investigation of The Li-rich Li_2TiO_3 Tritium Breeder Ceramic
Yanli Shi*, Hao Guo, Jianqi Qi, Tiecheng Lu
College of Physics, Sichuan University

~~**11:40 (S17-19) Fabrication and Mechanical Properties of the Tritium Breeder Li_4SiO_4 Pebbles for Nuclear Fusion Blanket**~~
~~Baoping Gong[1, *], Hao Chen[1], Juemin Yan[1], Yongjin Feng[1,2], Xiaoyu Wang[1]~~
~~[1]*Southwestern Institute of Physics*~~
~~[2]*Nuclear Power Institute of China*~~

12:00 Lunch

Session Chair: Kun Yang, *Nanjing University of Aeronautics and Astronautics*

13:30 (S17-20) Structural Evolution in High-entropy Complex Ceramics under Irradiation (Invited)

Chenxu Wang[1, *], Shuang Zhao[1], Hao Xiao[1], Jianming Xue[1], Yugang Wang[1], Jie Zhang[2], Jingyang Wang[2], Qing Huang[3], Shijun Zhao[4], Cameron L Tracy[5], Rodney C Ewing[5]

[1]State Key Laboratory of Nuclear Physics and Technology, Center for Applied Physics and Technology, Peking University
[2]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences
[3]Ningbo Institute of Material Technology & Engineering, Chinese Academy of Sciences
[4]Department of Mechanical Engineering, City University of Hong Kong
[5]Department of Geological Sciences, Stanford University

13:55 (S17-21) Irradiation Effect of Zirconium Compounds (Invited)

Weichao Bao[1], Xin-Gang Wang[1], Ji-Xuan Liu[2], Guo-Jun Zhang[2, *], Houzheng Wu[3, *], Fangfang Xu[1, *]

[1]State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics
[2]State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, Institute of Functional Materials, Donghua University
[3]Department of Materials, Loughborough University

14:20 (S17-22) The Irradiation Effects and Multi-factor Coupling Effect on Behavior of Nuclear Graphite

Shasha Lv[1, *], Zhengcao Li[2]

[1]Beijing Normal University
[2]Tsinghua University

14:40 (S17-23) Microstructure Evolution and Amorphization Resistance in TiC_x Ceramics under 3 MeV Au^{2+} Ion Irradiation

Jinyu Shi[1, 2], Lina Chen[1, 2], Yiming Lei[1], Chenxu Wang[3], Jie Zhang[1, *], Jingyang Wang[1]

[1]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences
[2]School of Materials Science and Engineering, University of Science and Technology of China
[3]State Key Laboratory of Nuclear Physics and Technology, Center for Applied Physics and Technology, Peking University

15:00 (S17-24) Effects of Grain Size on the Amorphous Threshold of Irradiated SiC at Room Temperature

Xinwei Yuan[1, 2], Sosuke Kondo[2, *], Kiyohiro Yabuuchi[3], Hao Yu[2], Yasuyuki Ogino[2], Ryuta Kasada[2]

[1]Graduate School of Engineering, Tohoku University
[2]Institute for Materials Research, Tohoku University
[3]Institute of Advanced Energy, Kyoto University

15:20 (S17-25) Joining of SiC Ceramics by Combining NITE-SiC Interlayer and its Thickness Control

Chuang-Tian Zhan[1], Sheng-Jin He[1], Weiming Guo[1, *], Yuan-Bin Chen[1], Shi-Kuan Sun[2], Hua-Tay Lin[1, *]

[1]School of Electromechanical Engineering, Guangdong University of Technology
[2]School of Material Science and Energy Engineering, Foshan University

15:40 Break

Session Chair: Xiaobing Zhou, *Ningbo Institute of Materials Technology and Engineering*

16:00 (S17-26) The Effect of Irradiation Damage on the Corrosion Behavior of SiC in the Molten Salt Reactor (Invited)

Jianjian Li; *Shanghai Institute of Applied Physics, Chinese Academy of Science*

16:25 (S17-27) Metallic Copper Decorated Hexagonal Boron Nitride for High-efficient Immobilization of Radioactive Iodine

Tien-Shee Chee[1], Sujeong Lee[1], Ho Jin Ryu[1, 2, *]

[1]Department of Materials Science and Engineering, KAIST
[2]Department of Nuclear and Quantum Engineering, KAIST

16:45 (S17-28) Design and Synthesis of Radioactive Gaseous Iodine Adsorption Materials for Dissolver Off Gas in Reprocessing Plants

Sen Chang*, Yongguo Li, Kunjun Wang; *China Institute for Radiation Protection*

17:05 (S17-29) Effects of Component Variation on a Simulated HLLW Glass Crystallization

Ruidong Jia, Chenchen Niu, Kai Xu*

State Key Laboratory of Silicate Materials for Architectures, Wuhan University of Technology

17:25 (S17-30) High-temperature Oxidation, Corrosion and Wear Resistance of Cr/Cr_2AlC Coatings on Zircaloy-4 Alloys for Accident Tolerant Fuel

Yiming Lei[1], Hongliang Ming[1], Jianqiu Wang[1], Jie Zhang[1, *], Jochen M. Schneider[2], Jingyang Wang[1]

[1]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences
[2]Materials Chemistry, RWTH Aachen University

The underlined author indicates the presenter. * Indicates the corresponding author.

Symposium 18: Solid Oxide Fuel Cells and Hydrogen Technologies
(Location: Song 2.1)

Session Chair: Yan Chen, *South China University of Technology*
Tenglong Zhu, *Nanjing University of Science and Technology*

08:30 (S18-11) Cobalt-free Air Electrodes for Protonic Ceramic Cells (Keynote)
Francesco Ciucci; *Chair of Electrode Design, University of Bayreuth*

09:00 (S18-12) Protonic Ceramic Electrochemical Cells for High-efficient Hydrogen Production and Electricity Generation (Invited)
SIhyuk Choi; *Department of Mechanical Engineering, Kumoh National Institute of Technology*

09:25 (S18-13) Self-recovered Symmetrical Protonic Ceramic Fuel Cell with Smart Reversible Exsolution/Dissolution Electrode (Invited)
Yuhao Wang[1], Francesco Ciucci[1, 2, 3, *]
[1]Department of Mechanical and Aerospace Engineering, The Hong Kong University of Science and Technology
[2]Chair of Electrode Design, Faculty of Engineering Science, University of Bayreuth
[3]Bavarian Center for Battery Technology

09:50 (S18-14) Perovskite-RP Phase 3D Heterostructured Electrode with Local Engineering Proton Channel for Protonic Ceramic Fuel Cells
Tao Hong*, Jigui Cheng; *School of Materials Science and Engineering, Hefei University of Technology*

10:15 Break

Session Chair: Wonyoung Lee, *Sungkyunkwan University*
Shuo Zhai, *Shenzhen University*

10:30 (S18-15) Janus-type Substitution for High-performance Reversible Protonic Ceramic Cells (Invited)
Yufei Song[1], Francesco Ciucci[2, *]
[1]Department of Mechanical and Aerospace Engineering, The Hong Kong University of Science and Technology
[2]Chair of Electrode Design for Electrochemical Energy Storage Systems, University of Bayreuth

10:55 (S18-16) Rational Design of Perovskite Ferrites as High-performance Proton-conducting Fuel Cell Cathodes
Zheng Wang*, Yuhao Wang, Jian Wang, Yufei Song, Matthew J. Robson, Arim Seong, Meiting Yang, Zhiqi Zhang, Alessio Belotti, Jiapeng Liu, Guntae Kim, Jongwoo Lim, Zongping Shao, Francesco Ciucci
Shenzhen University

11:15 (S18-17) Temperature-induced Surface Modification towards Protonic Ceramic Fuel Cell Air Electrode
Kang Zhu[1], Nai Shi[2], Ranran Peng[1, *], Yalin Lu[1, *]
[1]Department of Materials Science and Engineering, University of Science and Technology of China
[2]Kyushu University

11:35 (S18-18) $La_2NiO_{4+\delta}$ Infiltrated with Silver Nitrate as Positrodes for Protonic Ceramic Electrochemical Cells
Yuwen Zhu, Shihang Guo, Donglin Han*; *College of Energy, Soochow University*

12:00 Lunch

Session Chair: Francesco Ciucci, *University of Bayreuth*
Yufei Song, *University of Science and Technology*

13:30 (S18-19) Tunning the Redox Process of Lattice Oxygen/Hydrogen for Promoted Electro-Catalytic Activity toward Small Molecular Conversion (Keynote)
Yan Chen; *School of Environment and Energy, South China University of Technology*

14:00 (S18-20) Performance-uniformity Oriented Current Collector Designing for Industrial-sized Solid Oxide Fuel Cell Stack (Invited)
Han Yan, Dong Yan*, Jian Li; *School of Mater Sci & Technol, Huazhong University of Science and Technology*

14:25 (S18-21) Long-term Thermo-mechanical Failure Evolution of a 15-Cell Solid Oxide Fuel Cell Stack
Meiting Guo, Sanping Jiang*
Foshan Xianhu Laboratory of the Advanced Energy Science and Technology Guangdong Laboratory

14:45 (S18-22) To Study the Transient Thermal Stress Distributing Behavior of the Components within a Typical SOFC Stack at the Preheating Stage by 3D Thermomechanical Modeling

Yanlong Zhu, Daifen Chen*

School of Energy and Power, Jiangsu University of Science and Technology

15:05 (S18-23) Improving the Robustness of the Sealant-to-Interconnect Interface by Steel Surface Modification

Elisa Zanchi[1, *], Devanarayanan Meena Narayana Menon[1], Simone Anelli[1], Antonio Gianfranco Sabato[2], Milena Salvo[1], Davide Janner[1], Albert Tarancón[2, 3], Federico Smeacetto[1]

[1]*Politecnico di Torino, Department of Applied Science and Technology*

[2]*IREC, Catalonia Institute for Energy Research, Department of Advanced Materials for Energy Applications*

[3]*ICREA*

15:25 (S18-24) Downward Band Bending as an Efficient Strategy to Accelerate Oxygen Exchange Kinetics in Mixed Conducting Oxides-Studies on Different Oriented LSCF Thin Films

Bingbing Qiu, Yi Yang, Ranran Peng *, Yalin Lu; *University of Science and Technology of China*

15:45 Break

Session Chair: Jaroslaw Milewski, *Warsaw University of Technology*
Dong Yan, *Huazhong University of Science and Technology*

16:00 (S18-25) Phase Transition with In-situ Exsolution Nanoparticles in Reduced $Pr_{0.5}Ba_{0.5}FeO_{3-\delta}$ based Electrode for Solid Oxide Cells (Invited)

Yunfeng Tian; *School of Materials Science and Physics, China University of Mining and Technology*

16:25 (S18-26) Engineering Low-Dimensional Heterostructure Oxide Electrodes for Efficient Energy Conversion and Storage (Invited)

Yunfei Bu

Nanjing University of Information Science and Technology

16:50 (S18-27) Understanding and Mitigating A-site Surface Enrichment in Ba-containing Perovskites: A Combined Computational and Experimental Study of $BaFeO_3$

Jiapeng Liu[1], Francesco Ciucci[2, *]

[1]*School of Advanced Energy, Sun Yat-Sen University*

[2]*Bayerisches Zentrum für Batterietechnik (BayBatt), University of Bayreuth*

17:10 (S18-28) A Novel Interconnector for SOFC Thermo-Electric Synergistic Enhancement

Keqing Zheng[1, 2], Meng Zhu[2], Meng Ni[2, *]

[1]*School of Low-Carbon Energy and Power Engineering, China University of Mining and Technology*

[2]*Department of Building and Real Estate, Research Institute for Sustainable Urban Development (RISUD) & Research Institute for Smart Energy (RISE), The Hong Kong Polytechnic University*

17:30 (S18-29) Experimental Study on Thermal Cycle Stability of Solid Oxide Fuel Cell

Meng Zhu, Keqing Zheng, Meng Ni*

BRE, The Hong Kong Polytechnic University

Symposium 19: Ionic and Mixed Conducting Ceramics

(Location: Tang 4)

Session Chair: Na Ni, *Shanghai Jiao Tong University*
Jin-lin Luo, *Shenzhen University*

08:30 (S19-10) Sr-Fe-Mo-based Perovskite-type Electrocatalyst Materials for SOFC/SOEC (Keynote)

Xiu-An Xi[1], Bowen Zhang[2], Jianwen Liu[1], Xianzhu Fu[1], Jing-Li Luo[1, *]

[1]*College of Materials Science and Engineering, Shenzhen University*

[2]*Dept. Chemical and Materials Engineering, University of Alberta*

09:00 (S19-11) Development of High Performance Composite Mixed Conducting Electrodes for Solid Oxide Cells (Keynote)

Zheng Xie, Chen-Yu Tsai, Stephen Skinner*; *Department of Materials, Imperial College London*

09:30 (S19-12) Experimental Characterization and Phase-field Modelling of Microstructure Evolution in Solid Oxide Cells (Keynote)

Yijing Shang, Miao Yu, Hua Liu, Ming Chen*

Department of Energy Conversion and Storage, Technical University of Denmark

10:00 (S19-13) Unveiling the Structural Foundations for Enhanced Oxygen Ion Conductivity in High-Entropy Perovskite Oxides

Yue Shui[1], Hanchao Zhang[1], Hairui Han[2], Changrong Xia[2], Lei Zhu[3], Zhen Huang[3], Na Ni[1, *]
[1]*Gas Turbine Research Institute, School of Mechanical Engineering, Shanghai Jiao Tong University*
[2]*CAS Key Laboratory of Materials for Energy Conversion, Department of Materials Science and Engineering, University of Science and Technology of China*
[3]*New Energy Power Research Institute, School of Mechanical Engineering, Shanghai Jiao Tong University*

10:15 Break

Session Chair: Masaaki Kitano, *Tokyo Institute of Technology*
Ming Chen, *Technical University of Denmark*

10:30 (S19-14) Solid Oxide Fuel Cells Technologies - Challenges and Future Prospects (Keynote)

San Ping Jiang; *Foshan Xianhu Laboratory*

11:00 (S19-15) Dual-metal Exsolution of Doped Ferrite Anode for Solid Oxide Fuel Cells (Invited)

Zhe Lv*, Yujie Wu, Shuai Wang
School of Physics, Harbin Institute of Technology

11:25 (S19-16) Approach for Low-temperature Ammonia Synthesis by Novel Solid Catalysts with Functional Anion Sites (Invited)

Masaaki Kitano; *Tokyo Institute of Technology*

11:50 (S19-17) Mixed Conducting Oxides for Solid Oxide Photoelectrochemical Cells

Luyao Wang, Nan Yang*
School of physical science and technology, ShanghaiTech University

12:05 Lunch

Session Chair: Yan Chen, *South China University of Technology*
Kwati Leonard, *Kyushu University*

13:30 (S19-18) Proton Conducting Ceramics - Science and Applications (Keynote)

Truls Norby; *University of Oslu*

14:00 (S19-19) High Performance Protonic Ceramic Fuel Cells with Fuel Flexibility (Invited)

Donguk Kim[1], Tae Kyeong Lee[1], Seungwoo Han[1], Yuhan Jung[1], Dong Gyu Lee[1], Mingi Choi[2], Wonyoung Lee[1, 3, *]
[1]*Department of Mechanical Engineering, Sungkyunkwan University*
[2]*Department of Future Energy Convergence, Seoul National University of Science and Technology*
[3]*SKKU Institute of Energy Science and Technology (SIEST), Sungkyunkwan University*

14:25 (S19-20) Why Co-doping Y and Yb Leads to High Performance Proton-Conducting Perovskite-type Electrolyte? (Invited)

Donglin Han
College of Energy, Soochow University

14:50 (S19-21) Triple Conducting Oxides as Positrodes for Proton-Conducting Solid Oxide Electrochemical Devices (Invited)

Leonard Kwati[1, *], Aleksandar Staykov[1], Paulo Wiff[2], Yuji Okuyama[3], Hiroshige Matsumoto[1]
[1]*International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University*
[2]*Air Liquid Research and Development Innovation Campus*
[3]*Research Center for Sustainable Energy and Environmental Engineering, Faculty of Engineering University of Miyazaki*

15:15 (S19-22) Different Synthesis Methods and Firing Systems on the Performance of the Limiting Current Oxygen Sensor by Affecting the Grain Size of the Mixed Conductor Material

Junbo Long, Jiegang You*, Xiaofang Zhang*
School of Materials and Metallurgy, University of Science and Technology Liaoning

15:30 (S19-23) Proton-conducting Oxides for the Air Electrodes of Protonic Ceramic Cells

Ning Wang[1, *], Baoyin Yuan[2], Chumei Tang[1], Yoshitaka Aoki[3], Siyu Ye[1]
[1]*Huangpu Hydrogen Innovation Center, Guangzhou University*
[2]*School of Mathematics, South China University of Technology*
[3]*Faculty of Engineering, Hokkaido University*

15:45-16:00 Break

Session Chair: Donglin Han, *Soochow University*
Isao Kagomiya, *Nagoya Institute of Technology*

16:00 (S19-24) Research on Proton Ceramic Fuel Cells with Anode Support and its Application using Ammonia Fuel (Keynote)
Zuzhi Huang[1], Ting Chen[2], Shaorong Wang[3,*]
[1]School of Chemical Engineering and Technology
[2]China University of Mining and Technology
[3]School of Chemical Engineering and Technology, China University of Mining and Technology

16:30 (S19-25) Oxygen permeation mechanism of iron based mixed conductive oxides (Invited)
Isao Kagomiya
Department of Life Science and Applied Chemistry, Nagoya Institute of Technology

16:55 (S19-26) Machine Learning Guided Dopant Selection of $A_{1-x}A'_xCoO_3$ Air Electrodes for Reversible Protonic Ceramic Cells
Chunmei Tang[1,*], Ning Wang[1], Baoyin Yuan[2], Yoshitaka Aoki[3], Siyu Ye[1]
[1]Huangpu Hydrogen Energy Innovation Center, Guangzhou University
[2]School of Mathematics, South China University of Technology
[3]Faculty of Engineering, Hokkaido University

Symposium 20: Multifunctional Nanomaterials and Heterostructures for Sensing Devices
(Location: Tang 1)
Session Chair: Wangyang Fu, *Tsinghua University*

08:30 (S20-12) Trace-level Quantification by Surface-enhanced Raman Scattering (Keynote)
Zhengjun Zhang
School of Materials Science and Engineering, Tsinghua University

09:00 (S20-13) Clinical Diagnosis of Asthma and Lung Cancer Using Chemiresistive Gas Sensor (Invited)
Qiang Jing
Laboratory of Functional Molecules and Materials, School of Physics and Optoelectronic Engineering, Shandong University of Technology

09:25 (S20-14) Advanced Smart Integrated Chips for Zenithal Environmental Universal Sensing (ASIC-ZEUS) (Invited)
Chen Wang
Tsinghua University

09:50 (S20-15) Single-atom Cu Stabilized on Ultrathin $WO_{2.72}$ Nanowire for Highly Selective and Ultrasensitive PPB-level Toluene
Hua-Yao Li*, Peng Wang, Shisong Guo, Huan Liu
School of Integrated Circuits, Huazhong University of Science and Technology

10:10 Break

Session Chair: Zhengjun Zhang, *Tsinghua University*

10:30 (S20-16) From Polycyclic Aromatic Hydrocarbons to Two Dimensional Nanopores, Nanogaps and Energy Devices (Keynote)
Grégory F. Schneider
Leiden University

11:00 (S20-17) Pt-SnO_2 Composite Nanoceramics with Ultrastrong Room-temperature CO Responses (Invited)
Wanping Chen
School of Physics and Technology, Wuhan University

11:25 (S20-18) Atomically Dispersed Pt on MOF Derived In_2O_3 for High Performance Formaldehyde Gas Sensor
Weiyi Bu, Xiaohong Chuai*, Geyu Lu*
College of Electronic Science and Engineering, Jilin University

11:45 (S20-19) High Hydrogen Selectivity SnO_2 Hydrogen Sensor with Hybrid Organosilica Membranes

Zhonghang Xia, Lu Zhang, Yiwen Zhang*, Huiming Ji*
School of Materials Science and Engineering, Tianjin University, Key laboratory of Advanced Ceramics and Machining Technology of Ministry of Education

12:05 Lunch

Session Chair: Wanping Chen, *Wuhan University*

13:30 (S20-20) Functional Nanomaterials for Bacterial Sensing and Elimination (Keynote)

Yong-Qiang Li
Institute of Advanced Interdisciplinary Science, School of Physics, Shandong University

14:00 (S20-21) Atomic-scale Modulating of Nanomaterials for Highly Sensitive and Selective Sensors (Invited)

Zehui Li[1,*], Kunchan Wang[1], Kangrui Zhao[1], Keyu Chu[1], Ziyi Wang[2], Zhan Zhang[2]
[1]*School of Environmental Science and Engineering, Shanghai Jiao Tong University*
[2]*TC Air Technology Limited Company*

14:25 (S20-22) Applications of Heterogeneous Inorganic Nanostructures in Thermal Management and Mechanical Enhancement (Invited)

Lin Jing
Nanyang Technological University

14:50 (S20-23) Ferroelectric Polarization and Oxygen Vacancy Synergistically Induced Ultrasensitive and Fast Humidity Sensor for Multifunctional Applications

Nan Ma
Shanghai Institute of Ceramics, Chinese Academy of Sciences

15:10 (S20-24) Mixed Potential Type Acetone Gas Sensor based on YSZ Solid State Electrolyte and $CuSb_2O_6$ Sensing Electrode for Ketosis Diagnosis

Siyuan Lv, Fangmeng Liu*, Geyu Lu*
Jilin university

15:30 (S20-25) Strain Dependence of Electronic Band Structure of Graphene Nanoribbons and its Effect on their Physical and Chemical Properties (Keynote)

Hideo Miura
Fracture and Reliability Research Institute, Tohoku University

Symposium 21: Ceramics for Environmental Conservation, Energy and Environmental catalysis, Pollution Control, and Critical Materials

(Location: Banquet Hall 3)

Session Chair: Jianfeng Zhang, *Hohai University*

08:30 (S21-12) Metal Oxides for Arsenic Removal: from the Proposal of Selection Criteria to Application Oriented Structural Design (Invited)

Ronghui Li
School of Gemology and Materials Science, Hebei GEO University

08:55 (S21-13) The Science of Carbone with Its Elusive Bonding Description and Broad Implication Complementary to NHC-carbenes (Keynote)

Tiow-Gan Ong
Institue of Chemistry, Academia Sinica

09:25 (S21-14) Research on Intrinsically Safe and High-performance Phosphate-based Cathode Materials for Sodium-ion Battery and High-throughput Computation/Optimization Based on First Principle (Invited)

Shuquan Liang
Central South University

09:50 (S21-15) Ni/Al_2O_3-ZrO_2 Nanofibers Synthesized by Blow Spinning for Dry Reforming of Methane

Kun Wang, Jing Liu*, Peng Zhang*
School of Materials Science and Engineering, Shanghai Jiao Tong University

10:15-10:30 Break

Session Chair: Tiow Gan Ong, *Institue of Chemistry, Academia SInica*

10:30 (S21-16) Synthesis of g-C_3N_4/diatomite Photocatalyst for the Degradation of Organic Pollutant (Invited)
Hongliang Xu*, Mengfan Wang, Zhentao Cui, Mingliang Li, Bo Song
School of Materials Science and Engineering, Zhengzhou University

10:55 (S21-17) Optimization of Key Materials for Aqueous Zinc Manganese Batteries (Invited)
Guozhao Fang; *Central South University*

11:20 (S21-18) Microstructural Modification and Performance Study of Low Pressure Charged Nanofiltration Membranes (Invited)
Jianfeng Zhang*, Yanan Deng, Gaiye Li
College of Mechanics and Materials, Hohai University

11:45 (S21-19) Highly Coke Resistant and Thermally Stable Nickel/Oxide Catalysts for Methane Reforming with Carbon Dioxide
Jing Liu*, Xiaoqian Feng, Qing Zhang, Feng Li, Peng Zhang, Lian Gao
School of Materials Science and Engineering, Shanghai Jiao Tong University

12:05 Lunch

Session Chair: Xibao Li, *Nanchang Hangkong University*

13:30 (S21-20) Non-precious-metal Catalysts for Polymer Electrolyte Membrane Fuel Cells (Invited)
Qiliang Wei*, Weiyou Yang
Institute of Micro/Nano Materials and Devices, Ningbo University of Technology

13:55 (S21-21) A Promoted Photocatalysis System Trade-off between Thermodynamic and Kinetic via Hierarchical Distribution Dual-defects for Efficient H_2 Evolution (Invited)
Jinbo Xue*, Jiaqi Gao, Qianqian Shen
Key Laboratory of Interface Science and Engineering in Advanced Materials (Taiyuan University of Technology), Ministry of Education

14:20 (S21-22) Two-dimensional SnSe Piezoelectric Nanomaterials for Mechanically Driven Catalytic Applications (Invited)
Shun Li; *Jiangsu University*

14:45 (S21-23) Atomic Imaging of Absorbed Guest Species in Beam-sensitive Aluminosilicate Zeolites by Electron Microscopy (Invited)
Lingmei Liu[1], Yu Han[2,*]
[1]Multi-Scale Porous Materials Center, Institute of Advanced Interdisciplinary Studies & School of Chemistry and Chemical Engineering, Chongqing University
[2]King Abdullah University of Science and Technology (KAUST), Physical Sciences and Engineering Division, Advanced Membranes and Porous Materials (AMPM) Center, Saudi Arabia

15:10 (S21-24) Hexavalent Chromium Removal from Aqueous Media Using Cu_2O-Au-TiO_2 Photocatalyst
Sayaka Yanagida*, Shoichi Somekawa
Materials Technology Group, Fundamental Chemical Materials Division, Research and Development Department, Tokyo Metropolitan Industrial Technology Research Institute

15:30 (S21-25) Boosting Electrochemical Energy Storage Performance by Constructing Hierarchical Three-dimensional Electrode Structures
Zengyan Wei; *School of Materials Science and Engineering, Harbin Institute of Technology*

15:50 Break

Session Chair: Jinbo Xue, *Taiyuan University of Technology*

16:00 (S21-26) Rapid and Round-the-clock Degradation of Organic Pollutants over $BiFeO_3$@$BaTiO_3$ Heterojunction via Piezoelectric Effect Assisted Solar Photocatalysis (Invited)
Mingtong Li[1], Jianhua Zhou[1,*], Lei Miao[1,2,*]
[1]Guangxi Key Laboratory of Information Materials, Engineering Research Center of Electronic Information Materials and Devices, Ministry of Education, School of Materials Science and Engineering, Guilin University of Electronic Technology
[2]Guangxi Key Laboratory for Relativity Astrophysics, State Key Laboratory of Featured Metal Materials and Life-cycle Safety for Composite Structures, School of Physical Science and Technology, Guangxi University

16:25 (S21-27) Coatings: An Effective Way to Regulate Tribo-catalysis (Invited)
Xiaodong Cui, Hua Lei, Xuchao Jia, Wanping Chen*
School of Physics and Technology, Wuhan University

16:50 (S21-28) Synchronous Anodic Oxidation for Robust Photoelectrocatalytic Hydrogen Production (Invited)
Xibao Li; *Nanchang Hangkong University*

17:15 (S21-29) Micro-/Nano- Structured Metal Oxide Semiconductor Gas Sensors (Invited)
Fanli Meng*, Zhenyu Yuan
College of Information Science and Engineering, Northeastern University

17:40 (S21-30) Hydroxyapatite as Green Catalyst for VOC Elimination
Yunzi Xin, Sohei Nakagawa, Takashi Shirai*
Advanced Ceramics Research Center, Nagoya Institute of Technology

Symposium 22: Ceramic Integration and Joining Technologies
(Location: Wu 1)

Session Chair: Zhan Sun, *Harbin Institute of Technology*
Fabiana D'Isanto, *Politecnico di Torino*

08:30 (S22-15) Joining of Advanced Ceramics using Field Assisted Sintering Technology (Keynote)
Naser Hosseini[1], Zdeněk Chlup[2], Valentina Casalegno[3], Xiaobing Zhou[4], Fabrizio Valenza[5], Alexandra Kovalčíková[6], Peter Tatarko[1,*]
[1]*Institute of Inorganic Chemistry, Slovak Academy of Sciences*
[2]*Institute of Physics of Materials, Czech Academy of Sciences*
[3]*Politecnico di Torino, Applied Science and Technology Department*
[4]*Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences*
[5]*Institute of Condensed Matter Chemistry and Energy Technologies - ICMATE, National Research Council -CNR*
[6]*Institute of Materials Research, Slovak Academy of Sciences*

09:00 (S22-16) Investigations on the Water-Jet Guided Laser Machining of Ceramic Coated IC21 Superalloy (Invited)
Yuan Li[1], Ye Ding[1,*], Shuiwang Wang[1], Wanda Xie[1], Wei Zhang[2], Youqing Lu[2], Lijun Yang[1,*]
[1]*School of Mechatronics Engineering, Harbin Institute of Technology*
[2]*National Key Laboratory of Science and Technology on Power Beam Processes, AVIC Manufacturing Technology Institute*

09:20 (S22-17) Additive Manufacturing of a High-Strength ZrC-SiC and TC4 Gradient Structure based on a Combination of Direct Laser Deposition and Brazing (Invited)
Qian Wang[1,*], Ninshu Ma[1,*], Junmiao Shi[2,3], Lixia Zhang[2], Seiichiro Tsutsumi[1], Jicai Feng[2]
[1]*Joining and Welding Research Institute, Osaka University*
[2]*State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology*
[3]*Key Laboratory of Pressure Systems and Safety, Ministry of Education, East China University of Science and Technology*

09:40 (S22-18) The Joining Mechanism, Residual Stress Regulating and Measurement of Ultra-hard Ceramics/Metals Brazed Joints
Lei Chen, Chun Li*, Xiaoqing Si, Jian Cao*
State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

09:55 (S22-19) Brazing SiC Ceramic to $Al_{0.3}CoCrFeNi$ High-entropy Alloy using Ag-based Filler Metal
Xiaoguo Song[1,2,*], Jie Sun[1]
[1]*State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology*
[2]*Shandong Institute of Shipbuilding Technology*

10:10 Break

Session Chair: Peter Tatarko, *Institute of Inorganic Chemistry, Slovak Academy of Sciences*
Lei Liu, *Tsinghua University*

10:25 (S22-20) The Advanced Joining of Ceramics and Ceramic Matrix Composites with Metals (Keynote)
Lixia Zhang*, Zhan Sun, Qing Chang, Bo Zhang
Department of Materials Science and Engineering, Harbin Institute of Technology

10:55 (S22-21) Joining and Integration Challenges in Sodium-zinc Molten Salt Batteries (Invited)
Fabiana D'Isanto*, Andrea Baggio, Milena Salvo, Federico Smeacetto
Politecnico di Torino, Department of Applied Science and Technology

11:15 (S22-22) Investigation on Microstructure and Mechanical Properties of the Sapphire/Sapphire joints brazed by Bismuth-borate Glass (Invited)

Wei Guo; *School of materials science and engineering, Yanshan University*

11:35 (S22-23) Acquisition of YSZ/Sapphire High-quality Joint based on Nanosecond Laser Pulses

Shuye Zhang, Tiesong Lin*

State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

11:50 Lunch

Session Chair: Tiesong Lin, *Harbin Institute of Technology*
Wei Guo, *Northwestern Polytechnical University*

13:30 (S22-24) Advanced Routes for Ceramic Brazing: Wetting and Metal-Ceramic Interfaces (Keynote)

Fabrizio Valenza[1,*], Sofia Gambaro[1], Lorenzo Fenocchio[2], Gabriele Cacciamani[1,2]

[1]CNR-ICMATE, National Research Council, Institute of Condensed Matter Chemistry and Technologies for Energy
[2]UNIGE-DCCI, University of Genova, Department of Chemistry

14:00 (S22-25) Vacuum Brazing of Diamond Film with Copper using AgCuSnTi Filler Alloys for Fabrication of Microwave Windows (Invited)

Haitao Xu, Chuanyang Lu, Huaxin Li, Wenjian Zheng, Yinghe Ma, Zengliang Gao, Jianguo Yang, Yanming He*

Institute of Process Equipment and Control Engineering, Zhejiang University of Technology

14:20 (S22-26) Research on Brazed Joints Reinforced by Three-dimensional Network Graphene Structure (Invited)

Zhan Sun, Bo Zhang, Qing Chang, Lixia Zhang*

Harbin Institute of Technology

14:40 (S22-27) Insights into the Air Reaction Wetting and Brazing of Si_3N_4 Ceramic by Ag-CuO Filler Metal: From Experiments to DFT Calculations

Xiangzhao Zhang*, Guiwu Liu, Guanjun Qiao

School of Materials Science and Engineering, Jiangsu University

14:55 (S22-28) SiC Fiber Strengthened Si-14Ti High-Temperature Filler Alloy for Brazing SiC_f/SiC and C/C Composites

Zongjing He[1,*], Chun Li[2], Xaioqing Si[2], Jian Cao[2]

[1]School of Transportation Science and Engineering, Harbin Institute of Technology
[2]State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

15:10 (S22-29) Direct Joining of Quartz Glass and Copper by Nanosecond Laser

Yinghao Feng, Rui Pan*, Shujun Chen, Taoshuai Zhou

Faculty of Materials and Manufacturing, Beiing University of Technology

15:25 (S22-30) Probing the Further Yb-doping Strategy Toward Enhancing Ion Conductivity in Li-garnet Solid Electrolyte

Fugang Lu*, Ce Wang, Panpan Lin, Tiesong Lin, Peng He*

State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

15:40 Break

Session Chair: Fabrizio Valenza, *Institute of Condensed Matter Chemistry and Technologies for Energy*
Xiaobing Zhou, *Ningbo Institute of Materials Technology and Engineering, CAS*

15:55 (S22-31) Ceramic Bonding by Femtosecond Laser: Technology, Interface and Devices (Keynote)

Lei Liu*, Guisheng Zou

Department of Mechanical Engineering, Tsinghua University

16:25 (S22-32) Brazing Process and Mechanism of Sic_f/Sic Composite Material and High Temperature Superalloy Using Cu-based Filler (Invited)

Panpan Lin, Peng He, Tiesong Lin*,Ce Wang

State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

16:45 (S22-33) Ultrafast Laser Welding of Transparent Materials (Invited)

Rui Pan[1,*], Peng He[2], Tiesong Lin[2], Shujun Chen[1]

[1]Beijing University of Technology
[2]Harbin Institute of Technology

17:05 (S22-34) Microstructure Evolution and Mechanical Properties of YAG/YAG Joint using Bismuth-borate Glass

Jiawei Bai, Weiqi Yang*
Sino-French Institute of Nuclear Engineering and Technology, Sun Yat-sen University

17:20 (S22-35) Achieving High-temperature Thermal Evacuation between Dissimilar Materials C_f/C and Mo30Cu by Forming a Brazed Joint

Xiaoqing Si*, Pengpeng Xue, Chun Li, Jian Cao
State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

17:35 (S22-36) Polysilazane-based High-temperature Adhesives for the Joints of Amorphous SiBON Ceramic Composites

Jing Xue[1, *], Lijuan Zhang[1, 2, *], Guangwu Wen[2, *], Yongzhao Hou[2, *]
[1]*School of Mechanical Engineering, Shandong University of Technology*
[2]*School of Materials Science and Engineering, Shandong University of Technology*

Symposium 24: Advanced Refractories and Traditional Ceramics

(Location: Yuan 5)

Session Chair: Ao Huang, *Wuhan University of Science and Technology*

08:30 (S24-12) Basic Research on Preparation of High Performance Refractories Based on Magnesium Resources in Qinghai Salt Lakes (Invited)

Wen Yan
The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology

08:55 (S24-13) Green Synthesis, Formation Mechanism and Oxidation of Ti_3SiC_2 Powder from Bamboo Charcoal, Ti and Si

Kai Su, Xuekun Tian, Deze Ouyang, Zhenyi Zhao, Fei Zhao, Xinhong Liu*
School of Materials Science and Engineering, Zhengzhou University

09:15 (S24-14) Oxidation Kinetics of $MgAl_2O_4$-C Refractories and the Effect of Pre-oxidation on the Composition of Low-alloy High-strength Steel

Zijun Peng[1], Lei Yuan[1, 2, *], Jingkun Yu[1]
[1]*Key Laboratory for Ecological Metallurgy of Multimetallic Mineral (Ministry of Education), Northeastern University*
[2]*Institute for Frontier Technologies of Low-Carbon Steelmaking, Northeastern University*

09:35 (S24-15) Effect of Curing Temperature and Firing Atmosphere on Properties of Hydrated Alumina Bonded Cr_2O_3-Al_2O_3 Castable for Coal Gasifier

Zixin Liao, Yawei Li*, Ning Liao*
Wuhan University of Science and Technology

09:55 (S24-16) Microstructural Evolution and Properties Enhancement of SiC Refractory Castables Bonded with the Special CNTs/Calcium Aluminate Cement

Changkun Lei, Donghai Ding*, Guoqing Xiao*
College of Materials Science and Engineering, Xi'an University of Architecture and Technology

10:15 Break

Session Chair: Zongqi Guo, *Trasteel International SA*

10:30 (S24-17) Recent Development in MgO Castables (Keynote)

Hong Peng
Elkem Silicon Materials, Kristiansand, Norway

11:00 (S24-18) Effect of SiC Addition on the Structural Properties of BN-ZrO_2 Composites

Minghui Wang[1, 2], Hongxia Li[1, 2, *], Yuanhang He[2], Guoqi Liu[2], Fan Qian[2]
[1]*Zhengzhou University*
[2]*Sinosteel Luoyang Institute of Refractories Research Co, Ltd., State Key Laboratory of Advanced Refractories*

11:20 (S24-19) Microstructures and Strength of Microporous MgO-$Mg(Al, Fe)_2O_4$ Refractory Aggregates

Qianlin Chen, Wen Yan*
The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology

11:40 (S24-20) Preparation of In-situ $Ti_3Si(Al)C_2$ Reaction Bonded Low Carbon Al_2O_3-Crefractories and Its Abnormal Thermal Shock Behavior

Yalou Xin, Yunling Jian, Hongfeng Yin*

College of Materials Science & Engineering, Xi'an University of Architecture & Technology

12:00 Lunch

Session Chair: Yawei Li, *Wuhan University of Science and Technology*

13:30 (S24-21) Preparation and Densification Behavior of Magnesia Aluminate Spinel Ceramics Doped with Rare Earths (Invited)

Beiyue Ma*, Wenyu Zan, Jingkun Yu

School of Metallurgy, Northeastern University

13:55 (S24-22) Effect of Magnesia on Oxidation Behavior of MgO-C Refractories in Inert Atmosphere (Invited)

Yanzhu Huo, Ao Huang*, Huazhi Gu

The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology

14:20 (S24-23) A Novel Approach to Prepare Graphite Nanoplatelets Exfoliated by Three-roll Milling in Phenolic Resin for Low-carbon MgO-C Refractories (Invited)

Mingqiang Liu[1], Juntong Huang[1, *], Hongtao Meng[2], Cheng Liu[2], Zhaohui Huang[3, *], Shaowei Zhang[4, *]

[1]The School of Materials Science and Engineering, Nanchang Hangkong University
[2]Puyang Refractories Group Co., Ltd
[3]School of Materials Science and Technology, China University of Geosciences (Beijing)
[4]College of Engineering, Mathematics and Physical Sciences, University of Exeter

14:45 (S24-24) Effects of Addition of ZrO_2 on the Properties of Corundom Based Porous Purging Plugs

Juncong Wei[1, *], Yuqing Su[1], Weiping Ma[2], Yilong Wang[2]

[1]North China University of Science and Technology
[2]Hebei Guoliang New Materials Co., LTD

15:05 (S24-25) Effect of Pore Structure and Phase Composition on Thermal Shock Resistance of Zirconia Materials

Yibo Zhang, Huazhi Gu, Lvping Fu*, Ao Huang, Meijie Zhang

The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology

15:25 (S24-26) Effect of Combustion Synthesized h-BN on Low Carbon Al_2O_3-C Refractories

Xin Zheng, Yanjun Li*, Guoqing Xiao*, Donghai Ding*

College of Materials Science and Engineering, Xi'an University of Architecture and Technology

15:45 Break

Session Chair: Masaaki Tabata, *Saga University*

16:00 (S24-27) Study on the Flexural Strength and Residual Stress of the Feldspar Ceramics Reinforced by Anorthite Coating (Keynote)

Yueming Li[1, 2, *], Xiaona Zhang[1, 3], Kai Li[2], Yi Sun[4], Detian Wan[4], Yiwang Bao[2, 4]

[1]National Engineering Research Center for Domestic & Building Ceramics
[2]School of Materials Science and Engineering, Jingdezhen Ceramic University
[3]Ceramic Research Institute of Light Industry of China
[4]China Building Materials Academy

16:30 (S24-28) Effects of Composition on the Structure and Properties of R_2O-Bi_2O_3-B_2O_3-SiO_2 Glass for Automobile Glass Ink (Invited)

Qifu Bao*, Weixia Dong*

Jingdezhen Ceramic University

16:55 (S24-29) Materials Design to Realize Both Small Water Absorption and Small Pyroplastic Deformation in Alumina-strengthened Porcelain (Invited)

Dong Hao[1, *], Takashi Akatsu[1, 2], Nobuaki Kamochi[3]

[1]Ceramic Research Center, Saga University
[2]Katayanagi Advanced Research Institute, Tokyo University of Technology
[3]Saga Ceramics Research Laboratory

17:20 (S24-30) A Study on the Chemical Composition and Coloring Generation of Celadons from Jin to Five Dynasties Unearthed at the Yue Kilns Site

Kexin Zhao, Tian Wang*, Fen Wang*, Jianfeng Zhu, Ying Wang, Zhao Ren
School of Antiquities Preservation Science & Technology, Shaanxi University of Science & Technology

17:40 (S24-31) Improving the Chemical Stability and Mechanical Properties of Over-Glaze Decorated Porcelain by Heat-Treating Lead-Free Alkali Borosilicate Frits: A Kinetic Study of Alkali leaching Mechanisms

Xilong Lu[1, *], Chun'E Cao[2], Yunxia Chen[2], Peng Wang[3], Yunjie Mo[1], Wei Shi[1]
[1]*National Engineering Research Center for Domestic & Building Ceramics, Jingdezhen Ceramic University*
[2]*School of Materials Science and Engineering, Jingdezhen Ceramic University*
[3]*School of Ceramic Art, Jingdezhen Ceramic University*

Symposium 26: Bioceramics and Ceramics Coatings for Biomedical Applications

(Location: Tang 1)

Session Chair: Bo Su, *University of Bristol*
Mingmin Bai, *Jingdezhen Ceramic University*

16:00 (S26-01) Developing Bio-inspired Ceramic Composites for Dentistry and Orthopaedics (Keynote)

Bo Su
Bristol Dental School, University of Bristol

16:30 (S26-02) Research on Bone Augmentation Based on Osteoinductivity of Bioactive Glass (Invited)

Fujian Zhao[1, *], Xiaofeng Chen[2], Longquan Shao[1]
[1]*Stomatological Hospital, School of Stomatology, Southern Medical University*
[2]*Department of Biomedical Engineering, School of Materials Science and Engineering, South China University of Technology*

16:55 (S26-03) Improved Ageing-resistance and Fracture Toughness of Zirconia-toughened Alumina Bioceramics via Composition and Microstructure Design (Invited)

Mingmin Bai
School of Materials Science and Engineering, Jingdezhen Ceramic University

17:20 (S26-04) Nanometals and Ceramic Coatings for Advanced Biomedical Implants

Ruslan Z Valiev[1, 2]
[1]*Saint Petersburg State University*
[2]*Ufa University of Science and Technology*

Symposium 28: PACRIM Young Scholars Forum

(Location: Yuan 4)

Session Chair: Susumu Fujii, *Osaka University*

08:30 (S28-11) Numerical Simulations for Functional Materials (Keynote)

Shuzhou Li
School of Materials Science and Engineering, Nanyang Technological University

09:00 (S28-12) Accelerating Exploitation of γ-γ' Pt-based Superalloys: From $Pt_3Al\_D0'c$ to $Pt_3Al\_L_{12}$ (Invited)

Wei Yu[1], Yingxue Liang[1], Mengdi Gan[1], Aiming Zhang[2], Yan Wei[2], Li Chen[2], Jing Feng[1], Xiaoyu Chong[1, *]
[1]*University of Maryland*
[2]*Kunming University of Science and Technology*

09:25 (S28-13) Artificial-neural-network Potentials for Accurately Predicting Lattice-defect Properties (Invited)

Tatsuya Yokoi[1, *], Masami Uchida[1], Yu Ogura[1], Katsuyuki Matsunaga[1, 2]
[1]*Nagoya University*
[2]*Japan Fine Ceramics Center*

09:50 (S28-14) Enhancement of Thermoelectric Performance of $Cu_{1.8}S$ via Carrier Concentration Optimization (Invited)

Maryam Batool, Jing Feng, Zhen-hua Ge*
Faculty of Materials Science and Engineering, Kunming University of Science and Technology

10:15-10:30 Break

Session Chair: Shuzhou Li, *Nanyang Technological University*

10:30 (S28-15) Ferroelastic $RETaO_4$ Coatings as the Next-generation Thermal Barrier Coatings (Keynote)
Jing Feng; *Faculty of Materials Science and Engineering, Kunming University of Science and Technology*

~~**11:00 (S28-16) Thermodynamics of Ceramics for High Temperature Applications (Invited)**~~
~~Xiaofeng Guo; *Department of Chemistry, Washington State University*~~

11:25 (S28-17) 3D/4D Additive-subtractive Manufacturing of Ceramics (Invited)
Guo Liu*, Jian Lu
City University of Hong Kong

12:00 Lunch

Session Chair: Zhenhua Ge, *Kunming University of Science and Technology*

13:30 (S28-18) Investigation of Point Defects and Surfaces in Rare Earth Silicates (Keynote)
Bin Liu; *School of Materials Science and Engineering, Shanghai University*

14:00 (S28-19) Study on the Origin of Ultra-low Thermal Conductivity and Thermal Insulation Performance of Rare Earth Tantalate (Invited)
Mengdi Gan[1], Xiaoyu Chong[1,*], Tianlong Lu[1], Wei Yu[1], Bing Xiao[2], Jing Feng[1]
[1]*Nanyang Technological University*
[2]*Kunming University of Science and Technology*
[2]*Xi'an Jiaotong University*

14:25 (S28-20) Synthesis and Thermophysical Properties of ATa_2O_6 (A= Co, Ni, Mg, Ca) Tantalates with Robust CMAS Resistance (Invited)
Baihui Li, Lin Chen*, Jing Feng*
Faculty of Material Science and Engineering, Kunming University of Science and Technology

14:50 (S28-21) Effect of Surface Roughness on the Oxidation Behavior of MCrAlY Bond Coat at High Temperature (Invited)
Nadlmullah Hakimi, Peng Song*, Taihong Huang*
Materials Science and Engineering, Kunming University of Science and Technology

15:15 (S28-22) Multilayered Transition Metal MOF/Ni_3N/NF Composites for Oxygen Evolution Reaction
Xiangyu Meng[1,2,3], Xiaoming Duan[1,2,3,*], Zengyan Wei[3], Liang Ma[1,2,3], Xiaoxiao Huang[1,2,3], Dechang Jia[1,2,3], Yu Zhou[1,2,3]
[1]*Key Laboratory of Advanced Structural-Functional Integration Materials & Green Manufacturing Technology, Harbin Institute of Technology*
[2]*Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology*
[3]*School of Materials Science and Engineering, Harbin Institute of Technology*

15:35 Break

Session Chair: Bin Liu, *Shanghai University*

16:00 (S28-23) Synthesis of High-Performance Bismuth Sulfide Thermoelectric Materials Based on Functional Motif Ordering (Keynote)
Zhenhua Ge
Faculty of Materials Science and Engineering, Kunming University of Science and Technology

16:30 (S28-24) Sintering Behavior of High Entropy $A_2B_2O_7$ Oxide Nanoparticles Synthesized by Polyol Rocess (Invited)
Fei Li; *Joining and Welding Research Institute, Osaka University*

16:55 (S28-25) MOF-Derived CNFs@CoNi/C Composites for High-Efficient Electromagnetic Wave Absorption
Lin Zhu[1,2,3], Xiaoming Duan[1,2,3,*], Zengyan Wei[3], Xiaoxiao Huang[1,2,3], Dechang Jia[1,2,3], Yu Zhou[1,2,3]
[1]*Key Laboratory of Advanced Structural-Functional Integration Materials & Green Manufacturing Technology, Harbin Institute of Technology*
[2]*Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology*
[3]*School of Materials Science and Engineering, Harbin Institute of Technology*

17:15 (S28-26) Tracking the Grain Size Uniformity during the Sintering of Nano-grained Ceramics
Hongbing Yang[1], Jiangong Li[2], Yanhao Dong[1,*]
[1]*State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University*
[2]*Institute of Materials Science and Engineering, School of Materials and Energy, Lanzhou University*

Symposium 1: Virtual Materials Design and Ceramic Genome
(Location: Ming)

Session Chair: Yiran Li, *Shanghai University*

08:30 (S1-27) The Spin Tunes the Ammonia Electrocatalytic Synthesis through Transition Metal Carbide-based Ceramics (Keynote)

Neng Li; *State Key Laboratory of Silicate Materials for Architectures, Wuhan University of Technology*

09:00 (S1-28) Screening MXene-based Single-atom Catalysts for Selective Nitrate-to-ammonia Electroreduction (Invited)

Tao Hu, Chunxian Guo*, Chang Ming Li*

Institute of Materials Science and Devices, School of Materials Science and Engineering, Suzhou University of Science and Technology

09:25 (S1-29) Structural Stability and Optical Properties of $RENiO_3$ Surface upon Oxygen Vacancy (Invited)

Yuanyuan Cui, Yanfeng Gao*; *School of Materials Science and Engineering, Shanghai University*

09:50 (S1-30) Atomistic Simulation of α-Al_2O_3 Nanoparticle Plastic Anisotropy under Compression

Qinqin Xu; *Universite de Poitiers*

Symposium 2: Advanced Characterization, Testing, and Analysis of Materials
(Location: Tang 2)

Session Chair: Qiang Zheng, *National Center for Nanoscience and Technology*

Yu Deng, *Nanjing University*

08:30 (S2-29) Atomic Resolution In-situ S/TEM Probing under Strong Laser, Electrical and Stress Fields (Keynote)

Yifeng Ren[1], Jiayi Li[1], Zhentao Pang[1], Jie Wu[2], Zhiyu Liu[1], Shaojie Fu[2], Meiyu Wang[1], Yu Deng[1,*]

[1]*Department of Materials Science and Engineering, Nanjing University*

[2]*School of Physics, Nanjing University*

09:00 (S2-30) Phase Transition and Damage Evolution Mechanisms of Ductile Grinding of GaN Crystals (Invited)

Chen Li[1,2]

[1]*State Key Laboratory of Robotics and System (HIT), Harbin Institute of Technology*

[2]*School of Mechatronics Engineering, Harbin Institute of Technology*

09:25 (S2-31) Phase Transformation Microstructure of Doped Tetragonal Zirconia Polycrystalline Ceramics

Jiutian Liao*, Hui Gu; *School of Materials Science and Engineering, Shanghai University*

09:45 (S2-32) Synergetic Engineering of Sr-O Vacancies and Core-Rim Interfacial Structures in Dielectric $Sr_{1-x}Ba_xTiO_3$ Ceramics

Qing-Qiao Fu[1], Hui Gu[1,*], Juan-Juan Xing[1], Qiang Zheng[2,*]

[1]*School of Materials Science and Engineering, Shanghai University*

[2]*CAS Key Laboratory of Standardization and Measurement for Nanotechnology, CAS Center for Excellence in Nanoscience, National Center for Nanoscience and Technology*

10:05 (S2-33) Microstructure and Ablation Behavior of TiAl Alloy with ZrC/HfC/$HfSi_2$ Modified Nanocomposite Ceramic Coating by LPDS (Invited)

Yongchun Zou[1,2,*], Yu Fu[3], Jiacheng Wang[3], Liwei Zhang[3], Yaming Wang[2,*], Daqing Wei[1], Yu Zhou[2]

[1]*Center of Analysis and Measurement, Harbin Institute of Technology*

[2]*Institute for Advanced Ceramics, Harbin Institute of Technology*

[3]*School of Architecture and Civil Engineering, Harbin University of Science and Technology*

Symposium 3: Advanced Powder Processing and Green Manufacturing Technologies
(Location: Banquet Hall 2)

Session Chair: Jian Zhang, *Shanghai Institute of Ceramics*

Jiujun Xu, *Dalian Maritime University*

08:30 (S3-31) Additive Manufacturing Technique for Gradient Doped Transparent Laser Ceramics (Keynote)

Jian Zhang[1,2,3,*], Haohao Ji[3], Wenlan Gao[3], Yu Liu[4], Jie Ma[5], Shiwei Wang[3]

[1]*State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, CAS*

[2]*Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences*

[3]*Research Center for Transparent Ceramics, Shanghai Institute of Ceramics, Chinese Academy of Science*

[4]*School of Mechanical Engineering, Jiangnan University*

[5]*School of Physics and Electronics Engineering, Jiangsu Normal University*

09:00 (S3-32) High-specific Surface-area α-Al_2O_3 Nanoparticles Synthesised by High-energy Ball-milling Method and Applications in Nanocrystalline Ceramics (Invited)

Lu Li[1], Hongbing Yang[2], Ji Ma[2], Jiangong Li[2,*]
[1]*School of Mechanical and Electrical Engineering, Gansu Agricultural University*
[2]*Institute of Materials Science and Engineering, School of Materials and Energy, Lanzhou University*

09:25 (S3-33) Fabrication of AlN Powder with High Purity and Excellent Sinterability (Keynote)

Jiujun Xu[1,*], Jinhai Xu[1], Yingchun Shan[1,*], Jiangtao Li[2]
[1]*Department of Materials Science and Engineering, Dalian Maritime University*
[2]*Technical Institute of Physics and Chemistry, Chinese Academy of Sciences*

09:55 (S3-34) Theoretical Design and Low-temperature Synthesis of High-entropy Diborides

Liang Huang[1], Jianghao Liu[1], Haijun Zhang[1,*], Shaowei Zhang[2,*]
[1]*The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology*
[2]*College of Engineering, Mathematics and Physical Sciences, University of Exeter*

10:15 Break

Session Chair: Qinghu Wang, *Wuhan University of Science & Technology*
Qing Meng, *Technical Institute of Physics and Chemistry*

10:30 (S3-35) Enhanced Infrared Radiation of $LaAlO_3$ Ceramics via Co^{2+} Doping

Qinghu Wang[1,*], Yawei Li[1], Jiangtao Li[2]
[1]*The State Key Laboratory of Refractories and Metallurgy, National-provincial Joint Engineering Research Center of High Temperature Materials and Lining Technology, Wuhan University of Science & Technology*
[2]*Technical Institute of Physics and Chemistry, Chinese Academy of Sciences*

10:50 (S3-36) Flash Synthesis of Dirt-cheap SiC Aerogel Over Liter Scale

Lujia Han[1], Shile Chen[2], Honghua Li[1], Qing Meng[1], Gang He[3], Yanhao Dong[2], Jiangtao Li[1,*]
[1]*CAS Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, China Academy of Sciences*
[2]*State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University*
[3]*Tianjin Key Laboratory of Functional Crystal Materials, Institute of Functional Crystal, College of Material Science and Engineering, Tianjin University of Technology*

11:10 (S3-37) Effect of Lattice Oxygen and Microstructure Control on Thermal Conductivity of Reductive-sintered Si_3N_4 Ceramics

Wenxuan Dai[1], Hui Gu[1,*], Yuping Zeng[2], Jingxian Zhang[2]
[1]*School of Materials Science and Engineering, Shanghai University*
[2]*Shanghai Institute of Ceramics, Chinese Academy of Sciences*

11:30 (S3-38) In Situ Combustion Synthesis of SiC@BN Ceramic Powders with Hierarchical Structure

Qing Meng, Yong Li*, TaoJiang Li*
Technical Institute of Physics and Chemistry, Chinese Academy of Sciences

11:50 (S3-39) Effects of Y_2O_3 Characteristic on Transmittance of Pressureless Sintered AlON Ceramics

Haoran Guo[1], Liya Ma[1], Yingchun Shan[1,*], Jiangtao Li[2], Jiujun Xu[1,*]
[1]*Department of Materials Science and Engineering, Dalian Maritime University*
[2]*Technical Institute of Physics and Chemistry, Chinese Academy of Sciences*

12:10 Lunch

Symposium 4: Novel and Strategic Processing and Manufacturing Technologies for Ceramics (Location: Wu 2)

Session Chair: Duan Li, *National University of Defense Technology*

08:30 (S4-29) Advances of Cold Sintering in Ceramic Processing (Keynote)

Yuchi Fan
Donghua University

09:00 (S4-30) Crystallization Behavior and Structure-Property Correlation of CaO-Al_2O_3-Ta_2O_5 Transparent IR Glass-Ceramics with High Microhardness (Invited)

Jian Ruan[1,*], Chen Tian[1,2], Xiujian Zhao[1], Chao Liu[1]
[1]*State Key Laboratory of Silicate Materials for Architectures, Wuhan University of Technology*
[2]*International School of Materials Science and Engineering, Wuhan University of Technology*

09:25 (S4-31) Thermodynamic Reaction Mechanism of In Situ Catalytic Growth of SiC Whiskers
Chen Chen, Qiang Zhen*
Shanghai University

09:45 (S4-32) Formation of Single-phase Multicomponent Zirconate with Colossal Atomic Radius Difference via Reactive Flash Sintering
Ziting Niu, Ke Ren*, Yiguang Wang*
Institute of Advanced Structure Technology, Beijing Institute of Technology

10:05 Break

Session Chair: Yuchi Fan, *Donghua University*

10:20 (S4-33) Rapid Fabrication of Perovskite-Type Oxynitride Ceramics with Multi-Functionality (Invited)
Duan Li
Science and Technology on Advanced Ceramic Fibers and Composites Laboratory, National University of Defense Technology

10:45 (S4-34) Microstructural Tailoring, Mechanical and Thermal Properties of SiC Composites Fabricated by Selective Laser Sintering and Reactive Melt Infiltration
Xiao Chen, Jie Yin *, XueJian Liu*, ZhengRen Huang*
State Key Lab of High Performance Ceramics and Superfine Microstructures, Shanghai Institute of Ceramics, Chinese Academy of Sciences

11:05 (S4-35) Transforming Na_2O-CaO-SiO_2 Glasses into Transparent Ceramics: A Novel Method to Prepare Large-sized Transparent Ceramics
Weifan Liao, Chao Liu*, Yunlan Guo, Yadong Lu
State Key Laboratory of Silicate Materials for Architectures, Wuhan University of Technology

11:25 (S4-36) Fabricating Luminescent Ceramics Derived from Mesoporous Powders by Spark Plasma Sintering
Beiying Zhou[1], Lianjun Wang[2,*], Wan Jiang[1,2]
[1]*Institute of Functional Materials, Donghua University*
[2]*College of Materials Science and Technology, Donghua University*

12:00 Lunch

Session Chair: Heng Wang, *Wuhan University of Science and Technology*

13:30 (S4-37) A New Wire-Electrical Discharge Machinable Silicon Nitride-based Ceramic (Invited)
Lujie Wang[1], Zhuhui Qiao[1,*], Xuejian Liu[2,*]
[1]*Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences*
[2]*Shanghai Institute of Ceramics, Chinese Academy of Sciences*

13:55 (S4-38) Development of Novel Stirred Beads Mill used in Ceramic Powder Processing (Invited)
Xiaofei Xie[1], Longhua Xiang[1], Yanmin Wang[1,2,*]
[1]*Shenzhen Sanxingfeirong Machine Co., Ltd. Shenzhen*
[2]*South China University of Technology*

14:20 (S4-39) Enhanced Toughness and Strength of Boron Carbide Ceramics with Reduced Graphene Oxide Fabricated by Hot Pressing
Aiyang Wang, Qianglong He, Weimin Wang*, Zhengyi Fu
State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology

14:40 (S4-40) Low Temperature Synthesis of NASICON $NaZr_2(PO_4)_3$ Powders with the Assistance of In Situ Formed Mineralizer
Min Jian Liu[1,*], Tao Wang[2]
[1]*National Engineering Research Center for Domestic and Building Ceramics*
[2]*School of Material Science and Engineering, Jingdezhen Ceramic University*

15:00 (S4-41) Sintering and Mechanical Properties of Carbon Bulks using Ordered Mesoporous Carbon and Nano Diamond by SPS
Shijia Gu*, Lianjun Wang, Wan Jiang
Donghua University

15:20-15:35 Break

Session Chair: Lujie Wang, *Lanzhou Institute of Chemical Physics*

15:35 (S4-42) Research Progress on Structure and Properties of Boron Nitride Nanostructure-Boron Carbide Ceramic Composites (Invited)

Heng Wang*, Tianbin Zhu, Xiong Liang, Qinghu Wang, Yawei Li

The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology

16:00 (S4-43) Densification Mechanism, Microstructure and Mechanical Properties of ZrC Ceramics Prepared by High-pressure Spark Plasma Sintering

Boren Ke[1, 2], Wei Ji[1, 2, *], Zhengyi Fu[1, 2, *]

[1]State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology
[2]Hubei Longzhong Laboratory

16:20 (S4-44) Preparation and Oxidation Resistance Optimization of In-situ TiC/Ni Composites based on the Application of IT-SOFC Interconnect

Ziyan Zhao[1], Qian Qi[2], Yan Liu[1, *], Xuejian Liu[1]

[1]State Key Laboratory of High-Performance Ceramics and Superfine Microstructures, Shanghai Institute of Ceramics, Chinese Academy of Sciences
[2]School of Materials Science and Engineering, Shandong University of Science and Technology

16:40 (S4-45) Study on Precise and Efficient Laser Processing Technology and Mechanism of SiC/SiC Composites

Jing Wang, Yongsheng Liu*, Hui Fang

Northwestern Polytechnical University

17:00 (S4-46) High Initial Permeability Mn-Zn Ferrite Fabrication through Two-Step Cold Sintering

Mingming Si[1,2], Yuchi Fan[1, *], Jing Guo[2, *]

[1]State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, Institute of Functional Materials, College of Materials Science and Engineering, Donghua University
[2]State Key Laboratory for Mechanical Behavior of Materials & School of Materials Science and Engineering, Xi'an Jiaotong University

Symposium 5: Advanced Additive Manufacturing Technologies: Materials, Processes, and Systems

(Location: Zhou 1)

Session Chair: Guoxiang Zhou, *Harbin Institute of Technology*

08:30 (S5-27) Additive Manufacturing of Large Size Engineering Ceramic Parts by FDM (Invited)

Xianfeng Yang[1, 2, *], Feng Hu[1, 2], Haolin Dong[1, 2], Zhipeng Xie[1, 2]

[1]College of Materials Science and Engineering, Changsha University of Science & Technology
[2]China State Key Laboratory of New Ceramics and Fine Processing, Tsinghua University

08:55 (S5-28) Thermal Insulation Properties of Zirconia Ceramics based on DLP 3D-printed (Invited)

Yongsheng Liu[1, 2, *], Yansong Liu[1]

[1]Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University
[2]NPU-SAS Joint Research Center of Advanced Ceramics, Northwestern Polytechnical University

09:20 (S5-29) Additive Manufacturing Porous Ceramics with Multi-scale Pores using Feedstock Containing Soft Template (Invited)

Xiaoyan Zhang

Institute for Advanced Materials and Technology, University of Science and Technology Beijing

09:45 (S5-30) Study on Preparation Technology of Si_3N_4 Ceramic based on Digital Light Processing 3D Printing (Invited)

Wenyan Duan

Key Laboratory of Space Manufacturing Technology (SMT), Technology and Engineering Centre of Space Utilization, Chinese Academy of Sciences

10:20 Break

Session Chair: Yongsheng Liu, *Northwestern Polytechnical University*

10:30 (S5-31) Additive Manufacturing of Ceramic-based Electronic Circuits: Material Design and Applications (Invited)

Guoxiang Zhou[1, 2], Zhihua Yang[1, 2, *], Dechang Jia[2], Yu Zhou[2]

[1]Chongqing Institute of HIT
[2]Harbin Institute of Technology

10:55 (S5-32) Preparation and Performance Study of Anisotropic Aluminum Nitride Ceramics Fabricated by Light Curing (Invited)

Haiman Xu[1], Rongzhen Liu[1, 2, *], Hao Li[1]

[1]National innovation institute of additive manufacturing
[2]School of materials science and technology, Xi'an jiaotong university

11:20 (S5-33) 3D Fabrication of Highly Transparent Yttria by DLP-based Additive Manufacturing

Sinuo Zhang[1, 2], Chang Woo Gal[2], Young-jin Choi[2], Ha-Neul Kim[2], Young-Jo Park[2], Hui-suk Yun[1, 2, *]

[1]Department of Advanced Materials Engineering, University of Science and Technology (UST)
[2]Department of Advanced Biomaterials Research, Korea Institute of Materials Science (KIMS)

11:40 (S5-34) Rotationally Printed Bone-mimetic Cu-DIO/BCP Bioceramic Scaffolds with Ultra-strength

Shumin Pang[1, *], Dongwei Wu[2], Dorian A.H. Hanaor[1], Jens Kurreck[2], Aleksander Gurlo[1]

[1]Chair of Advanced Ceramic Materials, Technische Universität Berlin
[2]Chair of Applied Biochemistry, Technische Universität Berlin

12:00 Lunch

Session Chair: Lijin Cheng, *Hebei University of Technology*

13:30 (S5-35) DLP 3D Printing of Ceramic Heat Sink with Mini-channels for Thermal Management (Invited)

Song Hu*, Yuxin Tang, Guohong Zhou, Shiwei Wang

Shanghai Institute of Ceramics, Chinese Academy of Sciences

13:55 (S5-36) Minimal Sintering Shrinkage Aluminum-based Ceramic Core Fabricated by Stereolithography (Invited)

Kehui Hu[1, 2, *], Haoyuan Wang[2], Zhigang Lv[1, 2]

[1]State Key Laboratory of Tribology, Tsinghua University
[2]Department of Mechanical Engineering, Tsinghua University

14:20 (S5-37) 3D Printing of Bio-inspired Ceramic Composite (Invited)

Jinxing Sun, *, Jiaming Bai, Jon Binner

South University of Science and Technology of China

14:45 (S5-38) Fabrication of Polymer-derived Ceramics Based on 3D/4D Printed Reconfigurable Precursor

Siyao Chen*, Jinping Li, Songhe Meng*, Jian Lu*

Harbin Institute of Technology

15:05 (S5-39) Reaction Kinetics and Mechanical Evolution of 3D Printed Geopolymers Via Extrusion-based Additive Manufacturing

Binghuan Gao[1, 2], Seongwan Jang[1], Yangyang Li[1, 2], Hyeonjin Son[1], Sujin Park[1], Chang-Jun Bae[1, *]

[1]3D Printing Materials Center, Korea Institute of Materials Science (KIMS)
[2]School of Materials Science and Engineering, Pusan National University

15:25 (S5-40) Large-scale Carbon Fiber Reinforced Silicon Carbide Ceramic Matrix Composites Fabricated by Material Extrusion based Additive Manufacturing

Wenqing Wang*, Rujie He*

Institute of Advanced Structure Technology, Beijing Institute of Technology

15:45 Break

Session Chair: Song Hu, *Shanghai Institute of Ceramics, Chinese Academy of Sciences*

16:00 (S5-41) The Process and Mechanism of Enhancing the Properties of Photocured Ceramics (Invited)

Li-Jin Cheng[1, *], Fei Liu[2], Chong Dong[1], Shao-Jun Liu[2], Li-Bin Zhao[1], Ning Hu[1]

[1]School of Mechanical Engineering, Hebei University of Technology
[2]State Key Laboratory for Powder Metallurgy, Central South University

16:25 (S5-42) 3D Printed Cross-scale Structured Ceramics and Catalysts for Continuous Scale-up Reactions

Cunbao Huo, Xiaoyong Tian*, Lingling Wu, Tengfei Liu, Kai Miao*

Xi'an Jiaotong University

16:45 (S5-43) Design Strategies to Enhance Li-ion Transport Through Extrusion-based Additive Manufacturing

Yangyang Li[1, 2], Binghuan Gao[1, 2, *], Sujin Park[1], Chang-Jun Bae[1, *]

[1]Department of 3D Printing Materials, Korea Institute of Materials Science (KIMS)
[2]Department of Materials Science and Engineering, Pusan National University

17:05 (S5-44) 3D Printed SiOC Terahertz Electromagnetic Shielding Devices

Ruyue Su*, Rujie He*
Advanced Structural Technology Research Institute, Beijing Institute of Technology

17:25 (S5-45) 3D Printing of $BaTiO_3$ Piezoelectric Ceramics and Modulation of their Mechanical and Electrical Properties

Yinghong Sun[1, 2], Yong Zeng[1, 2, *], Jimin Chen[1, 2, *]
[1]*Faculty of Materials and Manufacturing, Beijing University of Technology*
[2]*Beijing Digital Medical 3D Printing Engineering Technology Research Center*

17:45 (S5-46) 3D-printed Bioinspired Al_2O_3/polyurea Dual-phase Architecture with High Robustness, Energy Absorption, and Cyclic Life

Xueqin Zhang, Rujie He*
State Key Laboratory of Explosion Science and Technology, Beijing Institute of Technology

Symposium 6: Engineering Ceramics and Ceramic Matrix Composites (CMCs): Processing, Design, Development, and Applications

(Location: Zhou 2)

Session Chair: Jinshan Yang, *Shanghai Institute of Ceramics, Chinese Academy of Sciences*

08:30 (S6-30) Density Inhomogeneity Appearing during Sintering of Alumina Green Body Visualized by Operando OCT Observation (Keynote)

Junichi Tatami[1, *], Mitsuki Tajima[1], Motoyuki Iijima[1], Takuma Takahashi[2]
[1]*Yokohama National University*
[2]*Kanagawa Institute of Industrial Science and Technology*

09:00 (S6-31) Formation Ability Descriptors for High-entropy Carbides Established through High-throughput Methods and Machine Learning (Invited)

Hong Hong, Yanhui Chu*
School of Materials Science and Engineering, South China University of Technology

09:25 (S6-32) Development of New Photothermal Agents and Their Applications in Theragnosis of Cancers (Invited)

Junqing Hu
Shenzhen Technology University

09:50 (S6-33) Multifunctional Hierarchical Metamaterial for Thermal Insulation and Electromagnetic Interference Shielding at Elevated Temperatures

Li Tian, Jinshan Yang, Shaoming Dong[1, *]
Shanghai Institute of Ceramics, Chinese Academy of Sciences

10:10 Break

Session Chair: Yihua Huang, *Shanghai Institute of Ceramics, Chinese Academy of Sciences*

10:30 (S6-34) Multifunctional Structure and Performance of Ceramic Matrix Composites (Invited)

Jinshan Yang
Shanghai Institute of Ceramics, Chinese Academy of Sciences

10:55 (S6-35) Long-term Ablative Behavior of Al_4SiC_4 and YB_4 Modified C_f/ZrB_2-SiC Composites at 2600℃

Fuchen Liu[1], Bowen Chen[2, *], Shaoming Dong[2, *]
[1]*University of Chinese Academy of Sciences*
[2]*Shanghai Institute of Ceramics, Chinese Academy of Sciences*

11:15 (S6-36) Effect of High-temperature Water Vapor Corrosion on the Structure and Properties of SiC_f/SiC ATF Cladding

Mengli Xiao[1, 2, 3], Han Luo[1, 2, *], Shaoming Dong[1, 2, *]
[1]*State Key Laboratory of High Performance Ceramics & Superfine Microstructure, Shanghai Institute of Ceramics, CAS*
[2]*Structural Ceramics and Composites Engineering Research Center, Shanghai Institute of Ceramics, CAS*
[3]*University of Chinese Academy of Sciences*

11:35 Lunch

Session Chair: Kan Zhang, *Jilin University*

13:30 (S6-37) Mechanical Properties of Engineering Ceramics at Microscopic Scale (Keynote)
Tatsuki Ohji*, Junichi Tatami
Yokohama National University (YNU)

14:00 (S6-38) Microstructure and Mechanical Properties of B_4C-TiB_2-SiC Composites Fabricated by Spark Plasma Sintering (Invited)
Yihua Huang*, Yingying Liu, Zhengren Huang
Shanghai Institute of Ceramics, Chinese Academy of Sciences

14:25 (S6-39) Advanced Bond Layer for Environmental Barrier Coatings (Invited)
Guifang Han
School of Materials Science and Engineering, Shandong University

14:50 (S6-40) Microstructure and Mechanical Properties of Pressure-less Sintered B_4C-SiC-ZrB_2-LaB_6 Ceramic Composites
Dong Wang[1,*], Yaning Zhang[1], Kai Xu[1], Boxin Wei[2], Yujin Wang[3], Xiang Ding[4], Xing Jin[4], Songlin Ran[1,*]
[1]*School of Materials Science and Engineering, Anhui University of Technology*
[2]*School of Materials Science and Chemical Engineering, Harbin University of Science and Technology*
[3]*Key Laboratory of Advanced Structural-Functional Integration Materials & Green Manufacturing Technology, Harbin Institute of Technology*
[4]*Anhui Province Key Laboratory of Metallurgical Engineering & Resources Recycling (Anhui University of Technology)*

15:10 (S6-41) Three-dimensional Porous Graphene/BN/SiC Aerogels with Hierarchical Structure for Broadband and High-temperature Electromagnetic Wave Absorption
Xiao You, Qiuqi Zhang, Jinshan Yang*, Shaoming Dong*
Shanghai Institute of Ceramic, Chinese Academy of Sciences

15:30 (S6-42) Improved Wet-oxidation Resistance of SiC_f/SiC Composites Modified with Y_2O_3
Junmin Zhang, Xiaowu Chen*, Shaoming Dong
Shanghai Institute of Ceramics, Chinese Academy of Sciences

15:50 Break

16:00 (S6-43) Oxidation Behaviors and Mechanisms of Yb_2SiO_5-Yb_2O_3-Si-SiC Ceramic Fabricated by Tape Casting and Reactive Melt Infiltration
Liang Zhou, Jianbao Hu*, Shaoming Dong*
Shanghai Institute of Ceramics, Chinese Academy of Sciences

16:20 (S6-44) Oxidation Behavior and Corrosion Mechanism of SiC Ceramics at High Temperatures in H_2O Containing Atmospheres
Shuaibin Yan[1,2,3], Xiaoming Duan[1,2,3,*], Dechang Jia[1,2,3,*], Yu Zhou[1,2,3]
[1]*Key Laboratory of Advanced Structural-Functional Integration Materials & Green Manufacturing Technology, Harbin Institute of Technology*
[2]*Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology*
[3]*School of Materials Science and Engineering, Harbin Institute of Technology*

Symposium 7: Advanced Structural Ceramics and CMCs for Ultra Extreme Environments
(Location: Banquet Hall 1)

Session Chair: Fan Wan, *National University of Defense Technology*
Cheng Fang, *Zhengzhou University*

08:30 (S7-32) Excellent Electromagnetic Wave Absorbing Properties of Ultralight B_4C-based Hybrid Nanowires (Invited)
Wenwen Wu*, Yuan Liu, Lulu Han, Peng Liu
School of Physics and Information Technology, Shaanxi Normal University

08:55 (S7-33) Tungsten Doped ZrB_2 Powder Synergistically Synthesized from both Co-precipitation and Solid-state Reduction Reactions (Invited)
Ruixing Li
School of Materials Science and Engineering, Beihang University

09:20 (S7-34) Mechanical Properties of Lightweight B_4C-$(Ti_{0.9}Cr_{0.1})B_2$ Composites with Different Boride Additions

Yuxiao Li[1], Jingjing Liu[1,*], Ji Zou[2]
[1]*School of Materials Science and Engineering, Wuhan University of Technology*
[2]*State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology*

09:40 (S7-35) Quaternary Rare-earth Oxide Co-doped ZrO_2 as a Promising Thermal Barrier Coating for Gas Turbine Engine

Hongyu Shen[1,2,3], Jie Zhang[1,2,*], Jingyang Wang[1,2]
[1]*Institute of Metal Research, Chinese Academy of Sciences*
[2]*Shenyang National Laboratory for Materials Science*
[3]*Materials Science and Engineering, Northeastern University*

10:00 (S7-36) Mechanical Properties and Ablation Resistance of HfC-HfB_2 Composites Fabricated by One-step Reactive Sintering with a SiB_6 Additive

Wei Hao[1,*], Na Ni[2], Guoliang Ren[3], Xiaofeng Zhao[3], Dongyun Wang[1]
[1]*College of Engineering, Zhejiang Normal University*
[2]*School of Mechanical Engineering, Shanghai Jiao Tong University*
[3]*School of Materials Science and Engineering, Shanghai Jiao Tong University*

10:20 Break

Session Chair: Ruixing Li, *Beihang University*
Delong Cai, *Harbin Engineering University, China*

10:30 (S7-37) Densification Mechanism and Poperties of Rock-salt-structured Ta-Hf-C Carbides (Invited)

Jie Yin*, Buhao Zhang, Xuejian Liu, Zhengren Huang
Shanghai Institute of Ceramics Chinese Academy of Sciences

10:55 (S7-38) Processing and Properties of Reactively Densified TiB_2-AlN-hBN Conductive Ceramics with Tunable Compositions (Invited)

Ji Zou*, Huayue Liang, Zhengyi Fu
Wuhan University of Technology

11:20 (S7-39) The Degassing, Microstructural Evolution, Grain Growth and Densification Behaviour of Vacuum Sintered Ti(C, N)-based Cermets

Shengjian Zhou, Jiahu Ouyang*, Yujin Wang, Lei Chen, Zhanguo Liu
School of Materials Science and Engineering, Harbin Institute of Technology

11:40 (S7-40) Tribological behavior and lubrication Mechanism of h-BN/Ceramic Composites: Effects of h-BN Platelet Size and Ceramic Phase

Qiuan Sun, Junjie Song*, Yongsheng Zhang*
Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences

12:00 Lunch

Session Chair: Jie Yin, *Shanghai Institute of Ceramics Chinese Academy of Sciences*

13:30 (S7-41) Structural Designs of Silkworm Cocoon-like Complex-phase Ceramic Fiber Felts and their Composites (Invited)

Chao Wang; *Harbin Institute of Technology*

13:55 (S7-42) Lightweight Surface Toughened Thermal Protection Composites (Invited)

Shun Dong
National Key Laboratory of Science and Technology for National Defense on Advanced Composites in Special Environments, Harbin Institute of Technology

14:20 (S7-43) Preparation and Properties of Aerogel Composite Materials with Integrated Heterogeneous Structure for Thermal Protection and Insulation

Xiang Li, Wenxia Zhu, Zhonghang Xia, Wenpu Zhao, Dong Su*, Huiming Ji*
Key Laboratory of Advanced Ceramics and Machining Technology of Ministry of Education, School of Materials Science and Engineering, Tianjin University

14:40 (S7-44) Water-Oxygen Corrosion Behavior and Mechanism of Si-Y Eutectic Alloy in Water-Oxygen Environment

Yongsheng Liu*, Jingxin Li
Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University

15:00 (S7- 45) Mitigating Amorphization of Boron Carbide Ceramics via Employing Silicon-containing Compounds as Reactants for Reactive Sintering

Zhengang Xiong, Ji Zou*, Weimin Wang, Zhengyi Fu

State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology

15:20 (S7- 46) Ablation Behavior of C_f/ZrB_2-SiC-$ReO_{1.5}$ Based Composites Ultra High Temperature Ceramic Matrix Composites

Chen Li, Ji Zou*, Zhengyi Fu

State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, School of Materials Science and Engineering, Wuhan University of Technology

Symposium 8: Polymer Derived Ceramics (PDCs) and Composites

(Location: Wen 1)

Session Chair: Qingbo Wen, *Central South University*

08:30 (S8- 29) Additive Manufacturing of Ceramics from Preceramic Polymers (Keynote)

Paolo Colombo[1, 2]

[1]*Department of Industrial Engineering, University of Padova*
[2]*Department of Materials Science and Engineering, The Pennsylvania State University*

09:00 (S8-30) Molecular Deesign and Synthesis of Polyborosilizanes for SiBCN Ceramics (Invited)

Tianhao Li, Yanpei Dang, Jiaqi Sun, Yujie Song*

Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences

09:25 (S8- 31) Polymer-derived Ceramic Composites for Energy Storage and Conversion (Invited)

Maged F. Bekheet, Aleksander Gurlo*

Technische Universitaet Berlin, Chair of Advanced Ceramic Materials

09:50 (S8- 32) Significant Improvement of Ultra-high Temperature Oxidation Resistance of C/SiC Composites upon Matrix Modification by SiHfBCN Ceramics

Xinming Xu[1], Xingang Luan[1, 3, *], Jiahao Zhang[1], Xinxin Cao[1], Donglin Zhao[1], Laifei Cheng[1], Ralf Riedel[1, 2, 3]

[1]*Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University (NPU)*
[2]*Technische Universität Darmstadt, Institut für Materialwissenschaft*
[3]*NPU-TU Darmstadt Joint International Research Laboratory of Ultrahigh Ceramic Matrix Composites, NPU*

10:10 Break

Session Chair: Paolo Colombo, *University of Padova*

10:30 (S8- 33) Synthesis, Functionalization and 3D Printing of Polymer-derived Bioceramics for Bone Engineering (Invited)

Chrystelle Salameh

Institut Européen des Membranes, IEM, UMR 5635, Université Montpellier

10:55 (S8- 34) High-temperature Crystallization Behavior and Oxidation Resistance of Amorphous SiBCN Monoliths (Invited)

Daxin Li*, Zhihua Yang, Dechang Jia, Yu Zhou

Insititute for Advanced Ceramics, Harbin Institute of Technology

11:20 (S8- 35) Regulation of Electrical Properties of SiHfBCN Ceramics with Cu-catalyzed via Polymer-derived Ceramic Method

Xichao Dong[1], Xingang Luan[1, 2, *], Shaomin Gu[1]

[1]*Science and Technology on Thermo-structural Composite Materials Laboratory, Northwestern Polytechnical University*
[2]*NPU-TU Darmstadt Joint International Research Laboratory of Ultrahigh Ceramic Matrix Composites, Northwestern Polytechnical University*

11:40 (S8- 36) Synthesis, Structural Evolution and Ablation Performance of (Ti,Zr,Hf)C/SiTiZrHfC Ultrahigh-temperature Ceramic Nano-micro Composites

Li Lu, Qingbo Wen*, Yalei Wang, Yi Zeng, Xiang Xiong

State Key Laboratory of Powder Metallurgy, Central South University

12:00 Lunch

Session Chair: Xingang Luan, *Northwestern Polytechnical University*

13:30 (S8-37) Metal Modified Silicon-based Polymer-derived Ceramics: Synthesis of Single-source-precursor, Microstructure Characterization and Application Performance Exploration (Invited)
Cong Zhou
Center for Advanced Ceramics, School of Materials Science and Engineering, Anhui Polytechnic University

13:55 (S8-38) Role of Heterointerfaces in Polymer-derived Ceramics for Microwave Absorption (Invited)
Gaofeng Shao
Nanjing University of Information Science and Technology

14:20 (S8-39) Borazine-derived Boron Nitride Ceramic and its Composites (Invited)
Fan Wan*, Junsheng Li*
College of Aerospace Science and Engineering, National University of Defense Technology

14:45 (S8-40) Microstructure and Ablation Resistance Properties of Coatings Modified by Polymer-derived Ceramic Nanocomposites
Yuqi Wang, Yuyu Zhang, Jia Sun*
State Key Laboratory of Solidification Processing, Shaanxi Key Laboratory of Fiber Reinforced Light-Weight Composites, Northwestern Polytechnical University

15:05 (S8-41) Microstructure Evolution and High-temperature Oxidation Mechanism of C_{sf}/SiBCN
Wenhao Dou[1, 2], Daxin Li[1, 2, *], Zhihua Yang[1, 2, 3], Dechang Jia[1, 2], Yu Zhou[1, 2]
[1]*School of Materials Science and Engineering, Harbin Institute of Technology (HIT)*
[2]*Key Laboratory of Advanced Structural-Functional Integration Materials and Green Manufacturing Technology, Harbin Institute of Technology*
[3]*Chongqing Research Institute of HIT*

15:25 (S8-42) Lightweight SiBCN/SiC Nanowire Composite Aerogel with Adjustable EMW Absorption Property and Superior Thermal Insulation Performance
Junpeng Jiang, Liwen Yan, Anran Guo, Haiyan Du* Jiachen Liu
School of Materials Science and Engineering, Tianjin University

15:45 Break

Session Chair: Daxin Li, *Harbin Institute of Technology*

16:00 (S8-43) Single-source-precursor Synthesis of SiC-based Nanocomposites as Electrocatalysts for Hydrogen Evolution Reaction (Invited)
Yao Feng[1, *], Zhaoju Yu[2, *]
[1]*Shenzhen Kunpeng Equity Investment Management Co., Ltd.*
[2]*College of Materials, Key Laboratory of High-performance Ceramic Fibers, Xiamen University*

16:25 (S8-44) Single-source-precursor Derived SiHfN Ceramic Nanocomposites: Synthesis and Mechanical Properties (Invited)
Wei Li[1], Zhaoju Yu[2, *], Ralf Riedel[1]
[1]*Department of Materials and Earth Sciences, Technical University of Darmstadt*
[2]*College of Materials, Key Laboratory of High-performance Ceramic Fibers, Xiamen University*

16:50 (S8-45) Preparation and Properties of the Al_2O_{3f}/Al_2O_3 Composites by Polymer Infiltration Pyrolysis Process
Chen Mo, Yang Xiang*
Key Laboratory of New Ceramic Fibers and Composites, National University of Defense Technology

17:10 (S8-46) New Strategy to Prepare Lanthanum Zirconate Nanofiber Membranes with Superior Flexibility and Thermal Resistance
Nana Xu[1], Haiyan Liu[1], Hui Xu[1], Xiaoshan Zhang[1], Bing Wang[1, *], Yingde Wang[1, *]
Science and Technology on Advanced Ceramic Fiber and Composites Laboratory, College of Aerospace Science and Engineering, National University of Defense Technology

Symposium 9: Novel Ceramic Coatings and Technology
(Location: Xia)

Session Chair: Takashi Goto, *Tohoku University*

08:30 (S9-29) The Strategy of Plasma Spray Ceramic Coating Microstructure Control Towards the Advanced Applications Based on the Critical Bonding Temperature Concept (Keynote)

Chang-Jiu Li*, Xiao-Tao Luo, Cheng-Xin Li, Guan-Jun Yang
School of Materials Science and Engineering, Xi'an Jiaotong University

09:00 (S9-30) Microstructure of Alumina Coatings Formed on Patterned Si Substrates by Aerosol Deposition (Invited)

Zhenying Yang[1], Ali Dolatabadi[2], Thomas W Coyle[1,*]
[1]*Department of Materials Science and Engineering, University of Toronto*
[2]*Department of Mechanical and Industrial Engineering, University of Toronto*

09:25 (S9-31) Ultrafast High Temperature Sintering of Ceramic Materials for High Temperature Applications (Invited)

Hua Xie[1,*], Ji-Cheng Zhao[2], David Clarke[3], Jian Luo[4], Liangbing Hu[2]
[1]*Institute of Frontier and Interdisciplinary Science, Shandong University*
[2]*Department of Materials Science and Engineering, University of Maryland*
[3]*John A. Paulson School of Engineering and Applied Sciences, Harvard University*
[4]*Department of NanoEngineering, University of California San Diego*

09:50 (S9-32) In-situ Observation and Mechanism of Calcium-Magnesium-Alumina-Silicates (CMAS) Melts-induced Degradation of RE_2SiO_5 Ceramics at 1500℃ (Invited)

Zhilin Tian[1,*], Liya Zheng[1], Bin Li[1], Jingyang Wang[2]
[1]*School of Materials, Shenzhen Campus of Sun Yat-sen University*
[2]*Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences*

10:15 Break

Session Chair: ChangJiu Li, *Xi'an Jiaotong University*

10:30 (S9-33) Coating on Powder by Chemical Vapor Deposition (Keynote)

Takashi Goto[1,2,*], Rong Tu[1,3]
[1]*State Key Laboratory of Advanced Technology for Material Synthesis and Processing, Wuhan University of Technology*
[2]*New Industry Creation Hatchery Center, Tohoku University*
[3]*Chaozhou Branch of Chemistry and Chemical Engineering Guangdong Laboratory*

11:00 (S9-34) Hierarchical Microstructures in Rare-earth Tantalate Ceramics

Yu Zhang[1], Hui Gu[1,*], Jing Feng[2]
[1]*Materials Genome Institute, School of Materials Science and Engineering, Shanghai University*
[2]*Faculty of Materials Science and Engineering, Kunming University of Science and Technology*

11:20 (S9-35) $La_2Hf_2O_7$/$NiFe_2O_4$ Thermal Barrier Ceramic with High Infrared Emissivity for Thermal Radiation Blocking at the High Temperature

Qingyuan Zhao[1,2], Yaming Wang[1,2,*], Shuqi Wang[1,2], Guoliang Chen[1,2], Yongchun Zou[1,2], Ouyang Jiahu[1,2], Dechang Jia[1,2], Yu Zhou[1,2]
[1]*Institute for Advanced Ceramics, Harbin Institute of Technology*
[2]*Key Laboratory of Advanced Structure-Function Integrated Materials and Green Manufacturing Technology, Harbin Institute of Technology*

11:40 (S9-36) Ytterbium Silicate Coatings with In-situ Formedstrong/Ductile Laminated Structurefor Improved Thermal Cycling Durability

Haoyu Wang[1,2], Jie Zhang[1,*], Jingyang Wang[1]
[1]*Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences*
[2]*Institute of Coating Technology for Hydrogen Gas Turbines, Liaoning Academy of Materials*

12:00 Lunch

Session Chair: Meijun Liu, *Xi'an Jiaotong University*

13:30 (S9-37) Artifacts in Thermal Spray Coatings: Leveraging Defective Microstructures (Keynote)

Christopher C. Berndt*, Surinder Singh, Ashok Meghwal, Andrew S.M. Ang
Surface Engineering for Advanced Materials (SEAM), Swinburne University of Technology

14:00 (S9-28) Oxidation Protective Coatings for Carbon/Carbon Composites Prepared by Gaseous Silicon Infiltration (Invited)

Qiangang Fu; *Northwestern Polytechnical University*

14:25 (S9-39) YSZ/Ni Double-Shell Powder via Surface Electroless Deposition Tuned by an Active Kinetic Model
Yan Kang, Mei-Jun Liu, Lin Chen, Guan-Jun Yang*, Chang-Jiu Li
School of Materials Science and Engineering, Xi'an Jiaotong University

14:45 (S9-40) Preparation of Glass/Ceramic Gradient Coating on the Surface of Flexible Fiber Fabrics
Jiangtao Li, Haiyan Du, Feng Hou, Jiachen Liu*
Tianjin University

15:05 (S9-41) Research on the Ablative Behaviors and Synergistic Effect of CVD-TaC/SiC Alternate Coatings Prepared on C/C Composites
Jingan Kong*, Hejun Li*, Yulei Zhang*
School of Materials Science and Engineering, Northwestern Polytechnical University

15:25 (S9-42) Preparation of Blue Near-infrared Reflective Pigment with Excellent Optical Properties through Doping Ti in Hibonite with Low Cobalt Content
Kai Lv, Yanfeng Gao*
School of Materials Science and Engineering, Shanghai University

15:45 Break

Session Chair: Qiangang Fu, *Northwestern Polytechnical University*

16:00 (S9-43) Transport and Deposition of Material in Plasma Spray-Physical Vapor Deposition (Invited)
Meijun Liu, Guanjun Yang*, Changjiu Li
School of Materials Science and Engineering, Xi'an Jiaotong University

16:25 (S9-44) R&D of Durable Lcephobic Coatings and Surface (Invited)
Xianghui Hou*, Deyu Yang, Hejun Li
State Key Laboratory of Solidification Processing, Shaanxi Key Laboratory of Fiber Reinforced Light Composite Materials, Northwestern Polytechnical University

16:50 (S9-45) Infrared Radiation Shielding Behaviour of Gd_3TaO_7-based Thermal Barrier Ceramic
Enyu Xie[1,2], Yaming Wang[1,2,*], Guoliang Chen[1,2], Shuqi Wang[1,2], Yongchun Zou[1,2], Ouyang Jiahu[1,2], Dechang Jia[1,2], Yu Zhou[1,2]
[1]*Institute for Advanced Ceramics, Harbin Institute of Technology (HIT)*
[2]*Key Laboratory of Advanced Structure-Function Integrated Materials and Green Manufacturing Technology, HIT*

17:10 (S9-46) Transverse Cracking of PS-PVD Ceramic Coatings: Heterogeneous Layered Structure by Transient Temperature
Lu Huang, Yanhong Lu, Meijun Liu, Guanjun Yang*, Changjiu Li
Xi'an Jiaotong University

17:30 (S9-47) Microstructure and High-temperature Oxidation Resistance of TiB_2/SiC Composite Coatings Synthesized via In-situ Reaction
Fengyuan Shu[1], Xiongbo Zhang[1], Huipeng Wang[2,*], Xin Zhang[3]
[1]*School of Chemical Engineering and Technology, Sun Yat-sen University*
[2]*School of Mechanical and Electrical Engineering, Jiangxi University of Science and Technology*
[3]*Institute of New Energy Technology, State Power Investment Corporation Central Research Institute*

17:50 (S9-48) Microstructure and Ablation Properties of SiC/ZrB_2-SiC/ZrB_2/SiC Multilayer Coating on Graphite
Peng Wang[1,2,3,4,*]
[1]*School of Materials Science and Engineering, Shandong University of Technology*
[2]*Science and Technology on Advanced Ceramic Fibers and Composites Laboratory, National University of Defense Technology*
[3]*Shandong Industrial Ceramics Research & Design Institute CO.*
[4]*Institute of Engineering Ceramics, Shandong University of Technology*

Symposium 11: High Entropy Ceramics and Composites
(Location: Wen 2)

Session Chair: Feng Gao, *Northwestern Polytechnical University*

08:30 (S11-30) High Entropy and Entropy-stabilized Oxides: Recent Developments and Physical Properties (Keynote)
Nita Dragoe*, David Beraradan
Univ Paris-Saclay, ICMMO

09:00 (S11-31) Radiation Effects in High Entropy $A_2B_2O_7$ Ceramics (Invited)

Min Niu, Hongjie Wang*, Liang Xu, Lei Su

State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University

09:25 (S11-32) Irradiation Effect of High-entropy MAX Ceramics (Invited)

Weichao Bao[1], Xingang Wang[1], Jixuan Liu[2], Guojun Zhang[2,*], Fangfang Xu[1,*]

[1]State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics
[2]State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, Institute of Functional

09:50 (S11-33) Exploring Fluorite-structured High Entropy Oxides: Synthesis, Phase Transition Mechanisms, and Ionic Conducting Properties

Yixuan Hu, Kolan Madhav Reddy*

School of Materials Science and Engineering, Shanghai Jiao Tong University

10:10 Break

Session Chair: Nita Dragoe, *Univ Paris-Saclay*

10:30 (S11-34) High-entropy $MeTiO_3$ Perovskite Thermoelectric Ceramics with Glass-like Thermal Conductivity (Invited)

Ping Zhang, Zhihao Lou, Jie Xu, Feng Gao*

State Key Laboratory of Solidification Processing, MIIT Key Laboratory of Radiation Detection Materials and Devices, USI Institute of Intelligence Materials and Structure, NPU-QMUL Joint Research Institute of Advanced Materials and Structure, School of Materials Science and Engineering, Northwestern Polytechnical University

10:55 (S11-35) High Entropy $La(Cr_{0.2}Mn_{0.2}Fe_{0.2}Co_{0.2}Ni_{0.2})O_3$ with Tunable Eg Occupancy and TM-O Bond Property for ORR Electrocatalyst (Invited)

Wenyi Li, Jinyu Zhao, Zhenxin Zhao, Xiaomin Wang*

College of Materials Science and Engineering, Taiyuan University of Technology

11:20 (S11-36) Design of Co-free High-entropy Perovskite Oxide used as Air Electrode in SOEC for High-efficient CO_2 Electrolysis

Zhengrong Liu, Jun Zhou*, Yueyue Sun, Jiaming Yang, Lei Fu, Qinyuan Deng, Hongfei Zhao, Chaofan Yin, Kai Wu

Center of Nanomaterials for Renewable Energy, State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University

11:40 Lunch

Session Chair: Jixuan Liu, *Donghua University*

13:30 (S11-37) Preparation Optimization and CMAS Corrosion Behavior of Fluorite Structured High Entropy Oxides (Invited)

Yang Miao*, Fuhao Cheng, Xiaomin Wang

Taiyuan university of technology

13:55 (S11-38) Air Plasma-Sprayed High-entropy $(Y_{0.2}Yb_{0.2}Lu_{0.2}Eu_{0.2}Er_{0.2})_3Al_5O_{12}$ Coating with High Thermal Protection Performance (Invited)

Jinpeng Zhu; *School of Materials Science and Engineering, Zhengzhou University*

14:20 (S11-39) High Entropy Design and Critical Properties Optimization of Rare Earth Silicates for Environmental Barrier Coating (Invited)

Luchao Sun, Jingyang Wang*

Advanced Ceramics and Composites Division, Shenyang National Laboratory for Materials Science Institute of Metal Research, Chinese Academy of Sciences

14:45 (S11-40) Thermal Properties of High-entropy RE-disilicates Controlled by High Throughput Composition Design and Optimization

Yuhan Wang, Jinpeng Zhu*

School of Materials Science and Engineering, Zhengzhou University

15:05 (S11-41) Thermosensitive Properties of a Novel High-entropy Pyrochlore-structured Stannate Ceramic

Xiaohui Li*, Xiaoyi Chen, Wenwen Kong, Aimin Chang, Bo Gao*

Key Laboratory of Functional Materials & Devices for Special Environments of CAS, Xinjiang Key Laboratory of Electronic Information Materials & Devices, Xinjiang Technical Institute of Physics & Chemistry of CAS

15:25-16:00 Break

Session Chair: Junhu Meng, *Lanzhou Institute of Chemical Physics*

16:00 (S11-42) Polyol-derived Layered High-entropy Nanomaterials and their Applications (Invited)
Fei Li*, Hiroya Abe
Joining and Welding Research Institute, Osaka University

16:25 (S11-43) Study on Preparation and Properties of High Entropy Boride Ceramics (Invited)
Yan Zhang[1, 2], Weiming Guo[2, *], Hua-Tay Lin[2, *]
[1]*School of Mechanical and Electrical Engineering, Shaoxing University*
[2]*School of Electromechanical Engineering, Guangdong University of Technology*

16:50 (S11-44) Synthesis of $(Hf_{0.2}Zr_{0.2}Ti_{0.2}Nb_{0.2}Ta_{0.2})N$ Powders via Nitride Thermal Reduction with Soft Mechano-chemical Assistance (Invited)
Youjun Lu*, Xiang Liu, Lutong Yang, Chuyun Wang, Wuyang Song
North Minzu University

17:15 (S11-45) Low-temperature Synthesis of High-entropy Carbide $(Hf_{0.2}Zr_{0.2}Ti_{0.2}Ce_{0.2}La_{0.2})C_{1-\delta}$ via Organic Chemistry
Wenchen Zhang[1], Fangwei Guo[1, 2], Ruiji Zhang[1, 2], Desheng Liu[1], Xin Wang[3], Xiaofeng Zhao[1]
[1]*Shanghai Key Laboratory of Advanced High-temperature Materials and Precision Forming, School of Materials Science and Engineering, Shanghai Jiao Tong University*
[2]*Shanghai Key Laboratory of Spacecraft Mechanism*
[3]*Konca Solar Cell Co., Ltd.*

Symposium 12: Microwave Dielectric Ceramics and Applications
(Location: Tang 3)

Session Chair: Enzhu Li, *University of Electronic Science and Technology of China*
Jobin Varghese, *Fraunhofer IKTS*

08:30 (S12-19) Low-loss Porous Dielectric Ceramics for Sub-terahertz Frequency Applications (Invited)
Zhenxing Yue*, Yugu Chen, Weijia Guo, Yutian Lu, Zhiyu Ma
State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University

08:55 (S12-20) Cold Sintering Assisted Densification of High-performance Microwave Dielectric Ceramics (Invited)
Jing Guo[1, *], Xiaomeng Li[1], Weichen Xu[1], Xinyi Li[1], Xian Xue[1], Hong Wang[2]
[1]*Xi'an Jiaotong University*
[2]*Southern University of Science and Technology*

09:20 (S12-21) Low Temperature Sintering of $ZnAl_2O_4$ Ceramics with CuO-TiO_2-Nb_2O_5 Composite Oxide Sintering Aid (Invited)
Mingsheng Ma*, Yan Yang, Zhifu Liu, Yongxiang Li
Shanghai Institute of Ceramics of the Chinese Academy of Sciences

09:45 (S12-22) Fabrication of Low Sintering Temperature and Low Shrinkage $MgTiO_3$-$CaTiO_3$ Microwave Dielectric Ceramics through Fluoride
Xinyan Liu, Yuanxun Li*, Fuyu Li
State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China

10:15 Break

Session Chair: XiaoXiao Huang, *Harbin Institute of Technology*
Bo Zhong, *Harbin Institute of Technology, Weihai*

10:30 (S12-23) Research on High Thermal Conductivity Potting Compound for IGBT Power Module (Invited)
Zhengtao Wang, Hai Yao, Hao Mo, Luying Lv, Wei Wang, Hongchuan Zhang, Haoran Wu, Huatao Wang*
School of Materials Science and Engineering, Harbin Institute of Technology, Weihai

10:55 (S12-24) Porous NFG/SiCnw Composites Fabricated by SLS for Structural Load-bearing and Functionally Integrated Electromagnetic Absorption (Invited)
Haihua Wu
School of Mechanical and Power Engineering, China Three Gorges University
Hubei Engineering Research Center for Graphite Additive Manufacturing Technology and Equipment, China Three Gorges University

11:20 (S12-25) Multi-interfacial SnO_2 for Augmented Electromagnetic Wave Absorption Research

Xueqian Zhang[1, *], Xiaoxiao Huang[2], Guangwu Wen[1]
[1]*School of Materials Science and Engineering, Shandong University of Technology*
[2]*School of Materials Science and Engineering, Harbin Institute of Technology*

12:00 Lunch

Session Chair: Weijun Zhang, *National University of Defense Technology*
Jing Guo, *Xi'an Jiaotong University*

13:30 (S12-26) Fabrication of Ku-band flat Microwave Ceramics-based Luneburg Lens Antennas Using 3D Printing Technology (Keynote)

Wenzhong Lv
School of Optical and Electronic Information, Huazhong University of Science and Technology
Key Lab of Functional Materials for Electronic Information, Ministry of Education
Wenzhou Key Laboratory of Microwave Communication Materials and Devices, Wenzhou Advanced Manufacturing Institute of HUST

14:00 (S12-27) Development of Low Dielectric Loss Materials: Y_2BaCuO_5 (Green Phase), $MgAl_2O_4$ (Spinel), and $Mg_4Nb_2O_9$ (Corundum) (Invited)

Akinori Kan[1, *], Susum Takahashi[2], Hirotaka Ogawa[3]
[1]*Department of Vehicle and Mechanical Engineering, Meijo University*
[2]*Department of Mechanical Engineering, National Insitute of Technology*
[3]*Department of Reaserch, Nagoya Industial Science Research Institute*

14:25 (S12-28) Phase Composition, Chemical Bond Features, and Dielectric Response at Microwave and Terahertz Frequencies of $Na_5La(MoO_4)_4$ (Ln=Lu, Tm) Ceramics (Invited)

Haitao Wu
Yantai university

14:45 (S12-29) Microwave Dielectric Properties of $(Mg_{1-x}Ni_x)(Ti_{0.95}(Mg_{1/3}B_{2/3})_{0.05})O_3$ (B = Ta, Nb) ($0.00 \le x \le 0.05$) Ceramics

Ju Hye Kim, Eung Soo Kim*
Department of Advanced Materials Engineering, Kyonggi University

15:05 (S12-30) Phase Composition, Sinterability, Phonon vibration, and Microwave Dielectric Properties of $Pr_2Zr_3(Mo_{1-x}W_xO_4)_9$ Ceramics

Zhanbai Feng, Haitao Wu*
School of Environmental and Materials Engineering, Yantai University

15:25 (S12-31) Phase Transformation on Molybdenum Disulfide to Realize Dielectric Engineering for Enhancing the Microwave Absorbing Properties

Yuefeng Yan, Xiaoxiao Huang*
School of Materials Science and Engineering, Harbin Institute of Technology

15:45 Break

Session Chair: Huatao Wang, *Harbin Institute of Technology, Weihai*
Haihua Wu, *China Three Gorges University*

16:00 (S12-32) Structure Design, Preparation and Performance Optimization of Carbon-Based Absorbing Composites (Invited)

Xiaoxiao Huang[1, 2, *], Kaili Zhang[1, 2]
[1]*School of Materials Science and Engineering, Harbin Institute of Technology*
[2]*MIIT Key Laboratory of Advanced Structural-Functional Integration Materials & Green Manufacturing Technology, Harbin Institute of Technology*

16:25 (S12-33) Electromagnetic Parameter Regulation and Microwave Absorption Mechanism of Carbon Materials by Wave-transmitting Ceramics (Invited)

Qiang Su, Yunfei He, Bo Zhong*
School of Materials Science and Engineering, Harbin Institute of Technology, Weihai

16:50 (S12-34) Design Strategy and Microwave Absorbing Mechanism of Low-dimensional Carbon Microwave Absorbing Materials

Chunyan Ding[1], Yu Ma[1], Songsong Wu[1], Lijuan Zhang[1], Guangwu Wen[1], Xiaoxiao Huang[2, *]
[1]*School of Materials Science and Engineering, Shandong University of Technology*
[2]*School of Materials Science and Engineering, Harbin Institute of Technology*

17:10 (S12-35) Regulating Dielectric Properties of Graphene by Heat Treatment to Achieve Lightweight Broadband Microwave Absorption

Kaili Zhang, Xiaoxiao Huang*
School of Materials Science and Engineering, MIIT Key Laboratory of Advanced Structural-Functional Integration Materials & Green Manufacturing Technology, Harbin Institute of Technology

17:30 (S12-36) Ultra-stronglanthanum-doped Tungsten Wire with Gradientnanotwinned Structure

Yu Zhang, Tao Zhang*
School of Materials Science and Engineering, Harbin Institute of Technology, Weihai

Symposium 13: Piezoelectric, Ferroelectric/Multiferroic Materials & Components

(Location: Shang)

Session Chair: Guorong Li, *University of Chinese Academy of Sciences*
Zong-Yang Shen, *Jingdezhen Ceramic Institute*

08:30 (S13-41) Defect Engineering Field-Induced Electro-Strain (Keynote)

Shujun Zhang*, Yiping Guo, Jun Chen, Yejing Dai
[1]*University of Wollongong*
[2]*Shanghai Jiaotong University*
[3]*University of Science of Technology Beijing*
[4]*Sun Yat-sen University*

09:00 (S13-42) Magnetization Reversal by Electric Field in Co Substituted $BiFeO_3$ (Invited)

Masaki Azuma[1, 2, *], Kei Shigematsu[1, 2], Hajime Hojo[3], Keisuke Shimizu[1], Takuma Ito[1], Ko Mibu[4]
[1]*Laboratory for Materials and Structures, Tokyo Institute of Technology*
[2]*Kanagawa Institute of Industrial Science and Technology*
[3]*Department of Energy and Material Science, Kyushu University*
[4]*Nagoya Institute of Technology*

09:25 (S13-43) One-step Preparation and High Piezoelectric Properties of $BiFeO_3$-$BaTiO_3$ Lead-free Ceramics (Invited)

Bo-Ping Zhang*, Yu-Cheng Tang, Yi-Jin Hao
School of Materials Science and Engineering, University of Science and Technology Beijing

09:50 (S13-44) The Structure Control and Performance Enhancement of Bismuth-based Ferroelectric Materials (Invited)

Chao Chen[1, *], Xiangping Jiang[1], Haosu Luo[2], Shujun Zhang[3]
[1]*Department of Materials Science and Engineering, Jingdezhen Ceramic University*
[2]*Artificial Crystal Research Center, Shanghai Institute of Ceramics, University of Chinese Academy of Sciences*
[3]*Institute for Superconducting and Electronic Materials, Australian Institute for Innovative Materials, University of Wollongong*

10:15 (S13-45) Enhanced Piezoelectric and Electrostrain properties of $0.7BiFeO_3$-$0.3BaTiO_3$ Lead-free Piezoceramics with High Curie Temperature by Optimizing Fe^{3+} Content

Haoyu Xu, Yucheng Tang, Yijin Hao, Bo-Ping Zhang*
School of Materials Science and Engineering, University of Science and Technology Beijing

10:30 Break

Session Chair: Shujun Zhang, *University of Wollongong*
Masaki Azuma, *Tokyo Institute of Technology*

10:30 (S13-46) Enhanced Energy Storage Properties under Low Electric Fields in $Bi_{0.5}Na_{0.5}TiO_3$-based Relaxor Ferroelectrics (Invited)

Hang Xie[1], Hongliang Du[2], Linjing Liu[1], Qiangwei Kou[1], Jiwen Xu[3], Yuan Sun[1], Rui Lv[1], Dawei Wang[1], Yunfei Chang[1, *]
[1]*School of Instrumentation Science and Engineering, Harbin Institute of Technology*
[2]*College of Engineering, Xi'an International University*
[3]*Guangxi Key Laboratory of Information Materials, Guilin University of Electronic Technology*

10:55 (S13-47) Enhanced Energy Storage Properties of BST-BNT Based Relaxor Ferroelectric Ceramics under Low Electric Field (Invited)

Zong-Yang Shen
School of Materials Science and Engineering, Jingdezhen Ceramic University

11:20 (S13-48) Enhancement of High-temperature Energy Storage Properties in Antiferroelectric $AgNbO_3$ Ceramics via Multi-scale Synergistic Design (Invited)

Jing Wang[1, *], Hao Yuan[1], Xuhui Fan[1], Lei Zhao[2, *], Kongjun Zhu[1]
[1]*State Key Laboratory of Mechanics and Control for Aerospace Structures, College of Aerospace Engineering, Nanjing University of Aeronautics and Astronautics*
[2]*Key Laboratory of High-precision Computation and Application of Quantum Field Theory of Hebei Province, College Physics Science & Technology, Hebei University*

11:45 (S13-49) Exotic Phase Transition Mechanisms at Ferroic Multi-phase Points

Xiaoqin Ke; *School of Physics, Xi'an Jiaotong University*

12:00 (S13-50) High Energy Storage Performance in Silver Niobate Based Relaxor Antiferroelectrics with Reduced Silver Content

Li Ma, Toyohisa Fujita, Nengneng Luo*
School of Chemistry and Chemical Engineering, Guangxi University

12:15 (S13-51) The Effect of Nd^{3+} Substitution in $0.7BiFeO_3$-$0.3BaTiO_3$ Lead-free Piezoelectric Ceramics

Yijin Hao, Boping Zhang*
School of Mater Sci & Eng, University of Science and Technology Beijing

12:30 Lunch

Session Chair: Yaojin Wang, *Nanjing University of Science and Technology*
Jun Ouyang, *Shandong University*

13:30 (S13-52) Ferroelectric HfO_2-based DRAM Capacitors and Artificial Synaptic Devices (Keynote)

Yuewei Yin*, Xiaoguang Li*
Department of Physics, University of Science and Technology of China

14:00 (S13-53) NBT-based Textured Piezoelectric Ceramics and Multilayer Piezoelectric Actuator (Invited)

Kai Liu, Hua Tan, Haibo Zhang*
Huazhong University of Science and Technology

14:25 (S13-54) High Energy Storage Performance of PZO/PTO Multilayers via Interface Engineering (Invited)

Yuanyuan Zhang[1, 3, *], Qianqian Chen[1], Ruijuan Qi[1], Fengrui Sui[1], Hao Shen[1], Jing Yang[1], Wei Bai[1], Xiaodong Tang[1], Xuefeng Chen[2], Zhengqian Fu[2], Genshui Wang[2], Shujun Zhang[3]
[1]*Key Laboratory of Polar Materials and Devices, Ministry of Education, Department of Electronic Science, East China Normal University*
[2]*The Key Lab of Inorganic Functional Materials and Devices, Shanghai Institute of Ceramics, Chinese Academy of Sciences*
[3]*Institute for Superconducting and Electronic Materials, Australian Institute of Innovative Materials, University of Wollongong*

14:50 (S13-55) Local Structure and Dipole Theory for High-permittivity Dielectrics (Invited)

Jian Wang[1], Wanbiao Hu[1, 2, *]
[1]*Yunnan Key Laboratory of Electromagnetic Materials and Devices, School of Materials and Energy, Yunnan University*
[2]*Electron Microscopy Center, Yunnan University*

15:15 (S13-56) Ultralow Subthreshold Swing of a MOSFET Caused by Ferroelectric Polarization Reversal of $Hf_{0.5}Zr_{0.5}O_2$ Thin Films

Shengchun Shen*, Yuchen Wang, Si Liu, Yuewei Yin, Xiaoguang Li
Department of Physics, University of Science and Technology of China

15:30 (S13-57) K_t^2 Hysteresis Curves of $PbTiO_3$ Epitaxial Film Resonators before and after Removing Substrate

Sota Kuninobu[1, 2], Takahiko Yanagitani[1, 2, 3, 4, *]
[1]*Waseda University*
[2]*ZAIKEN*
[3]*JST-CREST*
[4]*JST-FOREST*

16:00 Break

Session Chair: Haibo Zhang, *Huazhong University of Science and Technology*
Wanbiao Hu, *Yunnan University*

16:00 (S13-58) Enhanced Bipolar Fatigue Resistance in Low Oxygen Vacancy Ferroelectric PZN-PNN-PZT Ceramics (Invited)

Ying Shi, Wentong Du, Zhenyong Man, Liaoying Zheng, Huarong Zeng, Guorong Li*
Key Laboratory of Inorganic Functional Materials and Devices, Shanghai Institute of Ceramics, CAS

16:25 (S13-59) Engineering PZT Films on Si for Piezo-MEMS Applications (Invited)

Jun Ouyang[1, 2, *], Yingying Wang[2]
[1]*School of Chemistry and Chemical Engineering, Qilu University of Technology*
[2]*School of Materials Science and Engineering, Shandong University*

16:50 (S13-60) Magnetoelectric Antenna for Portable very Low Frequency Transmission (Invited)

Yaojin Wang
School of Materials Science and Engineering, Nanjing University of Science and Technology

17:15 (S13-61) Multiferroic Magnon Spin-Torque Logic (Invited)

Tianxiang Nan; *School of Integrated Circuits, Tsinghua University*

17:40 (S13-62) Acoustic Separation of Piezoelectric Layer and Substrate Using 30-Layer C-axis Zigzag ScAlN Polarization Inversion Resonator

Satoshi Tokai[1, 2], Kazutaka Shiraiwa[1, 2], Takahiko Yanagitani[1, 2, 3, 4]
[1]*Waseda University*
[2]*ZAIKEN*
[3]*JST-CREST*
[4]*JST-FOREST*

Symposium 14: Thermoelectric Materials and Devices for Sustainable Energy Utilization

(Location: Yuan 3)

Session Chair: Xun Shi, *Shanghai Institute of Ceramics, Chinese Academy of Sciences*

08:30 (S14-36) Anisotropy of Chemical Bonding and Thermoelectric Properties of Materials (Keynote)

Yuri Grin; *Max-Planck-Institut für Chemische Physik fester Stoffe*

09:00 (S14-37) Wide Bandgap Thermoelectrics (Keynote)

Li-Dong Zhao; *School of Materials Science and Engineering, Beihang University*

09:30 (S14-38) Advanced Energy Materials and Devices for Low-grade Heat Harvesting and Flexible Thermal Sensing (Invited)

Dongyan Xu; *Department of Mechanical and Automation Engineering, The Chinese University of Hong Kong*

10:00 (S14-39) High-performance Layered Oxygen-containing Thermoelectric Materials (Keynote)

Yuan-Hua Lin
State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University

10:30 Break

Session Chair: Tiejun Zhu, *Zhejiang University*

10:45 (S14-40) Operating Wearable Sensors and Actuators Based on Body Heat Harvesting for Type 1 Diabetes (Keynote)

Woochul Kim; *School of Mechanical Engineering, Yonsei University*

11:15 (S14-41) Research Progress in Developing Thermoelectromagnetic Cooling Technique (Keynote)

Ping Wei, Longzhou Li, Wenyu Zhao*, Qingjie Zhang
State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology

11:45 (S14-42) GeTe-based Thermoelectric Composites with Superior Power Factor and ZT>2.5

Yilin Jiang, Jing-Feng Li*
State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University

12:00 Lunch

Session Chair: Hongchao Wang, *Shandong University*

13:30 (S14-43) Neutron Scattering Study on the Lattice Anharmonicity in the Zintl-Type Thermoelectric Materials (Invited)

Jinfeng Zhu[1], Qingyong Ren[2], Chen Chen[3], Yue Chen[4], Qian Zhang[5], Jie Ma[6, *]
[1]*School of Physics and Astronomy, Shanghai Jiao Tong University*
[2]*Spallation Neutron Source Science Center*
[3]*School of Physical Sciences, Great Bay University*
[4]*Department of Mechanical Engineering, The University of Hong Kong*
[5]*School of Materials Science and Engineering and Institute of Materials Genome & Big Data, Harbin Institute of Technology, Shenzhen*
[6]*School of Physics and Astronomy, Shanghai Jiao Tong University*

13:50 (S14-44) Preparation of Flexible Thermoelectric Composites via Solution Additive Manufacturing Technology (Invited)

Yong Du*, Jie Qin, Chaozong Xiao, Xinlian Liu, Shichuang Ma, Xiuye He
School of Materials Science and Engineering, Shanghai Institute of Technology

14:10 (S14-45) High Performance N-type PbQ (Q = Te, Se and S) Thermoelectric Materials (Invited)

Zhongzhen Luo[1, *], Zhigang Zou[1, 2]
[1]*Key Laboratory of Eco-materials Advanced Technology, College of Materials Science and Engineering, Fuzhou University*
[2]*Eco-materials and Renewable Energy Research Center, College of Engineering and Applied Sciences, Nanjing University*

14:30 (S14-46) Enhancing Thermoelectric Properties of P-type Mg_2Sn Single Crystals through Li/Si Co-Doping and Introduction of Lattice Defects

Zhicheng Huang[1], Kei Hayashi[1, *], Jing-Feng Li[1, 2], Yuzuru Miyazaki[1]
[1]*Department of Applied Physics, Graduate School of Engineering, Tohoku University*
[2]*State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University*

14:45 (S14-47) Reversible Room Temperature Brittle-Plastic Transition in $Ag_2Te_{0.6}S_{0.4}$ Inorganic Thermoelectric Semiconductor

Yuechu Wang, Airan Li, Huiping Hu, Chenguang Fu*, Tiejun Zhu*
State Key Laboratory of Silicon Materials, School of Materials Science and Engineering, Zhejiang University

15:00 (S14-48) Magnetic Ordering Boost Excellent Thermoelectric Performance of Flexible Films

Shaoqiu Ke[1], Xiaolei Nie[1, *], Xiaoling Ai[1], Chengshan Liu[1], Wanting Zhu[1], Ping Wei[1, 2], Wenyu Zhao[1, *], Qingjie Zhang[1]
[1]*State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology*
[2]*Nanostructure research center, Wuhan University of Technology*

15:15 (S14-49) Thermoelectric Enhancement in A-Site Deficient High-Entropy Perovskite $(Sr_{0.25}Ca_{0.25}La_{0.25}Ba_{0.25})_{1-x}TiO_{3\pm\delta}$ Ceramics by Fine Manipulating Cation Vacancies

Ping Zhang[1], Lingyun Gong[1], Xin Xu[2, *], Zhihao Lou[1], Ziyao Wei[1], Penghui Chen[1], Zhuozhao Wu[3], Jie Xu[1], Feng Gao[1, *]
[1]*State Key Laboratory of Solidification Processing, MIIT Key Laboratory of Radiation Detection Materials and Devices, NPU-QMUL Joint Research Institute of Advanced Materials and Structure, USI Institute of Intelligence Materials and Structure, School of Materials Science and Engineering, Northwestern Polytechnical University*
[2]*Department of Orthopedic Trauma, Honghui Hospital of Xi'an Jiaotong University*
[3]*Queen Mary University of London Engineering School, Northwestern Polytechnical University*

15:30 Break

Session Chair: Jing Shuai, *Sun Yat-sen University*

15:50 (S14-50) New Application of Thermoelectrics: Thermoregulating for E-skin (Invited)

Weishu Liu; *Southern University of Science and Technology*

16:10 (S14-51) Copper-based Diamond-like Thermoelectric Materials (Invited)

Yubo Luo[1, *], Dan Zhang[2, *], Junyou Yang[1, *]
[1]*School of Materials Science and Engineering, Huazhong University of Science and Technology*
[2]*College of Physics Science and Technology, Hebei University*

16:30 (S14-52) Structure Design for Optimizing Thermoelectric Performance of MXene-based Flexible Films (Invited)

Congcong Liu[1], Jingkun Xu[2, *]
[1]*Flexible Electronics Innovation Institute, Jiangxi Science & Technology Normal University*
[2]*East China University of Technology*

16:50 (S14-53) Dilemma and Opportunities: A Review on Industrial-scale Applications of Thermoelectric Power Generation (Invited)

Hao Yin; *TEGnology*

17:10 (S14-54) N-type Perovskite Oxide Thermoelectric Materials and Modules

Peng Cao[1], Jie Yao[1], Tingting Chen[1, 2], Hongchao Wang[1, *], Wenbing Su[1], Chunlei Wang[1]
[1]*School of Physics, Shandong University*
[2]*School of Physics and Electronic Information, Weifang University*

17:25 (S14- 55) Microstructure, Thermal and Mechanical Properties of Si_3N_4 Ceramics: Effect of the Ratio of Y_2O_3 and $MgSiN_2$ Sintering Additives

Yun Liu, Rui Xiang Liu, Yuan Hang Zheng, Xiao Lei Li*
School of Materials Science and Engineering, Tianjin University

Symposium 15: Perovskites for Solar Cells, LEDs, and Other Applications
(Location: Yuan 2)

Session Chair: Baomin Xu, *Southern University of Science and Technology*

08:30 (S15-31) Perovskite Optoelectronic Devices Based on Metasurfaces (Keynote)
Shumin Xiao
Harbin Institute of Technology, Shenzhen

09:00 (S15-32) Efficient and Stable Large-area Inverted Perovskite Solar Cells (Invited)
Wei Chen[1, 2, *]
[1]Huazhong University of Science and Technology
[2]Optics Valley Laboratory

09:25 (S15-33) Development of Wide-bandgap Perovskite Materials for High-efficiency and Stable Photovotaics (Invited)
Heping Shen
School of Engineering, The Australian National University

09:50 (S15-34) High-performance Perovskite Optoelectronic Devices via Grain Boundary Defect Passivation (Invited)
Zhanhua Wei
Institute of Luminescent Materials and Information Displays, College of Materials Science and Engineering, Huaqiao University

10:15 Break

Session Chair: Shihe Yang, *Peking University Shenzhen Institute*

10:30 (S15-35) Improving Ultraviolet Resistance in Perovskite Solar Cells (Invited)
Zhiping Wang
Wuhan University

10:55 (S15-36) Modification of the NiO_x Films for Enhancing the Photovoltaic Performance of Inverted Flexbile Perovskite Solar Cells (Invited)
Xin Li
School of Electronic Science and Engineering, Xiamen University

11:20 (S15-37) Materials and Interfaces for Halide Perovskite-based Devices (Invited)
Zonglong Zhu
City University of Hong Kong

11:45 (S15-38) Large Area Freestanding Single-crystalline Perovskite Membranes for Low dimensional Photodetector
Yang Liu
School of Materials Science and Engineering, University of New South Wales

12:05 Lunch

Session Chair: Hong Lin, *Tsinghua University*

13:30 (S15-39) Engineering Materials and Interfaces for Halide Perovskite-based Devices, Modules and Panels (Keynote)
Shihe Yang
Peking University Shenzhen Institute

14:00 (S15-40) Reducing Nonradiative Recombinations and Phase Segregation in Perovskite Solar Cells for Tandems (Invited)
Jixian Xu
University of Science and Technology of China

14:25 (S15-41) Interface Engineering for Efficient and Stable P-I-N Structured Perovskite Solar Cells (Invited)
Yongzhen Wu
East China University of Science and Technology

14:50 (S15-42) The Open-circuit Voltage Modulation Strategy for Tin-based Perovskite Solar Cells (Invited)
Feng Hao
School of Materials and Energy, University of Electronic Science and Technology of China

15:15 (S15-43) High-performance Cubic PbS Nanosheet-Perovskite Solar Cells via Interface Utilization

Xuanling Liu, Hong Lin*; *School of Materials Science and Engineering, Tsinghua University*

15:35 Break

Session Chair: Shihe Yang, *Peking University Shenzhen Institute*

15:55 (S15-44) Efficient and Stable Perovskite Solar Modules (Invited)

Zonghao Liu; *Huazhong University of Science and Technology*

16:20 (S15-45) All-inorganic $CsPbI_{3-x}Br_x$ Perovskite for Indoor Photovoltaics

Zhanglin Guo[1,*], Tsutomu Miyasaka[2]

[1]*Kyushu University*

[2]*Toin University of Yokohama*

16:40 (S15-46) High-performance Perovskite Light-emitting Diodes with Tunable Near-infrared Emissions and Improved Operational Stability

Zhongcheng Yuan[1,2], Zhangjun Hu[1], Ingemar Persson[1], Sai Bai[1], Feng Gao[1,*]

[1]*Department of Physics, Chemistry and Biology (IFM), Linköping University*

[2]*Department of Physics, University of Oxford*

17:00 (S15-47) $CuSbSe_2$ Absorb Layer for Thin Film Solar Cells

Lei Wan*, Zishuo Zhang, Guanglei Xu, Ru Zhou, Haihong Niu, Huan Wang

School of Electrical Engineering and Automation, Hefei University of Technology

17:20 (S15-48) Suppress Defect and Lattice Degradation of the Perovskite Light Absorber by Doping and Interface Passivation Strategy

Chu Zhang[1,*], Chunyiing Ma[1], Shennan Chen[1], Tingli Ma[1,*]

[1]*School of Material and Chemistry, China Jiliang University*

17:40 (S15-49) Thermal and Chemical Durability of Metal Halide Perovskite $CsPbBr_3$ Single Crystals

Daniu Han[1], Kun Yang[1,*], Chengying Bai[2], Feida Chen[1], Xiaobin Tang[2,*]

[1]*College of Materials Science and Chemical Engineering, Harbin Engineering University*

[2]*College of Materials Science and Technology, Nanjing University of Aeronautic and Astronautics*

Symposium 16: Transparent Ceramics and Luminescent Materials

(Location: Jing)

Session Chair: Jianrong Qiu, *Zhejiang University*

08:30 (S16-36) Data-driven Discovery of Luminescent Materials (Keynote)

Rong-Jun Xie[1,2]

[1]*Fujian Provincial Key Laboratory of Surface and Interface Engineering for High Performance Materials, College of Materials, Xiamen University*

[2]*State Key Laboratory of Physical Chemistry of Solid Surfaces, Xiamen University*

09:00 (S16-37) Development of Glass-Ceramic Optical Fibers Doped with Metal Transition Ions for Unconventional Light Emissions (Invited)

Georges Humbert; *XLIM Research institute, CNRS Limoges University*

09:20 (S16-38) Investigationon Micro/Nanoscaled Mechanical Behaviour of AlON Transparent Ceramics (Invited)

Ying Shi[1,*], Chenyun Zhang[1], Hongti Zhang[2]

[1]*School of Material Science and Engineering, Shanghai University*

[2]*School of Physical Science and Technology, Shanghai Tech University*

09:40 (S16-39) Terbium Oxide Magneto-Optical Transparent Ceramics (Invited)

Ding Zhou*, Yanhua Li, Shiqi Xu, Jiayue Xu

School of Materials Science and Engineering, Shanghai Institute of Technology

10:00 (S16-40) A Novel Experimental Approach to Quantitatively Evaluate the Printability of Inks in 3D Printing Using Two Criteria

Haohao Ji[1], Yu Liu[2,*], Jian Zhang[1,*], Shiwei Wang[1]

[1]*Shanghai Institute of Ceramics, Chinese Academy of Sciences*

[2]*School of Mechanical Engineering, Jiangnan University*

10:15-10:30 Break

Session Chair: Darius G. Hreniak, *Polish Academy of Science*

10:30 (S16-41) New Insights into Discovery, Quenching Mechanism and Applications of Phosphors (Invited)
Shuxing Li
College of Materials, Xiamen University

10:50 (S16-42) Bismuth Activated Luminescent Materials: Structure Design, Luminescence Properties and Applications (Invited)
Yi Wei, Guogang Li*
Faculty of Materials Science and Chemistry, China University of Geosciences

11:10 (S16-43) Mechanoluminescence Materials for Advanced Sensing Applications (Invited)
Yixi Zhuang*, Rong-Jun Xie
College of Materials, Xiamen University

11:30 (S16-44) Preparation and Application of LuAG Transparent Scintillation Ceramics
Bing Zhou, Yanhua Li, Shiqi Xu, Jie Li, Ding Zhou*
School of Materials Science and Engineering, Shanghai Institute of Technology

11:45 (S16-45) Effects of Annealing on the Optical Properties of Transparent $Y_2Ti_2O_7$ Pyrochlore: Proposing a Constant Cationic B Lattice Model
Muhammad Tsabit Ayman, Dang-Hyok Yoon*
School of Materials Science and Engineering, Yeungnam University

12:00 Lunch

Session Chair: Ivar Reimanis, *Colorado School of Mines*

13:30 (S16-46) Improved Optical Properties and Laser Performance of Nd: Y_2O_3 Ceramics (Invited)
Ha-Neul Kim[1,*], Hyeon-Myeong Oh[1], Ho-Jin Ma[1], Jae-Woong Ko[1], Jae-Wook Lee[1], Young-Jo Park[1], Hyeon-Kwoun Lee[2]
[1]*Engineering Ceramics Department, Korea Institute of Material Science*
[2]*School of Advanced Materials Science and Engineering, Kumoh National Institute of Technology*

13:50 (S16-47) Fast Fabrication of Highly Transparent AlON Ceramics by using Binary Component Sintering Additives (Invited)
Yingchun Shan[1,*], Cun Wei[1], Xuemin Xi[1], Liya Ma[1], Haoran Guo[1], Jiangtao Li[2], Jiujun Xu[1,*]
[1]*Department of Materials Science and Engineering, Dalian Maritime University*
[2]*Technical Institute of Physics and Chemistry, Chinese Academy of Sciences*

14:10 (S16-48) Theoretical and Experimental Studies on Composition-dependent Structure and Properties of AlON Transparent Ceramics (Invited)
Hao Wang*, Bingtian Tu, Kaiping Zheng, Lu Ren
State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology

14:30 (S16-49) High Performance $CsPbBr_3$ QDs Glass for Wide Color Gamut Display (Invited)
Xuejie Zhang*, Juqing Li, Bingfu Lei *, Yingliang Liu*
College of Materials and Energy, South China Agricultural University

14:50 (S16-50) Optical Multifunctional Properties of Potassium-Sodium Niobate Based Transparent Ceramics via Pressureless Sintering (Invited)
Xiao Wu
College of Materials Science and Engineering, Fuzhou University

15:10 (S16-51) Smart Control of Upconversion towards Frontier Applications (Invited)
Bo Zhou
State Key Laboratory of Luminescent Materials and Devices, School of Materials Science and Engineering, South China University of Technology

15:30 (S16-52) Layered Array Al_2O_3-LuAG: Ce Composite Ceramic Phosphors for High-brightness Display
Qi Zhan, Ruilin Zheng, Kehan Yu, Wei Wei*
College of Electronic and Optical Engineering, Nanjing University of Posts and Telecommunications

15:45-16:00 Break

Session Chair: Junichi Tatami, *Yokohama National University*

16:00 (S16-53) Impact of Synthesis Parameters and Co-Doping with Rare Earth Ions on the Microstructural and Spectroscopic Properties of Polycrystalline $Y_3Al_2Ga_3O_{12}$ Garnets (Invited)
Vitalii Boiko[1], Sebastian Cieśla[1,2], Mariusz Stefański[1], Xiaowu Hu[1], Dariusz G. Hreniak[1,*]
[1]Division of Optical Spectroscopy, Institute of Low Temperature and Structure Research, Polish Academy of Science
[2]Faculty of Chemistry, Wroclaw University of Science and Technology

16:20 (S16-54) Luminescent Multi-component Formulations for Anti-counterfeiting Systems (Invited)
Maria Luisa Saladino*
Department of Biological, Chemical and Pharmaceutical Sciences and Technologies (STEBICEF)-University of Palermo

16:40 (S16-55) Crystallization Mechanism and Phase Transition of Halide Nanocrystals in Glasses (Invited)
Ruilin Zheng[1,2,*], Jumpei Ueda[1], Setsuhisa Tanabe[1]
[1]Graduate School of Human and Environmental Studies, Kyoto University
[2]School of Science, Nanjing University of Posts and Telecommunications

17:00 (S16-56) Fabrication and Properties Optimization of Cerium Doped Garnet Scintillation Ceramics (Invited)
Jiang Li
Transparent Ceramics Research Center, Shanghai Institute of Ceramics, Chinese Academy of Sciences

17:20 (S16-57) Ce^{3+}: $Lu_3Al_5O_{12}$-Al_2O_3 Optical Nanoceramic Scintillators Elaborated via a Low-Temperature Glass Crystallization Route (Invited)
Jianqiang Li[1,2]
[1]School of Materials Science and Engineering, University of Science and Technology Beijing
[2]State Key Laboratory of Multiphase Complex Systems, Institute of Process Engineering, Chinese Academy of Sciences

17:40 (S16-58) High-Pressure-Sintering, Microstructure and Optical Properties of Metastable-phase Cubic Aluminum Oxide Transparent Ceramics (Invited)
Xingtao Chen[1,*], Yiquan Wu[2], Jianqi Qi[3], Tiecheng Lu[3]
[1]School of Physical and Material Science and Technology, Nanchang University, Nanchang
[2]Department of Materials Science and Engineering, Kazuo Inamori School of Engineering, New York State College of Ceramics, Alfred University
[3]Key Laboratory of High Energy Density Physics and Technology of Ministry of Education, Sichuan University

Symposium 18: Solid Oxide Fuel Cells and Hydrogen Technologies
(Location: Song 2.1)

Session Chair: Minfang Han, *Tsinghua University*
Zewei Lyu, *The University of Toky*

08:30 (S18-30) Differences in Reaction Process of Large Cells and Button Cells in SOFC and SOEC Modes (Keynote)
Minfang Han
Fuel Cell and Energy Storage Center, Department of Energy and Power Engineering, Tsinghua University

09:00 (S18-31) Modeling Electrical Behavior of Solid Oxide Electrolyzer Cells by Using Artificial Neural Network (Invited)
Pouya Zahadat*, Jaroslaw Milewski
Power and Aeronautical Engineering, Warsaw University of Technology

09:25 (S18-32) A Multi-Physics Coupled Single-Cell Numerical Model for SOFC/SOEC Based on 3D Microstructure Reconstructions
Yunpeng Su, Zhenjun Jiao*
Harbin Institute of Technology, Shenzhen

09:45 (S18-33) The Comprehensive Review on Modeling of Solid Oxide Fuel Cells: From Large System to Fine Electrode
Pengfei Zhu[1], Zhen Wu[1,*], Fusheng Yang[1], Zaoxiao Zhang[1], Meng Ni[2,*]
[1]School of Chemical Engineering and Technology, Xi'an Jiaotong University
[2]Department of Building and Real Estate, Research Institute for Sustainable Urban Development (RISUD) & Research Institute for Smart Energy (RISE), Hong Kong Polytechnic University

10:05-10:30 Break

Session Chair: Daan Cui, *Dalian Maritime University*
Yuhao Wang, *The Hong Kong University of Science and Technology*

10:30 (S18-34) Decoupling and Predicting Performance Degradation of SOFCs based on Impedance Analysis (Invited)
Zewei Lyu[1, *], Naoki Shikazono[1], Minfang Han[2], Zaihong Sun[3]
[1]*Institute of Industrial Science, The University of Tokyo*
[2]*Department of Energy and Power Engineering, Tsinghua University*
[3]*Xuzhou Huatsing Jingkun Energy Co., Ltd.*

10:55 (S18-35) In-situ Growth of Binary Alloy Nanoparticles for Efficient Electrochemical Nitrate Reduction to Ammonia (Invited)
Min Xu[1], Shuyue Dong[2], Haoran Guo[3], John T.S. Irvine[4], Tingshuai Li[2], Di Chen[1, 5, *]
[1]*The Future Laboratory, Tsinghua University*
[2]*School of Materials and Energy, University of Electronic Science and Technology of China*
[3]*School of Chemical Sciences, University of Chinese Academy of Sciences*
[4]*School of Chemistry, University of St Andrews*
[5]*School of Materials Science and Engineering*

11:20 (S18-36) A Combined Ionic Lewis-Acid Descriptor and Machine-Learning Approach to Prediction of Efficient Oxygen Reduction Electrodes for Ceramic Fuel Cells (Invited)
Shuo Zhai[1], Heping Xie[1, *], Zongping Shao[3, *], Meng Ni[2, *]
[1]*Institute of Deep Earth Sciences and Green Energy, Shenzhen University*
[2]*State Key Laboratory of Materials-Oriented Chemical Engineering, College of Chemical Engineering*
[3]*Department of Building and Real Estate, Research Institute for Sustainable Urban Development (RISUD) & Research Institute for Smart Energy (RISE), The Hong Kong Polytechnic University*

11:25 (S18-37) A Robust Direct-Propane Solid Oxide Fuel Cell with Hierarchically Oriented Full Ceramic Anode Consisting with In-situ Exsolved Metallic Nano-Catalysts
Xi Chen[1, *], Jietao Wang[2], Na Yu[1], Wang Yao[3], Dong Zhang[3], Meng Ni[1], Fanglin Chen[4], Tong Liu[3], Mingyue Ding[3]
[1]*Department of Building and Real Estate, Hong Kong polytechnic University*
[2]*School of Power and Mechanical Engineering, Wuhan University*
[3]*School of Chemical Engineering and Pharmacy, Wuhan Institute of Technology*
[4]*Department of Mechanical Engineering, University of South Carolina*

11:45 Lunch

Session Chair: Guntae Kim, *Shanghai Institute of Applied Physics*
Yunfeng Tian, *University of Mining and Technology*

13:30 (S18-38) The Progress of SOE Technology in Shanghai Institute of Applied Physics (SINAP) CAS (Keynote)
Guntae Kim*, JianQiang Wang*; *Shanghai Institute of Applied Physics*

14:00 (S18-39) Development of Reversible SOEC/SOFC System for a Zero Emissions Network Energy System: Progress within the 24/7_Zen Project (Invited)
Marc Torrell[1,*], Lucile Bernadet[1], Dario Montinaro[2], Dimitrios K. Niakolas[3], Federico Smeacetto[4], Albert Tarancon[5]
[1]*IREC, Catalonia Institute for Energy Research*
[2]*Department of Applied Science and Technology (DISAT) Politecnico de Tornio*
[3]*Foundation for Research and Technology. Institute of Chemical Engineering Sciences (FORTH/ICE-HT)*
[4]*Solydera S.P.A*
[5]*ICREA*

14:25 (S18-40) Enhancing Durability of Ni/YSZ Electrode-Supported Solid Oxide Electrolysis Cells under High Current Densities (Invited)
Xiaofeng Tong[1, *], Ming Chen[2]
[1]*Institute of Energy Power Innovation, North China Electric Power University*
[2]*Department of Energy Conversion and Storage, Technical University of Denmark*

14:50 (S18-41) Performance Prediction of Solid Oxide Fuel Cells Systems based on A Neutral Network Model
Zhongcai Fan, Ruiyu Zhang, Yuqing Wang*
School of Mechatronical Engineering, Beijing Institute of Technology

15:10 (S18-42) Analysis and Optimal Design of Multi-stack Solid Oxide Fuel Cell Systems based on Cascade
Peiyuan Liu, Minfang Han*
Fuel Cell and Energy Storage Center, Department of Energy and Power Engineering, Tsinghua University

15:45-16:00 Break

Session Chair: Marc Torrell Faro, *IREC*
Shixue Liu, *China Nuclear Power Technology Research Institute*

~~**16:00 (S18-43) Understanding Inter-facet Junction Effects on Particulate Photoelectrodes for Green H_2 Technologies (Invited)**~~
~~Xianwen Mao~~
~~*National University of Singapore*~~

16:25 (S18-44) Performance Evaluation of SOFC-PEMFC Hybrid System Fueled by Ammonia for Ship Application (Invited)
Daan Cui*, Tao Meng
Marine Engineering College, Dalian Maritime University

16:50 (S18-45) Lithium Metal Oxide as Symmetrical Electrodes for Low Temperature Solid Oxide Fuel Cells
Wenjing Dong
School of Microelectronics, Hubei University

Symposium 19: Ionic and Mixed Conducting Ceramics
(Location: Tang 4)

Session Chair: Dongshuang Wu, *Nanyang Technological University*
Albert Tarancon, *ICREA/IREC*

08:30 (S19-27) 3D Printing of Ionic Conductors for Energy Applications (Keynote)
Albert Tarancón[1,*], Santiago Márquez[2], Natalia Kostretsova[2], Maritta Lira[2], Ismael Babeli[2], Lucile Bernadet[2], Gianfranco Sabato[2], Ana Martos[2], Alex Morata[2], Marc Núñez[2], Marc Torrell[2]
[1]ICREA/IREC
[2]IREC

09:00 (S19-28) Enhanced Catalytic Activity and Structural Stability of Cathode Materials for SOFC (Invited)
Yang Zhang, Leyu Shen, Zhihong Du, Hailei Zhao*
School of Material Science and Engineering, University of Science and Technology Beijing

09:25 (S19-29) Differentiating Oxygen Exchange Reaction Mechanisms across Phase Boundaries (Invited)
Qiyang Lu; *School of Engineering, Westlake University*

10:15 Break

Session Chair: Qiyang Lu, *Westlake University*
~~Xianwen Mao, *National University of Singapore*~~

10:30 (S19-30) Revealing the Local Electronic Structure of High-entropy Alloy Nanoparticles (Invited)
Dongshuang Wu
Nanyang Technological University

10:55 (S19-31) Role of Lattice Dynamics in the Ionic Transport of Ionic Conducting Ceramics – an Understanding from the Meyer-Neldel Rule (Invited)
Qianli Chen; *Shanghai Jiao Tong University*

11:20 (S19-32) Oxygen Activity Regulated by Heteroatom Doping to Enhance the Performance of Water or Biomass Oxidation Reaction
Chenghao Jia, Xuepeng Xiang, Yan Chen*
School of Environment and Energy, South China University of Technology

11:35 (S19-33) A FeCoNiCuMo High-entropy Alloy Fuel Electrode for SOEC Co-electrolysis with High Oxidation Resistance and CO Selectivity
Jun Tong[1], Na Ni[1], Hengyong Tu[1], Yusi Liu[2], Chongqing Yang[2], Lei Zhu[1,*], Zhen Huang[1]
[1]Key Lab. for Power Machinery and Engineering of M.O.E., Shanghai Jiao Tong University
[2]College of Smart Energy, Shanghai Jiao Tong University

11:50 Lunch

Session Chair: Yan Yu, *University of Science and Technology of China*
Kota Suzuki, *Tokyo Institute of Technology*

13:30 (S19-34) Advanced Positive Electrode Materials for Li-ion Batteries (Keynote)
Naoaki Yabuuchi
Yokohama National University

14:00 (S19-35) Aqueous Batteries: Complexities of Energy Storage in Ceramic Electrodes (Invited)
Aninda Jiban Bhattacharyya
Interdisciplinary Centre for Energy Research, Solid State and Structural Chemistry Unit, Indian Institute of Science

14:25 (S19-36) Advanced Sintering Methods for Garnet Electrolytes and Solid-State Lithium Batteries (Invited)
Wei Liu
ShanghaiTech University

14:50 (S19-37) Znic-ion Batteries Development and Applications (Invited)
Hui Ying Yang[1, 2]
[1]*Singapore University of Technology and Design*
[2]*Engineering Product Development*

15:15 (S19-38) Synthesis of $LiCoO_2$ Cathode Materials for Li-ion Batteries at Low Temperatures
Qiang Zuo[1], Wen Liu[1], Yanxia Su[2], Ke Ren[3, *], Yiguang Wang[3, *]
[1]*School of Materials Science and Engineering, Zhengzhou University*
[2]*School of Materials Science and Engineering, Northwestern Polytechnical University*
[3]*Institute of Advanced Structure Technology, Beijing Institute of Technology*

15:30 (S19-39) Regulating Surface Oxygen Species on Copper Oxides for Effective Reduction of Nitrate to Ammonia
Zhiheng Gong, Wenye Zhong, Yan Chen*
School of Environment and Energy, South China University of Technology

15:45 Break

Session Chair: Aninda J. Bhattacharyya, *Indian Institute of Science*
Wei Liu, *ShanghaiTech University*

16:00 (S19-40) Novel Search Guideline of Lithium Ionic Conductors for All-Solid-State Lithium Battery (Invited)
Kota Suzuki, Ryoji Kanno*
Research Center for All-Solid-State Battery, Institute of Innovative Research, Tokyo Institute of Technology

16:25 (S19-41) High Energy Density and Low-Cost Na-S Batteries (Invited)
Yan Yu
Department of Materials Science and Engineering, University of Science and Technology of China

16:50 (S19-42) Inorganic Solid Electrolyte for All-Solid-State Chloride-Shuttle Batteries (Invited)
Atsushi Inoishi*, Liwei Zhao, Hikari Sakaebe
Institute for Materials Chemistry and Engineering, Kyushu University

17:15 (S19-43) Synthesis of Sulfide-type Solid Electrolytes through the Liquid Phase Method for All-Solid-State Battery (Invited)
Kazuhiro Hikima*, Atsunori Matsuda*
Toyohashi University of Technology

17:40 (S19-44) Synthesis and Electrochemical Properties of $Li_{5+x}Fe_{1-x}Mn_xO_4$ with Anti-fluorite Type Structure for Lithium Battery Cathode
Sou Taminato*, Ryosuke Goto, Daisuke Mori, Nobuyuki Imanishi
Department of Chemistry, Mie University

Symposium 21: Ceramics for Environmental Conservation, Energy and Environmental catalysis, Pollution Control, and Critical Materials
(Location: Banquet Hall 3)

Session Chair: Wanping Chen, *Wuhan University*

08:30 (S21-31) Molten Salt Synthesis and Eletrochemical Energy Storage of MXenes (Invited)
Zifeng Lin
Sichuan University

08:55 (S21-32) Photocatalytic Memory Effect for Environmental Applications and Beyond (Invited)

Qi Li
Key Laboratory of Advanced Technologies of Materials (Ministry of Education), School of Materials Science and Engineering, Southwest Jiaotong University

09:20 (S21-33) Nanowire Energy Storage Materials and Devices (Keynote)

Liqiang Mai
State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology

09:50 (S21-34) Enhanced Activity for Catalytic Combustion of VOCs by the TiO_2 Nanotube-based Catalysts

Xiaoyang Wang[1, 4], Xu Yang[2], Xinjun Li[3], Lei Miao[1, *]
[1]*School of Physical Science and Technology, Guangxi University*
[2]*School of Chemical Engineering and Light Industry, Guangdong University of Technology*
[3]*Guangzhou Institute of Energy Conversion, Chinese Academy of Sciences*
[4]*Research Center for Space System Innovation, Tokyo University of Science*

10:10 Break

Session Chair: Qi Li, *Southwest Jiaotong University*

10:30 (S21-35) Fe_3O_4 Magnetic Fluid-coated Biosorbent for Removal of Cr (VI) from Water (Invited)

Binqiao Ren[1, 2], Chongwei Cui[1, *]
[1]*Harbin Institute of Technology*
[2]*Institute of Advanced Technology of HAS*

10:55 (S21-36) Non-layered Two-dimensional Metal Oxides for Energy-related Applications

Dong Wang*, Guangwu Wen*
School of Materials Science and Engineering, Shandong University of Technology

11:15 (S21-37) Highly Selective Photocatalytic CO_2 Reduction to Ethylene in Pure Water by Nb_2O_5 Nanoparticles with Enriched Surface -OH Groups under Simulated Solar Illumination

Haoyu Zhang, Shuang Gao*, Haitao Guan, Weiyi Yang, Qi Li*
Key Laboratory of Advanced Technologies of Materials, Ministry of Education, School of Materials Science and Engineering, Southwest Jiaotong University

11:35 (S21-38) Creation of Robust Oxygen Vacancies in 2D Ultrathin BiOBr Nanosheets by Illumination through Photocatalytic Memory Effect for Enhanced CO_2 Reduction

Lizhen Lu[1], Haoyu Zhang[1], Zhe Sun[2], Jinghui Wang[3], Haolin Wang[1], Jinbo Xue[2], Qianqian Shen[2], Qi Li[1, *]
[1]*Key Laboratory of Advanced Technologies of Materials (Ministry of Education) School of Materials Science and Engineering Southwest Jiaotong University*
[2]*Key Laboratory of Interface Science and Engineering in Advanced Materials (Ministry of Education) College of Materials Science and Engineering Taiyuan University of Technology*
[3]*Shenyang National Laboratory for Materials Science Institute of Metal Research, Chinese Academy of Sciences*

11:55 Lunch

Session Chair: Zifeng Lin, *Sichuan University*

13:30 (S21-39) Hierarchical Superhydrophilic/Superaerophobic 3D Porous Trimetallic (Fe, Co, Ni) Spinel/Carbon/Nickel Foam for Boosting Oxygen Evolution Reaction

Liang Ma[1, 2, 3], Xiaoming Duan[1, 2, 3, *], Zengyan Wei[3, *], Xiaoxiao Huang[1, 2, 3], Dechang Jia[1, 2, 3, *], Yu Zhou[1, 2, 3]
[1]*Key Laboratory of Advanced Structural-Functional Integration Materials & Green Manufacturing Technology, Harbin Institute of Technology*
[2]*Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology*
[3]*School of Materials Science and Engineering, Harbin Institute of Technology*

13:50 (S21-40) Metal-organic Framework-derived Cu-hierarchical Porous Carbon Composites for High-energy and Long-lasting Lithium Storage

Bing Zhu, Yangai Liu *, Yicen Liu, Xi Zhang, Manshu Zhang
School of Materials Science and Technology, China University of Geosciences (Beijing)

14:10 (S21-41) Bimetallic Hydroxyl Fluoride with High-rate Lithium Storage Performance: $Co_{0.6}Zn_{0.4}(OH)F$ Material

Yicen Liu, Yangai Liu*
School of Materials Science and Technology, China University of Geosciences (Beijing)

14:30 (S21-42) Bi/PCFs Enabled High Cycle Stability of Potassium Metal Batteries
Bo Zhi Yang, Xin Min*
School of Materials Science and Technology, China University of Geosciences (Beijing)

14:50 (S21-43) Modulation of Property of Dendritic $BaTiO_3$ Piezocatalysts
Zhiwen Hu[1, 2], Weixia Dong[1, 2, *], Zihao Dong[1], Ping Li[1], Qifu Bao[1]
[1]Department of Materials Science and Engineering, Jingdezhen Ceramic University
[2]State Key Laboratory of Silicon Materials Zhejiang University

15:10 (S21-44) Structure and Interface Engineering of Porous Nanomaterials for Photocatalytic Applications
Wei Zhou
Qilu University of Technology

15:30 (S21-45) Mo_2C-Based Ceramic Electrode with High Stability and Catalytic Activity for Hydrogen Evolution at High Current Density
Anding Huang*
CAS Key Laboratory of Materials for Energy Conversion, Department of Materials Science and Engineering, University of Science and Technology of China

15:50 (S21-46) Self-Supported Ni-B based Ceramic Electrode for Overall Water Splitting
Haisen Huang
University of Science and Technology of China

Symposium 22: Ceramic Integration and Joining Technologies
(Location: Wu 1)

Session Chair: Yanming He, *Zhejiang University of Technology*
Xiaoqing Si, *Harbin Institute of Technology*

08:30 (S22-37) Near-seamless Joining of SiC Ceramics and Ceramic Matrix Composites (Keynote)
Xiaobing Zhou
Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences

09:00 (S22-38) Laser Surface Modification Assisted Joining of Graphite and DT4C Pure Iron (Invited)
Wenwen Li*, Bo Chen
Beijing Institute of Aeronautical Materials, AECC

09:20 (S22-39) Conductive Carrier Supported Ceramics Nanomaterials as Electrochemical Catalysts for Water Splitting (Invited)
Xiaohang Zheng
School of Materials Science and Engineering, Harbin Institute of Technology

09:40 (S22-40) Construction of Enhanced Interfacial Structure in High-entropy Ceramic Brazed Joint toward Ultra-high Temperature Application
Ruijie Mu, Ying Wang, Shiyu Niu, Kongbo Sun, Zhenwen Yang*
School of Materials Science and Engineering, Tianjin University

09:55 (S22-41) Microstructural and Mechanical Properties of SiC /$Al_{0.3}$CoCrFeNi Joints Brazed using a FeCoCrNiCu/Ti Composite Interlayer
Mushi Zheng, Xiaoqing Si*
State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

10:10 Break

Session Chair: Panpan Lin, *Harbin Institute of Technology*
Rui Pan, *Beijing University of Technology*

10:25 (S22-42) Thermal Shock Assisted Ceramic Surface Modification and High Temperature Joining (Invited)
Junlei Qi*, Yaotian Yan
State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

10:45 (S22-43) Transient Liquid Phase Diffusion Bonding of ZrC-SiC Ceramic and 304 Stainless Steel Using Ti/Porous Ni Interlayer (Invited)
Weiqi Yang
Sino-French Institute of Nuclear Engineering and Technology, Sun Yat-sen University

11:05 (S22-44) A New Low-temperature Preparation Technology of Heat-resistant Diamond/Cu Joint using Composite Braze: Microstructure Evolution and Mechanical Properties Strengthening

Xinfei Zhang, Tiesong Lin*, Panpan Lin, Peng He
School of Materials Science and Engineering, Harbin Institute of Technology

11:20 (S22-45) Highly Dispersed Ceramics Nanomaterials in Nano Arrays for Superior Hydrogen Evolution

Peijia Wang, Xiaohang Zheng*
School of Materials Science and Engineering, Harbin Institute of Technology

12:00 Lunch

Session Chair: Jun Tao, *AVIC Manufacturing Technology Institute*
Weiqi Yang, *Sun Yat-sen University*

13:30 (S22-46) Microstructure and Properties of TiC Ceramic Reinforced Ti6Al4V Matrix Gradient Composites by Laser Melting Deposition (Invited)

Jiandong Wang[1,*], Yuzhou Zeng[1], Panpan Lin[2], Liqun Li[2], Fengchun Jiang[1]
[1]*College of Materials Science and Chemical Engineering, Harbin Engineering University*
[2]*State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology*

13:50 (S22-47) Application of Glass Brazing Technology in All Solid State Lithium Batteries (Invited)

Ce Wang[1,2], Zhanguo Liu[3,*], Tiesong Lin[1,*], Panpan Lin[1,*], Peng He[1]
[1]*State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology*
[2]*Zhengzhou Research Institute, Harbin Institute of Technology*
[3]*Key Laboratory of Advanced Structural-Functional Integration Materials & Green Manufacturing Technology, Harbin Institute of Technology*

14:10 (S22-48) The Composition and Preparation of Glass Powder for Electronic Paste

Yangsu Yao, Huidan Zeng*, Qi Jiang, Yali Yang, Yijing Chen
School of Materials Science and Engineering, East China University of Science and Technology

14:25 (S22-49) Preparation of 3-Dimensional TiC Nanosheet Reinforced Ag-Cu Composite Filler for Brazing Ti_3SiC_2 Ceramic and Ti_2AlNb Alloy: Interfacial Reaction and Strengthening Mechanism

Bo Zhang, Zhan Sun, Qing Chang, Lixia Zhang *
Department of Materials Processing Engineering, Harbin Institute of Technology

14:40 (S22-50) Electric-field Assisted Flash Joining of Ceramic Oxides/Ceramics Oxides

Ke Ren[1,*], Junbo Xia[2], Yiguang Wang[1,*]
[1]*Institute of Advanced structure Technology, Beijing Institute of Technology*
[2]*College of Science, Xi'an University of Posts and Telecommunications*

14:55 (S22-51) Preparation of Graphene-enhanced Cu-based Filler for Brazing ZrC-SiC Ceramic and TC4 Alloy

Degang Li, Lixia Zhang *, Bo Zhang
Welding technology and engineering, Harbin Institute of Technology

15:10 (S22-52) High-strength SiC Joints Fabricated at a Low-temperature of 1400°C using a Novel Low Activation Filler of Praseodymium

Jie Xu *, Xiaobing Zhou
Engineering Laboratory of Advanced Energy Materials, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences

15:25 Break

Session Chair: Zongjing He, *Harbin Institute of Technology*
Ce Wang, *Harbin Institute of Technology*

15:40 (S22-53) Sonocapillary and Wetting Mechanism during Ultrasonic Brazing Porous Si_3N_4 Ceramics in Air (Invited)

Zhiwu Xu
State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

16:00 (S22-54) Multiscale Characterization of Glass-Ceramic Bonded SiC Joint under He Ion Irradiation (Invited)

Liangbo Sun, Shuohao Wang, Chunfeng Liu, Jie Zhang*
School of Materials Science and Engineering, Harbin Institute of Technology

16:20 (S22-55) Microstructure and Mechanical Properties of ZrC-SiC Composite Ceramic Diffusion Joints by Pulsed Current (Invited)

Jincheng Lin[1], Tiesong Lin[2,*]
[1]*Sun Yat-sen University*
[2]*Harbin Institute of Technology*

16:40 (S22-56) Microstructural and mechanical characterizations of SiC-304SS joints brazed with Cu-10TiH$_2$ filler

Qiang Ma; *Jiangsu University of Science and Technology*

16:55 (S22-57) High Quality Welding of Fused Silica by Ultrafast Laser

Taoshuai Zhou, Rui Pan*, Shujun Chen, Yinghao Feng
Faculty of Materials and Manufacturing, Beijing University of Technology

17:10 (S22-58) A New Method for Achieving Stress Relief and Interface Enhanced Air-brazed Oxide Ceramics Joint Via In-situ Formation of Directional Growing Whiskers

Xinyue Li, Panpan Lin*, Peng He*
State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology

17:25 (S22-59) Preparation and Mechanical Properties of Ceramic Matrix Composite Bolts

Xuehan Ma[1], Yi Zhang[1,*], Xiangyun Gao[1], Bojie You[1], Chen Zhang[2]
[1]*Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University*
[2]*School of Materials Science and Engineering. Chang'an University*

Symposium 23: Geopolymers: Low Energy and Environmentally Friendly Ceramics and Coatings

(Location: Yuan 1)

Session Chair: Peigang He, *Harbin Institute of Technology*
Chengying Bai, *Harbin Engineering University*

08:30 (S23-01) A Review on the Recycling of Waste Ceramics in Geopolymer Related Materials (Keynote)

Zhengning Zhou[1,2], Yingcan Zhu[2], Zuhua Zhang[1,*]
[1]*Key Laboratory of Advanced Civil Engineering Materials of Ministry of Education, School of Materials Science and Engineering, Tongji University*
[2]*Shanghai Geopoly New Materials Company Limited*

09:00 (S23-02) Preparation, Modification and Strengthening Mechanism of Porous Geopolymer Microspheres (Invited)

Kaituo Wang; *School of Resources, Environment and Materials, Guangxi University*

09:25 (S23-03) Preparation and Corrosion Resistance of KAlSi$_2$O$_6$-mullite Composite to Lithium Battery Cathode Materials using K-based Geopolymer Binder (Invited)

Liugang Chen; *School of Materials Science and Engineering, Zhengzhou University*

09:50 (S23-04) Effect of Sodium Methylsilicate on the Thermal Behaviour of Geopolymers (Invited)

Meirong Wang[1,*], Shuyi Lu[2], Peigang He[3], Dongyan Tang[4], Dechang Jia[3]
[1]*State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology*
[2]*School of Marine Science and Technology, Harbin Institute of Technology*
[3]*Institute for Advanced Ceramics, Department of Materials Science, Harbin Institute of Technology*
[4]*School of Chemistry and Chemical Engineering, Harbin Institute of Technology*

10:15 Break

Session Chair: Zuhua Zhang, *Tongji University*
Liugang Chen, *Zhengzhou University*

10:30 (S23-05) 3D Printing Geopolymer with Bionic-inspired Structure (Keynote)

Peigang He[1,*], Siqi Ma[1], Dechang Jia[1], Paolo Colombo[2], Yu Zhou[1]
[1]*Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology*
[2]*Department of Industrial Engineering, University of Padova*

11:00 (S23-06) Rapid Preparation of Coal Gangue based Geopolymer Foams as Precursors for Porous Ceramics (Invited)

Chengying Bai*, Xinyu Li, Yingjie Qiao, Paolo Colombo; *Harbin Engineering University*

11:25 (S23-07) Design of 3D Printed Fiber-reinforced Geopolymer (3D-FRG) Based on Response Surface Method

Xinhao Liu, Xiaolu Guo*, Jiajun Hu

Key Laboratory of Advanced Civil Engineering Materials of Ministry of Education, School of Materials Science and Engineering, Tongji University

11:45 (S23-08) Actual Engineering Application of Ba Modified Geopolymer Foam in Coal Mine Groundwater Ion Adsorption

Xuhao Zhang, Xiao Zhang*

Research Center of Geotechnical and Structural Engineering, Shandong University

12:05 Lunch

Session Chair: Ta-Wui Cheng, *National Taipei University of Technology*
Yuanyuan Ge, *Guangxi University*

13:30 (S23-09) Additive Manufacturing of Porous Geopolymers for Environmental Applications (Keynote)

Paolo Colombo[1, 2]

[1]Department of Industrial Engineering, University of Padova
[2]Department of Materials Science and Engineering, The Pennsylvania State University

14:00 (S23-10) Reusing Waste Materials in Alkali-activated Cements (Invited)

Henry A. Colorado; *Universidad de Antioquia*

14:25 (S23-11) Porouscoal Gangue-based Alkali-activated Material Adsorbent Synthesized by a Microwave Foaming Method (Invited)

Xinyu Li[1, *], Chengying Bai[2], Yingjie Qiao[2], Paolo Colombo[3, 4]

[1]Heilongjiang University of Science and Technology
[2]Key Laboratory of Superlight Materials and Surface Technology, Ministry of Education, College of Materials Science and Chemical Engineering, Harbin Engineering University
[3]Department of Industrial Engineering, University of Padova
[4]Department of Materials Science and Engineering, The Pennsylvania State University

14:50 (S23-12) Exploiting Bifunctional 3D-Printed Geopolymers for Efficient Cesium Removal and Immobilization: An Approach for Hazardous Waste Management

Siqi Ma[1], Peigang He[1, *], Dechang Jia[1, *], Paolo Colombo[2], Yu Zhou[1]

[1]Harbin Institute of Technology
[2]Università degli Studi di Padova

15:10 (S23-13) 3D Printing of Green and Environment-friendly rGO@ZnO/GP for Removal of Methylene Blue from Wastewater

Xuehui Liu[1, 2], Peigang He[1, 2, *]

[1]Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology
[2]Key Laboratory of Advanced Structural-Functional Integration Materials & Green Manufacturing Technology, Harbin Institute of Technology

15:30 (S23-14) An Easy-to-Fabricate Geopolymer/Copper Mesh Composite Membrane for Efficient Removal of Dyes in water

Chunyan Huang, Hongmiao Chen, Yuanyuan Ge*

Resource Processing and Process Intensification Technology, Guangxi University

15:50 Break

Session Chair: Kaituo Wang, *Guangxi University*
Peigang He, *Harbin Institute of Technology*

16:00 (S23-15) A Study on Capture and Sequestration Carbon Dioxide Using Geopolymer Technology (Keynote)

Ta-Wui Cheng *, Wei-Hao Lee, Ti-Chun Li

Institute of Mineral Resources Engineering, National Taipei University of Technology

16:30 (S23-16) New Applications of Biochar Geopolymer Composites in Water Sustainable Development (Invited)

Yuanyuan Ge; *School of Chemistry & Chemical Engineering, Guangxi University*

16:55 (S23-17) Effect of the Sodium Silicate Content on Properties of Porous Metakaolin-based Geopolymer Fabricated via Microwave Foaming

Jiaqi Zheng, Xinyu Li, Chengying Bai *, Xiaohong Zhang, Yingjie Qiao

College of Materials Science and Chemical Engineering, Harbin Engineering University

17:15 (S23-18) Effect of PFDS on the Immobilization of Cs^+ by Metakaolin-based Geopolymers in Complex Environments

Shengjian Zhao[1, 2], Peigang He[1, 2, *], Dechang Jia[1, 2], Yu Zhou[1, 2]
[1]*Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology*
[2]*Key Laboratory of Advanced Structural-Functional Integration Materials & Green Manufacturing Technology, Harbin Institute of Technology*

17:35 (S23-19) Mechanical Properties and Carbonation of Sustainable Geopolymer Concrete Made from Red Mud, Ground Granulated Blast-furnace Slag and Metakaolin with the Seawater and Sea Sand

Yang Liu[1], Ning Xie[1, *]
[1]*Shandong Provincial Key Laboratory of Preparation and Measurement of Building Materials, University of Jinan*

Symposium 24: Advanced Refractories and Traditional Ceramics

(Location: Yuan 5)

Session Chair: Christopher Parr, *Imerys China*

08:30 (S24-32) Study on Improving Continuous Casting Speed by Optimizing the Structure of Ladle Nozzle (Invited)

Chunyu Guo, Yingshuai Guo, Enhui Wang, Xinmei Hou*
Institute for Carbon Neutrality, University of Science and Technology Beijing

08:55 (S24-33) Effects of Al_2O_3 Crystal Types on Morphologies, Formation Mechanisms of Mullite and Properties of Porous Mullite Ceramics Based on Kyanite

Huishi Guo[1, *], Wenfeng Li[2]
[1]*School of Materials and Chemical Engineering, Zhengzhou University of Light Industry*
[2]*School of Materials Science and Engineering, Henan University of Technology*

09:15 (S24-34) Development Process, Design Ideas, and Challenges of Lightweight Refractory: A Review

Hongfeng Yin
College of Materials Science and Engineering, Xi'an University of Architecture &Technology

09:35 (S24-35) Preparation of Carbon Aerogels with Nanowalls for Electromagnetic Shielding and Thermal Insulation

Pengpeng Liang[1], Hongxia Li[2, *], Gang Wang[2, *]
[1]*School of Materials Science and Engineering, Zhengzhou University*
[2]*State Key Laboratory of Advanced Refractories, Sinosteel Luoyang Institute of Refractories Research Co., Ltd*

09:55 (S24-36) Simultaneous Enhance of the Thermal Shock Resistance and Slag-penetration Resistance for Tundish Flow-control Refractories: the Role of Microporous Magnesia

Yongshun Zou *, Huazhi Gu, Ao Huang, Lvping Fu, Meijie Zhang
The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology

10:15 Break

Session Chair: Hong Peng, *Elkem Silicon Materials*

10:30 (S24-37) Alumina Based Refractory Raw Materials for a Sustainable Future (Keynote)

Chunfeng Liu, Jenifer Astoveza, Christoph Wöhrmeyer, Christopher Parr*
Imerys China

11:00 (S24-38) Research on the Formation of Carbon Nanotubes by the Catalytic Pyrolysis of Glucoses

Junbo Tu[1, *], Jinyu Li[1], Juncong Wei[1], Bingjie Tang[2]
[1]*School of Materials Science and Engineering, North China University of Science and Technology*
[2]*Caihong Group (Shaoyang) Special Glass Limited Liability Company*

11:20 (S24-39) Toughening Mechanism and Practice of Refractories - Microcracking

Renhong Yu[1, *], Jiwei Zhou[1], Mancang Li[1], Yunfei Zang[1], Xiaohui Zhang[2, *]
[1]*School of Mater Sci & Eng (High Temperature Materials Institute), Henan University of Science and Technology*
[2]*Sinosteel Luoyang Institute of Refractories Research Co., Ltd*

11:40 (S24-40) Dissolution Behavior of MgO in the Molten Slags under Weak Static Magnetic Field

Xinyu Chen[1, 2], Ao Huang[1, 2, *], Shenghao Li[1, 2], Shihui Ding[2], Yongshun Zou[1, 2], Huazhi Gu[1, 2]
[1]*The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology*
[2]*Materials Department of Wuhan University of Science and Technology*

12:00 Lunch

Session Chair: Juntong Huang, *Nanchang Hangkong University*

13:30 (S24-41) MgAlON Whisker Bond in Refractories (Keynote)
Zongqi Guo; *Trasteel International SA*

14:00 (S24-42) A Novel Potential Ceramic Material for Melting Ti_6Al_4V Alloy: A Solid Solution of $BaZrO_3$ and $CaZrO_3$ (Invited)
Lvping Fu; *The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology*

14:25 (S24-43) Numerical Simulation of A One-kiln-two-line Float Glass Melting Kiln and Analytical Study of Refractory Materials in the Kiln
Hao Feng, Benjun Cheng*
School of Energy Science and Engineering, Central South University

14:45 (S24-44) Study on the Preparation of High-content Carbon Nanotubes/calcium Aluminate Cement and its Effects on the Properties of Al_2O_3-SiC-C Castable
Yunfei Zang[1, 2]
[1]*College of Materials Science and Engineering, Xi'an University of Architecture and Technology*
[2]*School of Materials Science and Engineering, Henan University of Science and Technology*

15:05 (S24-45) Formation of Isolation Layer Between the Refractory Lining and Molten Steel/slag: Industrial Trials in Refining Ladle
Xiangshuai Hous[1], Yu Zhang[1, 2, *], Junfeng Chen[1, *], Wen Yan[1], Nan Li[1]
[1]*The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology*
[2]*Core Facility of Wuhan University*

15:25 (S24-46) Enhancement of Oxidation Resistance at 1000-1400°C of Low Carbon Al_2O_3-C Refractories with Pre-synthesized SiC_{nw}/Al_2O_3
Xiaochuan Chong*, Guoqing Xiao, Donghai Ding
College of Materials science and Engineering, Xi'an University of Architecture and Technology

15:45 Break

Session Chair: Sandra Vollmann, *Montanuniversität Leoben*

16:00 (S24-47) Challenges in Phase Diagram Study for Refractory System (Keynote)
In-Ho Jung; *Materials Science and Engineering, Seoul National University*

16:30 (S24-48) A Potential Method to Control the Corrosion of Submerged Entry Nozzle by Applying an Electric Field (Invited)
Lei Yuan[1, *], Chen Tian[1], Shiyu Sun[1], Jingkun Yu[1], Guoqi Liu[2], Hongxia Li[2]
[1]*School of Metallurgy, Northeastern University*
[2]*State Key Laboratory of Advanced Refractories, Sinosteel Luoyang Institute of Refractories Research Co., Ltd*

16:55 (S24-49) Regulating the Pore Structure of Periclase Refractories by Adding Y_2O_3 to Enhance Corrosion Resistance for Copper Slag
Endong Jin*, Donghai Ding, Guoqing Xiao, Chao Zou
College of Materials Science and Engineering, Xi'an University of Architecture and Technology

17:15 (S24-50) Design of Micron/nano Lamellar Hydrates C_4AcH_{11} and M-A-H Bonded Alumina-spinel Castables Based on Two-step Curing
Wenjing Liu, Ning Liao*, Yawei Li*
Wuhan University of Science and Technology

Symposium 25: Porous Ceramics: From Innovative Processing to Advanced Industrial Applications
(Location: Song 2.2)

Session Chair: Yuping Zeng, *Shanghai Institute of Ceramics*
Louis Winnubst, *University of Twente*

10:30 (S25-01) Bioconjugated Nanocarriers for Precision Drug Delivery (Keynote)
Sanjay Mathur[1, 2]
[1]*University of Cologne, Germany*
[2]*Chair, Inorganic and Materials Chemistry*

11:00 (S25-02) Structure Design and Regulation of High Sound Absorbing Porous Ceramic Composites (Invited)

Anze Shui*, Chao He, Hulei Yu

School of Materials Science and Engineering, South China University of Technology

11:25 (S25-03) Enhanced Thermal Insulation and Mechanical Properties of α-SiAlON Porous Ceramics for High-temperature Radome Application (Invited)

Jie Xu*, Runwu Yang, Fengying Fan, Jia Guo, Feng Gao

School of Materials Science and Engineering, Northwestern Polytechnical University

11:50 Lunch

Session Chair: Sanjay Mathur, *University of Cologne*
Anze Shui, *South China University of Technology*
Jie Xu, *Northwestern Polytechnical University*

13:30 (S25-04) Engineering Ceramic Pores on the Nanoscale for Membrane Applications under Demanding Conditions (Keynote)

Louis Winnubst *, Marie-Alix Pizzoccaro-Zilamy

Inorganic Membranes, University of Twente

14:00 (S25-05) Fabrication of Near-zero Sintering Shrinkage Porous Pottery via Template-free Method (Invited)

Dong Hao[1, *], Takashi Akatsu[1,2], Nobuaki Kamochi[3], Miki Inada[4], Atsunori Shiraishi[3]

[1]*Ceramic Research Center, Saga University*
[2]*Katayanagi Advanced Research Institute, Tokyo University of Technology*
[3]*Saga Ceramics Research Laboratory*
[4]*Centre of Advanced Instrumental Analysis, Kyushu University*

14:25 (S25-06) One-step Preparation of Asymmetric Ultra-filtration Ceramic Membranes with Controllable Pore Structure Parameters and the Application in Oily Wastewater Treatment (Invited)

Juan Ma[1, *], Anze Shui[2, *], Chao He[2]

[1]*School of Civil Engineering, Guangzhou University*
[2]*School of Materials Science and Engineering, South China University of Technology*

14:50 (S25-07) Enhanced Mechanical Strength of Tubular SiC Ceramic Membrane Supports through a Reverse Particle Grading Strategy

Zheng Liang[1], Qilin Gu[1, *], Zhaoxiang Zhong[1], Weihong Xing[1, 2, *]

[1]*National Engineering Research Center for Special Separation Membrane, Nanjing Tech University*
[2]*Jiangsu University*

15:10 (S25-08) Hierarchical Porous Silica Ceramics with Variable Pore Size and Microstructure

Yuanyuan Liu*, Zhilin Tian*, Liya Zheng, Bin Li*

School of Materials, Shenzhen Campus of Sun Yat-Sen University

15:30 (S25-09) Synthesis of Cu-based Catalysts on Honeycomb Ceramics for Methanol Steam Reforming

Chenxu Guo, Wenming Guo*, Hang Qin, Yi Zhang, Hanning Xiao*

College of Materials Science and Engineering, Hunan University

15:50 Break

Session Chair: Dong Hao, *Saga University*
Juan Ma, *Guangzhou University*

16:00 (S25-10) Porous Ceramic Membrane for Environmental Application: Recent Developments and Prospects (Keynote)

In-Hyuck Song[1, 2, *], Hong Joo Lee[1], Jang Hoo Ha[1], Jongman Lee[1, 2]

[1]*Ceramic Materials Division, Korea Institute of Materials Science (KIMS)*
[2]*Department of Advanced Materials Engineering, University of Science and Technology (UST)*

16:30 (S25-11) Emerging Surface Engineering Strategies for Antifouling Ceramic Membranes (Invited)

Qilin Gu

National Engineering Research Center for Special Separation Membrane, College of Chemical Engineering, Nanjing Tech University

16:55 (S25-12) Preparation and Separation Performance of Hollow Fiber Ceramic Supported Ti_3C_2Tx/Al_2O_3 Composite Membranes (Invited)

Shancheng Ye, Xiaozhen Zhang*

School of Materials Science and Engineering, Jingdezhen Ceramic University

17:20 (S25-13) A Novel Research of Removing the Cl^{-1} from Zirconia Precursor Efficiently by the Disc Ceramic Membrane to Prepare Zirconia Powders with Excellent Performance

Ruiqiang Yang, Qibing Chang*, Yongqing Wang*

School of Materials Science and Engineering, Jingdezhen Ceramic University

17:40 (S25-14) The Cell Connectivity Controllable ZrO_2 Ceramic Foam Prepared by Direct Foaming with Particles as Foam Stabilizer

Quanle Leng[1, 2], Yuping Zeng[1, *]

[1]State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences

[2]Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences

Symposium 26: Bioceramics and Ceramics Coatings for Biomedical Applications

(Location: Tang 1)

Session Chair: Kai Zheng, *Nanjing Medical University*

Hang Thu Ta, *Griffith University*

08:30 (S26-05) Multi-functional Composite Nanomaterials for Theranostics of Diseases (Invited)

Hang Thu Ta[1, 2, 3, *]

[1]School of Environment and Science, Griffith University

[2]Queensland Micro and Nanotechnology Centre, Griffith University

[3]Australian Institute for Bioengineering and Nanotechnology, University of Queensland

08:55 (S26-06) Bioactive Glass-reinforced Hydrogels Regulate Cellular Behavior for Bone Tissue Regeneration (Invited)

Kai Zheng[1, *], Rongyao Xu[2], Zeqian Xu[3], Yong Xu[4]

[1]Nanjing Medical University

[2]Affiliated Hospital of Stomatology, Nanjing Medical University

[3]Shanghai Jiaotong University School of Medicine, Shanghai Jiaotong University

[2]Soochow University

09:20 (S26-07) Bioadaptable Properties of Silicocarnotite Bioceramic Tuned by Zinc Oxide for Bone Regeneration (Invited)

Fanyan Deng[1], Ziheng Bu[2], Xianzhuo Han[3], Zhongtang Liu[2], Congqin Ning[1, *]

[1]The Education Ministry Key Lab of Resource Chemistry and Shanghai Frontiers Science Center of Biomimetic Catalysis and Shanghai Engineering Research Center of Green Energy Chemical Engineering, Shanghai Normal University

[2]Department of Orthopedic Surgery, Changhai Hospital, Naval Military Medical University

[3]Department of Stomatology, Baoan Maternal and Child Health Hospital, Jinan University

09:45 (S26-08) Preparation and Properties of Carboxymethylcellulose/Tannin/Ce Containing BGNs Microsphere Scaffolds for Tissue Regeneration

Yingxin Xu, Kaiwen Zheng, Rumeng Wang, Yu Chen*, Jue Zhang*

Anhui Provincial Engineering Research Center for Dental Materials and Application, School of Stomatology, Wannan medical college

10:05 Break

Session Chair: Zi (Sophia) Gu, *University of New South Wales*

Chaoming Xie, *Southwest Jiaotong University*

10:30 (S26-09) Polydopamine-mediated Graphene Oxide and Nanohydroxyapatite-incorporated Conductive Scaffold with an Immunomodulatory Ability Accelerates Periodontal Bone Regeneration in Diabetes (Invited)

Chaoming Xie

Institute of Biomedical Engineering, College of Medicine, Southwest Jiaotong University

10:55 (S26-10) Engineering Ultrathin Nanosheets for Drug Delivery and Catalytic Nanomedicine (Invited)

Zi (Sophia) Gu

University of New South Wales

11:20 (S26-11) In Vitro Lifetime Assessment of Zirconia Bioceramics

Jiayue Cui, Wenshu Zhao, Chong Wei*;
Northwestern Polytechnical University

11:40 (S26-12) Photoactivated MXene Nanosheets for Enhanced Bone and Soft Tissue Regeneration: Exploring Effects and Potential Mechanisms

Xiaoyan Qu[1], Bo Lei[1, 2, *]
[1]Frontier Institute of Science and Technology, Xi'an Jiaotong University
[2]Key Laboratory of Shaanxi Province for Craniofacial Precision Medicine Research, College of Stomatology, Instrument Analysis Center, Xi'an Jiaotong University

12:00 Lunch

Session Chair: Yulin Li, *East China University of Science & Technology*
Yuling Wang, *Macquarie University*

13:30 (S26-13) Engineering of Plasmonic Nanomaterials for In Vitro Cancer Diagnosis (Keynote)

Yuling Wang
School of Natural Sciences, Macquarie University

14:00 (S26-14) Bone-targeting Carbon Dots: Target-oriented Synthesis and Quantitative Evaluation of Bone-targeting Ability (Invited)

Baoqiang Li[1, *], Guanxiong Liu[1], Yuri V. Petrov[2]
[1]Institute for Advanced Ceramics, State Key Laboratory of Urban Water Resource and Environment, Harbin Institute of Technology
[2]Laboratory of Dynamics and Extreme Characteristics of Promising Nanostructured Materials, Saint Petersburg State University

14:25 (S26-15) Biomimetic 2D Layered Double Hydroxide Nanocomposites for Hyperthermia-facilitated Homologous Targeting Cancer Photo-chemotherapy (Invited)

Li Li
Australian Institute for Bioengineering and Nanotechnology, The University of Queensland

14:50 (S26-16) Self-reinforcing Internal Fixation Materials (Invited)

Yulin Li[1, 2, *], Fangrui Liu[1], Shihao Zhang[1], Changsheng Liu[1, *]
[1]Frontiers Science Center for Materiobiology and Dynamic Chemistry, Engineering Research Centre for Biomedical Materials of Ministry of Education, East China University of Science & Technology
[2]Wenzhou Institute of Shanghai University

15:15 (S26-17) Manganese Supplementation of Orthopedic Implant Coatings for Remodeling of Disease Microenvironments

Kai Li, Xuebin Zheng*
Shanghai Institute of Ceramics, Chinese Academy of Sciences

15:35 Break

Session Chair: Zhi Ping Xu, *The University of Queensland*
Chunxia Zhao, The University of Adelaide

16:00 (S26-18) Bioinspired Materials and Devices (Keynote)

Chunxia Zhao
School of Chemical Engineering, The University of Adelaide

16:30 (S26- 19) Using Clay Nanoparticles to Normalizing Physiological Properties of the Tumor Microenvironment as Adjuvant Therapy (Keynote)

Zhiping Xu[1, 2, *]
[1]Institute of Biomedical Health Technology and Engineering, and Institute of Systems and Physical Biology, Shenzhen Bay Laboratory
[2]Australian Institute for Bioengineering and Nanotechnology, The University of Queensland

17:00 (S26-20) Multi-functional Bioactive Glass Nanosystems for Tissue Regeneration

Yumeng Xue[1, *], Bo Lei[2, *]
[1]School of Materials Science and Engineering, Northwestern Polytechnical University
[2]Frontier Institute of Science and Technology, Xi'an Jiaotong University

Symposium 27: Biomimetics and Bioinspired Processing of Advanced Ceramics

(Location: Tang 2)

Session Chair: Hang Ping, *Wuhan University of Technology*

13:30 (S27-11) Biological Ceramic Optical Materials: Structure, Properties, and Formation (Keynote)
Ling Li; *Virginia Tech*

14:00 (S27-12) Nature-inspired Nacre-like Ceramic-Polymer Composites with Tooth-matching Elasticity and Hardness, Notable Damage Tolerance and Good Fatigue Properties (Invited)
Zengqian Liu*, Zhefeng Zhang
Institute of Metal Research, Chinese Academy of Sciences

14:25 (S27-13) Bio-inorganic Hybrid Living Materials Enabled by Bacterial Biofilms (Invited)
Xinyu Wang
Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences

14:50 (S27-14) Bioinspired Additive Manufacturing of Hierarchically Functional Materials
Jingjiang Wei[1], Zhengyi Fu[2,*]
[1]*Institute for Advanced Study, Chengdu University*
[2]*State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology*

15:05 (S27-15) Preparation of High-efficiency Photocatalysts Inspired by Photosynthesis
Yanze Wang, Jingjing Xie*, Zhengyi Fu*
Wuhan University of Technology

15:20 (S27-16) Biotemplating Synthesis of Rod-shaped Tin Sulfides Assembled by Interconnected Nanosheets for Energy Storage
Chenglong Zhu, Hang Ping*, Zhengyi Fu*
Wuhan University of Technology

15:35 Break

Session Chair: Xinyu Wang, *Shenzhen Institute of Advanced Technology, CAS*

16:00 (S27-17) Controlled Deformation of Soft Nanogel Particles Generates Artificial Biominerals with Ordered Internal Structure (Invited)
Yin Ning; *Jinan University*

16:25 (S27-18) Generation of Megapascal Contractile Stress via Intrafibrillar Collagen Mineralization (Invited)
Hang Ping, Zhengyi Fu*
Wuhan University of Technology

16:50 (S27-19) Overcoming Brittleness through Seashell-inspired Architectures (Invited)
Zhen Yin; *Tongji University*

17:15 (S27-20) Fast Mineralization Mechanism of Shark Tooth Enameliod
Zeyao Fu, Zhengyi Fu*, Zhaoyong Zou*
Wuhan University of Technology

17:30 (S27-21) 3D Relationship between Hierarchical Canal Network and Gradient Mineralization of Shark Tooth Osteodentin
Zhuanfei Liu, Zhaoyong Zou*
State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology

Symposium 28: PACRIM Young Scholars Forum

(Location: Yuan 4)

Session Chair: Yanhao Dong, *Tsinghua University*

08:30 (S28-27) Tribological Properties of Self-healing NiCrAlY/Cr_3C_2-Ti_3AlC_2 Coating at High Temperatures (Keynote)
Biao Hu, Hongfei Chen*, Yanfeng Gao
School of Materials Science and Engineering, Shanghai University

09:00 (S28-28) High-entropy Rare Earth Diborodicarbide: A Novel Class of High-entropy Ceramics $(Y_{0.25}Yb_{0.25}Dy_{0.25}Er_{0.25})B_2C_2$ (Invited)

Xiaobing Zhou*, Huidong Xu, Longfei Jiang

Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences

09:25 (S28-29) Heterogeneous Effect in PS-PVD Ceramic Coatings: Thermal Ratchet, Microstructure and Mechanical Properties (Invited)

Lu Huang, Yanhong Lu, Lin Dong, Meijun Liu, Guanjun Yang*, Changjiu Li

Xi'an Jiaotong University

09:50 (S28-30) Macroscale Fabrication of Strong and Tough Carbon Aerogel Composites through Soft-template Reinforcement Design (Invited)

Rui Luo[1, 2], Sufang Tang[1, *]

[1]Shi-Changxu Innovation Center for Advanced Materials, Institute of Metal Research, Chinese Academy of Sciences
[2]School of Materials Science and Engineering, University of Science and Technology of China

10:15 Break

Session Chair: Hongfei Chen, *Shanghai University*

10:30 (S28-31) Giant Pyroelectricity in Nanomembranes (Keynote)

Jie Jiang

Department of Materials Science and Engineering, Rensselaer Polytechnic Institute

11:00 (S28-32) Machine Learning Assisted Phase Diagram Construction and Property Prediction in Multi-component Ferroelectric Materials (Invited)

Jingjin He[1], Yang Bai[2, 3, *]

[1]Faculty of Materials Science and Engineering, Kunming University of Science and Technology
[2]Beijing Advanced Innovation Center for Materials Genome Engineering, University of Science and Technology Beijing
[3]Institute for Advanced Material and Technology, University of Science and Technology Beijing

11:25 (S28-33) Construction of C/SiC-Cu_3Si-Cu Interpenetrating Composites for Long-duration Thermal Protection at 2500 ℃ by Cooperative Active-passive Cooling (Invited)

Bin Liang, Sufang Tang*

Shi-Changxu Innovation Center for Advanced Materials, Institute of Metal Research, Chinese Academy of Sciences

11:50 Lunch

Session Chair: Jie Jiang, *Rensselaer Polytechnic Institute*

13:30 (S28-34) Sub-1.4 eV Bandgap Inorganic Perovskite Solar Cells (Keynote)

Mingyu Hu[1, 2], Yuanyuan Zhou[1, *], Shihe Yang[2, *]

[1]Department of Physics, Hong Kong Baptist University
[2]School of Chemical Biology and Biotechnology, Shenzhen Graduate School, Peking University

14:00 (S28-35) Giant Electrostrain in Domain Engineered $KNbO_3$ Single Crystals (Invited)

Liyan Wu

Department of Mechanical Engineering & Mechanics, Drexel University

14:25 (S28-36) High Entropy Design and Performance Research of Thermal Insulation Ceramic Materials (Invited)

Zifan Zhao

Faculty of Materials Science and Engineering, Kunming University of Science and Technology

14:50 (S28-37) Hydrogen-induced Hardening/softening Mechanisms and Dynamic Recrystallization Behavior of Nickel and Nickel-platinum Alloys (Invited)

Shunke Liu

Department of Mechanical and Industrial Engineering (MTP), Norwegian University of Science and Technology (NTNU)

15:15 (S28-38) Simultaneous Manipulations of Thermal Expansion and Fracture Toughness in SiO_2-$AlTaO_4$ Ceramics with Low Radiative Thermal Conductivity (Invited)

Luyang Zhang, Jiankun Wang, Yuxuan Zhang, Jiaxin Liao, Jin Feng*

Kunming University of Science and Technology

15:40-16:00 Break

Session Chair: Mingyu Hu, *Hong Kong Baptist University*

16:00 (S28-39) Phonon Scattering Mechanisms and Regulations of Thermal Properties of Ferroelastic $RETaO_4$ Ceramics (Keynote)
Lin Chen
Faculty of Materials Science and Engineering, Kunming University of Science and Technology

16:30 (S28-40) Finite Element Simulation of Temperature Field and Stress Field of $YTaO_4$ / NiCoCrAlY Thermal Barrier Coating System (Invited)
Tianlong Lu, Xiaoyu Chong*
Department of Materials, Punjab Technical University

16:55 (S28-41) Co_3O_4/CeO_2/C Heterostructure Nanoflowers Derived from CoCe-ZIF-67 as Efficient Electrocatalyst for Oxygen Evolution Reaction
Liang Ma[1, 2, 3], Xiaoming Duan[1, 2, 3, *], Zengyan Wei[3], Xiaoxiao Huang[1, 2, 3], Dechang Jia[1, 2, 3, *], Yu Zhou[1, 2, 3]
[1]Key Laboratory of Advanced Structural-Functional Integration Materials & Green Manufacturing Technology, Harbin Institute of Technology
[2]Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology
[3]School of Materials Science and Engineering, Harbin Institute of Technology

17:15 (S28-42) Spherical Close Pores Enabling Excellent High-temperature Abradability and Bonding Strength for Abradable Seal Coating
Yan kang, Lin Chen, Chanjiu Li, Guanjun Yang*
School of Materials Science and Engineering, Xi'an Jiaotong University

Symposium 29: PACRIM Enterprise Forum
(Location: Ming)

Session Chair: Zhengren Huang, *Shanghai Advanced Research Institute, CAS*

10:30 (S29-01) Lithography-based 3D Printing of Ceramics - Industrial Standard or Prototyping Technology (Keynote)
Martin Schwentenwein
Lithoz GmbH

11:00 (S29-02) Manufacturing Method and High Properties of Structural Ceramics (Keynote)
Bin Feng*, Fudong Qiao, Haibin Yuan, Baofu Qiu
Foshan Ceramics Research Institute Group Co., Ltd

11:30 (S29-03) On the Progress of Combustion Synthesis of Silicon-based Ceramics (Keynote)
Jiangtao Li
Technical Institute of Physics and Chemistry, Chinese Academy of Sciences

12:00 Lunch

Session Chair: Shibin Jiang, *AdValue Photonics Inc / Hangzhou Silverlake Laser*

13:30 (S29-04) Development and Manufacturing of Ceramic Products by Lens Technology Group (Keynote)
James Hong
Lens Industrial Research Institute, Lens·Technology Group

14:00 (S29-05) Structure and Function Regulation and Industrialization of Porous Ceramics (Keynote)
Hanning Xiao
Hunan University

14:30 (S29-06) Advances in Graphite Materials for Energy Savings and Creations (Invited)
Tomoyuki Okuni*
Toyo Tanso Co., Ltd.

14:55 (S29-07) Advanced Ceramic Industry - Need for Flexibility in Rapidly Changing Technological Landscape (Invited)
Santosh Y. Limaye*
Vesta Si Sweden AB, an SKF Group Company

15:20 (S29-08) From High-end Advanced Ceramic Powder to Ceramic Parts - Several Thoughts on Entrepreneurship (Invited)

Yujin Wang*
Jilin Changyu Advanced Materials Co LTD

15:45 Break

Session Chair: James Hong, *Lens Industrial Research Institute, Lens·Technology Group*

16:00 (S29-09) Ceramic Cutting and Drilling using Lasers (Keynote)

Shibin Jiang*
AdValue Photonics Inc / Hangzhou Silverlake Laser

16:30 (S29-10) Thermal Management Materials and Components of Ceramic Based Composite (Keynote)

Zhengren Huang[1, 2, 3, *]
[1]*Shanghai Advanced Research Institute, CAS*
[2]*Ningbo Institute of Material Technology and Engineer, CAS*
[3]*Shanghai Institute of Ceramics, CAS*

17:00 (S29-11) The Current Situation and Expectation of Ceramic Material Application in Pulverized Coal Burners of Coal-fired Power Station of China (Invited)

Wanchun Feng*
Huludao Huaneng Industrial Ceramic Co., Ltd.

17:25 (S29-12) Green preparation and Properties of 3D Large-sized SiC Nanowire Aerogels (Invited)

Gang Wang[1, 2], Pengpeng Liang[1, 2], Hongxia Li[1, 2, *]
[1]*State Key Laboratory of Advanced Refractories, Sinosteel Luoyang Institute of Refractories Research Co., Ltd.*
[2]*School of Materials Science and Engineering, Zhengzhou University*

Symposium 5: Advanced Additive Manufacturing Technologies: Materials, Processes, and Systems

(Location: Zhou 1)

Session Chair: He Li, *Xinjiang University*

08:30 (S5-47) Additive Manufacturing of Carbon Fiber Reinforced ZrB_2-SiC Ceramic Composites (Invited)
Yehong Cheng*, Fan Zhang, Yixin Zhang, Ning Hu
Hebei University of Technology

08:55 (S5-48) Addtive Manufacturing of SiC Ceraimics by Digital Light Processing and Binder Jetting (Invited)
Yongzhao Hou*, Nannan Zhu, Lijuan Zhang, Guangwu Wen*
School of Materials Science and Engineering, Shandong University of Technology

09:20 (S5-49) Processing and Mechanical Properties of Lunar Regolith Simulant Ceramics Prepared by DLP-stereolithography (Invited)
Xiao Zong*, Haoming Chen, Junhao Chen, Shanghua Wu*
School of Electromechanical Engineering, Guangdong University of Technology

09:45 (S5-50) Preparation and Sintering of Porous Silicon Nitride Ceramics based on Fused Deposition Modeling
Fei Wang, Ling Li*
Shandong Industrial Ceramic Research&Design Institute

10:05 Break

Session Chair: Yehong Cheng, *Hebei University of Technology*

10:30 (S5-51) Study on Mechanical Properties and Mechanism of Laser Additive Manufacturing Ceramics (Invited)
He Li; *School of Physical and Technology, Xinjiang University, Urumqi*

10:55 (S5-52) Research on 3D Printing Process of Silica Superhydrophobic Monolithic Ceramic Materials
Lei Wang*, Jimin Chen, Yong Zeng
Beijing University of Technology

11:15 (S5-53) Role of Scanning Speed on the Microstructure and Mechanical Properties of Additively Manufactured Al_2O_3-ZrO_2
Zhiwei Xiong, Tingting Liu*
School of Mechanical Engineering, Nanjing University of Science and Technology

Symposium 12: Microwave Dielectric Ceramics and Applications

(Location: Tang 3)

Session Chair: Zhifu Liu, *Shanghai Institute of Ceramics of CAS*
Jie Li, *Guilin University of Technology*

08:30 (S12-37) Development of RF Front-end Devices for Wireless Communication (Keynote)
Jau-Ho Jean; *Department of Materials Science and Engineering, National Tsing Hua University*

09:00 (S12-38) Thin LTCC and Screen Printed MEMS for High Temperature Gas Sensors (Invited)
Alexey Vasiliev[1, 2, *], Oleg V. Kul[2], Andrey S. Nikitin[1], Anna S. Dmitrieva[2], Zhifu Liu[3]
[1]*Laboratory of Sensor Systems, University "Dubna"*
[2]*C-Components Ltd*
[3]*Shanghai Institute of Ceramics, Chinese Academy of Sciences*

09:25 (S12-39) Collaborative Optimization of LTCC Ceramics and Integrated Device (Invited)
Gang Wang; *Anhui University*

09:50 (S12-40) Design and Fabrication of Wideband Dielectric Resonator Antenna Using Temperature Stable Dielectric Ceramic Mg_2TiO_4-$LaAlO_3$-$CaTiO_3$ for 5G-millimeter Wave Applications
Muhammad Shehbaz[1], Chao Du[1], Ruitao Li[1], Xiaogang Yao[2], Haiyi Peng[2], Huixing Lin[2], Di Zhou[1, *]
[1]*Multifunctional Materials and Structures, Key Laboratory of the Ministry of Education & International Center for Dielectric Research, School of Electronic Science and Engineering, Xi'an Jiaotong University*
[2]*Information Materials and Devices Research Center, Shanghai Institute of Ceramics, Chinese Academy of Science*

Symposium 16: Transparent Ceramics and Luminescent Materials
(Location: Jing)

Session Chair: Hao Wang, *Wuhan University of Technology*

08:30 (S16-59) Understanding Some Phenomena in Vacuum-sintering of ZrO_2-doped Lu_2O_3-based Transparent Ceramics (Invited)
Xiaodong Li[1, 2, *], Yi Ren[2], Haojie Mu[2]
[1]*Key Laboratory for Anisotropy and Texture of Materials (Ministry of Education), Northeastern University*
[2]*Research Center for Advanced Ceramic Materials, School of Mater Sci & Eng, Northeastern University*

08:50 (S16-60) Red-emitting Oxide-based Luminescent Ceramics for Laser Lighting Applications (Invited)
Zhiguo Xia
State Key Laboratory of Luminescent Materials and Devices, South China University of Technology

09:10 (S16-61) $RE_2M_2O_7$ Transparent Ceramics: Properties and Applications (Invited)
Jianqi Qi[1, 2, *], Zhe Tang[1, 3], Kailei Lu[1, 2], Lexing Liang[1, 3], Ajiao Liu[1, 3], Shiwei Deng[1, 2], Haifeng Yuan[1, 3], Zijie Li[1, 3], Wenhan Han[1, 2], Tiecheng Lu[1, 2, 3, *]
[1]*School of Physics, Sichuan University*
[2]*Key Laboratory of High Energy Density Physics of Ministry of Education, Sichuan University*
[3]*Key Laboratory of Radiation Physics and Technology of Ministry of Education, Sichuan University*

09:30 (S16-62) Stable On-chip Type Quantum Dot Light-emitting Diodes (Invited)
Kai Wang
Southern University of Science and Technology

09:50 (S16-63) Development of Transparent Ceramics for Future HEP Applications
Chen Hu[1,2], Jiang Li[1, *], Liyuan Zhang[2], Ren-Yuan Zhu[2, *]
[1]*Shanghai Institute of Ceramics, Chinese Academy of Sciences*
[2]*HEP, California Institute of Technology*

Symposium 19: Ionic and Mixed Conducting Ceramics
(Location: Tang 4)

Session Chair: Wei Liu, *ShanghaiTech University*
WooChul Jung, *Korea Advanced Institute of Science and Technology*

08:30 (S19-45) A Novel Facile Strategy to Suppress Sr Segregation or Chromium Poisoning for High-Entropy Stabilized Cathode Materials (Invited)
Yihan Ling[1,*], Xu Han[1], Zhe Lv[2, *]
[1]*China University of Mining and Technology*
[2]*Harbin Institute of Technology*

08:55 (S19-46) Dramatic Impact of the TiO_2 Polymorph on the Electrical Properties of 'Stoichiometric' $Na_{0.5}Bi_{0.5}TiO_3$ Ceramics Prepared by Solid-state Reaction (Invited)
Fan Yang[1, *], Derek C Sinclair[2, *]
[1]*School of Mechanical Engineering, Shanghai Jiao Tong University*
[2]*Department of Materials Science & Engineering, The University of Sheffield*

09:20 (S19-47) Improving the Lithium-garnet Interface Stability for High-rate Solid-state Batteries
Hua Xie
Institute of Frontier and Interdisciplinary Science, Shandong University

09:35 (S19-48) Numerical Study of Current Leakage Characteristics of Proton Conducting Solid Oxide Electrolysis Cell
Xinxin Wang, Hui Zhu, Yihan Ling*
China University of Mining and Technology

09:50 (S19-49) Novel Gradient $MnCo_2O_4$/$La_{0.6}Sr_{0.4}CoO_3$ Conductive Ceramics for Interconnect Contact Layers in Solid Oxide Cells
Haozhen Li[1], Hao Shi[1], Chao Ma[2], Hengyong Tu[1], Lei Zhu[1, *], Zhen Huang[1]
[1]*Key Lab. for Power Machinery and Engineering of M.O.E., Shanghai Jiao Tong University*
[2]*College of Smart Energy, Shanghai Jiao Tong University*

10:05-10:30 Break

Session Chair: Fan Yang, *Shanghai Jiao Tong University*
Yihan Lin, *China University of Mining and Technology*

10:30 (S19-50) In Operando Probing the Surface Oxygen Exchange Kinetics on Atomically Flat Ceria with Large Biaxial Strain
Hongyang Su[1], Jing Chai[2], Hendrik Bluhm[3], Yuan-Hua Lin[4], Liang Zhang[2,*], Di Chen[1,*]
[1]*The Future Laboratory, Tsinghua University*
[2]*School of Vehicle and Mobility, Tsinghua University*
[3]*Fritz Haber Institute of the Max Planck Society*
[4]*School of Materials Science and Engineering, Tsinghua University*

10:45 (S19-51) Modulating Surface Oxygen Activity for Efficient Electrochemical Oxidative Dehydrogenation Reaction at High Temperature
Benchi Chen, Xiang Sun, Yan Chen*
School of Environment and Energy, South China University of Technology

11:00 (S19-52) Combination of In Situ Raman and Impedance Spectroscopy Revealing the Surface Proton Transport Mechanism in Nanoporous Oxides
Zihan Zhao[1], Xiao Ling[1], Ruibin Wang[2], Qianli Chen[1,*]
[1]*UM-SJTU Joint Institute, Shanghai Jiao Tong University*
[2]*Instrumental Analysis Center of SJTU, Shanghai Jiao Tong University*

Symposium 24: Advanced Refractories and Traditional Ceramics
(Location: Yuan 5)

Session Chair: Liugang Chen, *Zhengzhou University*

08:30 (S24-51) Room-temperature-hardening High-temperature Ceramizable Geopolymer: Design and Application (Invited)
Qiu Li; *Wuhan University of Technology*

08:55 (S24-52) Highly Efficient Cr(VI) Removal from Industrial Solid Wastes Using Calcium Aluminate Cement (Invited)
Mithun Nath[1,2,*], Xingyu Yang[1], Liao Ning[1], Shengqiang Song[1], Yawei Li[1,3]
[1]*Wuhan University of Science and Technology*
[2]*Wuboraite Technologies, Sonai*
[3]*Qinghai University, Xining*

09:20 (S24-53) Effect of Particle Grading on Properties of SiC-CA_6 Composite Refractories
Yaochen Si[1,2], Hongxia Li[1,2,*], Honggang Sun[2], Mengqiang Wang[2,3], Yihao Du[2], Shixian Zhao[2]
[1]*School of materials science and engineering, University of Science and Technology Beijing*
[2]*State Key Laboratory of Advanced Refractories, Sinosteel Luoyang Institute of Refractories Research Co., Ltd*
[3]*Henan Key Laboratory of High Temperature Functional Ceramics, School of Materials Science and Engineering, Zhengzhou University*

09:40 (S24-54) Study on Wear Protection Performance of HVAF WC-Cr_3C_2-Ni Coating on Crystallizer Surface
Diyao Zhang[1], Jingkun Yu[1], Lei Yuan[1,2,*]
[1]*School of Metallurgy, Northeastern University*
[2]*Institute for Frontier Technologies of Low-Carbon Steelmaking, Northeastern University*

10:00 Break

Session Chair: Lei Yuan, *Northeastern University*

10:30 (S24-55) Preparation and Slag Corrosion Resistance of Al_2O_3@Mg(Al, Cr)$_2O_4$-containing Castable (Invited)
Liugang Chen*, Hongrui Zhang
School of Materials Science and Engineering, Zhengzhou University

10:55 (S24-56) Assessment of Thermal-mechanical Stress Damage Mechanisms of Monocarbonate Bonded Alumina-spinel Castables by High-temperature Wedge Splitting Test
Ning Liao, Yawei Li*
The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology

11:15 (S24-57) Removal of Silicon from Magnesite by Flotation: Influence of Particle Size and Mechanical Mechanism
Ruinan Zhang[1], Jingkun Yu[1,*], Zhaoyang Liu[1,2,*]
[1]*School of Metallurgy, Northeastern University*
[2]*Key Laboratory for Ecological Metallurgy of Multimetallic Mineral (Ministry of Education), Northeastern University*

Symposium 25: Porous Ceramics: From Innovative Processing to Advanced Industrial Applications

(Location: Song 2.2)

Session Chair: In-Hyuck Song, *Korea Institute of Materials Science (KIMS)*
Xiaozhen Zhang, *Jingdezhen Ceramic University*

08:30 (S25-15) SiC Aerogels with Efficient Microwave Absorption Properties (Keynote)
Zhixin Cai, Hongjie Wang*, Lei Wang, Lei Su, Min Niu
State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University

09:00 (S25-16) High Temperature Fracture Behavior of Porous Si_3N_4 Ceramics (Invited)
Dongxu Yao*, Yuping Zeng*
Shanghai Institute of Ceramics, Chinese Academy of Sciences

09:25 (S25-17) A Process-structure-property Model via Physics-based/data-driven Hybrid Methods for Freeze-cast Porous Ceramics in Si_3N_4-Si_2N_2O Case System
Xinggi Liao, Zhihua Yang*, Dechang Jia, Yu Zhou
Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology

09:45 (S25-18) Dual-Functional Porous Ceramics for Enhanced Stability in Interfacial Evaporation
Lei Chen[1, 2], YuPing Zeng[1, *]
[1]*State Key Laboratory of High-Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences*
[2]*Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences*

10:05 Break

Session Chair: Hongjie Wang, *Xi'an Jiaotong University*
Dongxu Yao, *Shanghai Institute of Ceramics*
Qilin Gu, *Nanjing Tech University*

10:30 (S25-19) Superhigh Porosity High-entropy $(Y_{0.25}Ho_{0.25}Yb_{0.25}Lu_{0.25})_2Si_2O_7$ with Excellent Thermal Stability
Zhen Wu
Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences

10:50 (S25-20) Preparation and Properties of in-situ Whisker Reinforced Porous Ceramics by Low Temperature Sintering
Kaihui Hua; *School of Environment and Civil Engineering, Dongguan University of Technology*

11:10 (S25-21) Preparation and Mechanical Properties of SiC Porous Ceramics by Gelcasting
Juan Luo[1, 2, *], Hailin Liu[1], Yinghan Zheng[1], Haide Yu[1], Peiyan Yuan[1]
[1]*China Building Materials Science Research Institute Co., Ltd.*
[2]*Xianyang Ceramic Research and Design Institute Co., Ltd.*

11:30 (S25-22) Fabrication of SiO_2 Based Porous Ceramics and its Application as Atomizing Device
Jiadong Zang[1, *], Hua Tan[2], Haibo Zhang[2]
[1]*Geekvape Technology Co., Ltd.,*
[2]*School of Materials Science and Engineering, Huazhong University of Science and Technology*

Symposium 26: Bioceramics and Ceramics Coatings for Biomedical Applications

(Location: Tang 1)

Session Chair: Haobo Pan, *Shenzhen Institute of Advanced Technology, CAS*
Saifang Huang, *Jiangsu University of Science and Technology*

08:30 (S26-21) Borosilicate: Dual-glass Network to Repair Hard/Soft Tissues (Keynote)
Haobo Pan
Research Center for Human Tissues and Organs Degeneration, Shenzhen Institute of Advanced Technology, Chinese Academy of Science

09:00 (S26-22) Dental Lithium Disilicate Glass-Ceramics: Materials Innovation, Clinical Performance and Future Perspectives (Invited)
Saifang Huang; *School of Materials Science and Engineering, Jiangsu University of Science and Technology*

09:25 (S26-23) Exploring the Application of Bioactive Ceramics in Soft Tissue Regeneration (Invited)

Chen Yang[1, *], Jiang Chang[1, 2, *]

[1]*Wenzhou Institute, University of Chinese Academy of Sciences*
[2]*Shanghai Institute of Ceramics, Chinese Academy of Sciences*

09:50 (S26-24) Sprayable, Antibacterial, Anti-inflammatory, and Angiogenic Citrate-cobalt Hydrogel Dressing for MRSAinfected wound Healing

Sihua Li[1, *], Meng Luo[1], Xiaoyan Qu[1], Bo Lei[1, 2, 3, 4, *]

[1]*Frontier Institute of Science and Technology, Xi'an Jiaotong University*
[2]*Key Laboratory of Shaanxi Province for Craniofacial Precision Medicine Research, College of Stomatology, Xi'an Jiaotong University*
[3]*State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University*
[4]*Instrument Analysis Center, Xi'an Jiaotong University*

Symposium 27: Biomimetics and Bioinspired Processing of Advanced Ceramics
(Location: Tang 2)

Session Chair: Zengqian Liu, *Institute of Metal Research, Chinese Academy of Sciences*

08:30 (S27-22) Bioinspired Materials for Tissue Regeneration (Invited)

Chan Du; *South China University of Technology*

08:55 (S27-23) Biomineralized Functional Plasma Nanomaterials and Biological Applications (Invited)

Qiuhong Zhang; *Hangzhou Institute for Advanced Study, University of Chinese Academy of Sciences*

09:20 (S27-24) Crystallization Pathways of Amorphous Calcium Phosphate (Invited)

Haoyue Song, Zhaoyong Zou*; *Wuhan University of Technology*

09:45 (S27-25) Amphiphilic Curcumin Prodrug Incorporated Biomimetic Calcium Phosphate for Osteosarcoma Inhibition and Osteogenesis

Mingjie Wang[1], Dong Xu[2, 3, 4], Chang Du[2, 3, 4, *], Yuelian Liu1, *

[1]*University of Amsterdam and Vrije Universiteit Amsterdam*
[2]*School of Materials Science and Engineering, South China University of Technology*
[3]*National Engineering Research Center for Tissue Restoration and Reconstruction, South China University of Technology*
[4]*Key Laboratory of Biomedical Materials and Engineering of the Ministry of Education, and Innovation Center for Tissue Restoration and Reconstruction, South China University of Technology*

10:00 (S27-26) Mechanically Reinforced Artificial Enamel by Mg^{2+}-induced Amorphous Intergranular Phases

Yidi Li; *Jianghan University*

10:15 (S27-27) Intrafibrillar Calcium Carbonate Mineralization of Electrospinning PVA/Collagen Films with Improved Mechanical and Bioactive Properties

Yin Liu, Hang Ping*, Zhengyi Fu*; *Wuhan University of Technology*

Symposium 28: PACRIM Young Scholars Forum
(Location: Yuan 4)

Session Chair: Zezhou Li, *Beijing Institute of Technology*

08:30 (S28-43) Capturing the Phase Transition Mediated Thermal Stress of Ferroelastic Rare Earth Tantalates as Potential Thermal Barrier Coating Materials: A Cross-scale Integrated Computational Approach (Keynote)

Xiaoyu Chong*, Mengdi Gan, Tianlong Lu, Wei Yu, Jing Feng
Kunming University of Science and Technology

09:00 (S28-44) Nucleation Mechanism and Coating Preparation of Lanthanide High Entropy Carbide Nanocrystals (Invited)

Fangwei Guo*, Wen
Shanghai Key Laboratory of Advanced High-temperature Materials and Precision Forming, School of Materials Science and Engineering, Shanghai Jiao Tong University

09:25 (S28-45) Uncover the Multiple Toughening Mechanisms and Thermal Conductivity Evolution of $Y_{1/6}Yb_{5/6}TaO_4$/8YSZ Composite Ceramics (Invited)

Jiankun Wang, Lin Chen, Tao Su, Mengdi Gan, Baihui Li, Jing Feng*
Kunming University of Science and Technology School of Materials Science and Engineering

09:50 (S28-46) Enhanced Shear Strength of Cu/AlN/Cu Composite Materials with the Double-interface Design
Binhua Xiang, Fei Chen*
School of Materials and Microelectronics, Wuhan University of Technology

10:10 Break

Session Chair: Fangwei Guo, *Shanghai Jiao Tong University*

10:30 (S28-47) Dynamic Response of Advanced Metallic Materials (Keynote)
Zezhou Li
Beijing Institute of Technology

11:00 (S28-48) High-specific Surface-area α-Al_2O_3 Nanoparticles Synthesised by High-Energy Ball-Milling Method and Applications in Nanocrystalline Ceramics (Invited)
Lu Li[1], Hongbing Yang[2], Ji Ma[2], Jiangong Li[2, *]
[1]*School of Mechanical and Electrical Engineering, Gansu Agricultural University*
[2]*Institute of Materials Science and Engineering, School of Materials and Energy, Lanzhou University*

11:25 (S28-49) Construction of a Ceramic Coating with Low Residual Stress on C/CA Composites for Thermal Protection at Ultra-high Temperatures
Meng Yan[1, 2], Chenglong Hu[1, *], Sufang Tang[1, *]
[1]*Shi-Changxu Innovation Center for Advanced Materials, Institute of Metal Research, Chinese Academy of Sciences*
[2]*School of Materials Science and Engineering, University of Science and Technology of China*

Symposium 29: PACRIM Enterprise Forum
(Location: Ming)

Session Chair: Yanfeng Gao, *Shanghai University*

08:30 (S29-13) Co-Creation Based Collaboration for Succeeding Together in High-Performance Ceramics (Keynote)
Hasan MANDAL
TÜBİTAK and WAITRO

09:00 (S29-14) Technology Ways and Industrial Application of Insulating Oxide Coating on Titanium Dioxide Ultrafine Powder (Invited)
Qinghong Zhang[1, 2, *]
[1]*State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, College of Materials Science and Engineering, Donghua University*
[2]*Engineering Research Center of Advanced Glasses Manufacturing Technology, MOE, Donghua University*

09:25 (S29-15) C/C Pressure Bearing Outer Cylinder with High Tensile Strength (Invited)
Nana. Zhao[1], Zhenying. Hu[1], Chunyu. Wang[1], Daming. Zhao[1, 2, *]
[1]*Xi'an Chaoma Technology Co., Ltd*
[2]*Xi'an Composite Materials Research Institut*

09:50 (S29-16) A New Ultra-UHV Gas Internal Insulation Material - Silicon Nitride Composite Ceramics
Yiming Zhang, Dong Hou, Zongchao Xu, Jun Ji, Jingkai Nie*, Yu Han
Institute of New Electrical Material, State Grid Smart Grid Research Institute Co., Ltd

09:50 Break

Session Chair: Qinghong Zhang, *Donghua University*

10:30 (S29-17) Small Particles, Big Business (Keynote)
Yanfeng Gao
Shanghai University

11:00 (S29-18) Disc Ceramic Membranes: Opportunities and Challenges (Invited)
Qibing Chang*, Ruqiang Yang, Yulong Yang
Materials of Science and Engineering, Jingdezhen Ceramic University

11:25 (S29-19) Fabrication and Properties of SiC Nanofibers and Silicon-based Ceramic Fibers (Invited)
Jianjun Chen
Zhejiang Sci-Tech University

Poster Presentation I
(13:30-18:00, Location: Poster Area)

(P-S1-01) Multi-scale Modeling of Distortion of Heterogeneous Porous Ceramic Membranes during Sintering

Xuhao Liu, Zilin Yan*, Zheng Zhong*
School of Science, Harbin Institute of Technology, Shenzhen

(P-S1-02) Machine-learning-accelerated Development of Efficient Mixed Protonic-Electronic Conducting Oxides as the Air Electrodes for Protonic Ceramic Cells

Baoyin Yuan[1,*], Ning Wang[2], Siyu Ye[2]
[1]*School of Mathematics, South China University of Technology*
[2]*Huangpu Hydrogen Innovation Center, Guangzhou University*

(P-S1-03) Improving Ablation Resistant Properties of Silicone Rubber Composites via Polyborosilazane and Ceramization

Jingwen Wang, Hongfei Chen*, Yanfeng Gao*
School of Materials Science and Engineering, Shanghai University

(P-S2-01) Glass Forming Region and Phase Formation in the Te_2MoO_7-$Bi_2Mo_3O_{12}$-$ZnWO_4$

Oleg Zamyatin*, Dmitry Leksakov, Maksim Krasnov, Alexei Sibirkin, Zakhar Nosov
Faculty of Chemistry, National Research Lobachevsky State University of Nizhny Novgorod

(P-S2-02) Transition Elements Impurity Absorption in the TeO_2-ZnO-Bi_2O_3 Glasses

Maxim Krasnov*, Oleg Zamyatin*; *Lobachevsky University, Nizhny Novgorod*

(P-S2-03) Submerged Photosynthesis of TiO_2-CuO Hetero-nanoparticles for the Solar Photo-electrolysis of Multiple Environmental Hazardous Substances

Zhehan Yu[1], Shilei Zhu[2], Lihua Zhang[1,*], Seiichi Watanabe[1,*]
[1]*Center for Advanced Research of Energy and Materials, Faculty of Engineering, Hokkaido University*
[2]*College of Physics, Taiyuan University of Technology*

(P-S2-04) Study on Surface State of Al_2O_3 Powder Prepared by High Energy Ball Milling

Xiaopan Wu[1], Chunming Zheng[2], Dan Wang[1], Wei Pan[1,*], Chunlei Wan[1]
[1]*State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University*
[2]*School of Chemistry and Chemical Engineering, State Key Laboratory of Hollow Fiber Membrane Materials and Membrane Processes, Tiangong University*

(P-S2-05) Strain Induced Recrystallization Behavior in ZrO_2-based Ceramics and Role of the Stabilizers in Microstructure Evolution

Guanlin Lyu, Wei Pan*
State Key Lab of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University

(P-S3-01) Synthesis and Mechanism of Lanthanum Ferrite by using NaCl-KCl Composite Molten Salt

Shuangxiao Guo[1], Gangjie You[1,*], Dong Feng[1], Fangxiao Zhang[1], Dongxu Luo[2]
[1] *School of Materials and Metallurgy, University of Science and Technology Liaoning*
[2]*Liaoning Institute of Science and Technology*

(P-S3-02) Novel Synthesis of m-$BiVO_4$ Nano Powder at Room Temperature

Seiji Fukuda, Mikito Kitayama*
Department of Life, Environment and Applied Chemistry, Faculty of Engineering, Fukuoka Institute of Technology

(P-S3-03) Compressive Strength, Pore Structure and Hydration of Alkali-activated Slag-waste Ceramic Powder-silica Fume Ternary System

Yulin Deng[1], Zuhua Zhang[2,*], Caijun Shi[1]
[1]*Key Laboratory for Green & Advanced Civil Engineering Materials and Application Technology of Hunan Province, College of Civil Engineering, Hunan University*
[2]*Key Laboratory of Advanced Civil Engineering Materials of Ministry of Education, School of Materials Science and Engineering, Tongji University*

(P-S4-01) Surface Engineering of nanoflower-like MoS_2 Decorated Porous Si_3N_4 Ceramics for Electromagnetic Wave Absorption

Jialin Bai[1,2], Shijie Huang[1,2], Xiumin Yao[1,*], Xuejian Liu[1,*], Zhengren Huang[1,*]
[1]*State Key Laboratory of High Performance Ceramics and Superfine Microstructures, Shanghai Institute of Ceramics, Chinese Academy of Sciences*
[2]*Center of Materials Science and Optoelectronic Engineering, University of Chinese Academy of Sciences*

(P-S4-02) Coloring and Near-infrared Reflection Performance of Low-temperature Synthesized Novel (Cr, V)-$ZrSiO_4$ Jewel Green Pigments

Junling Yu, Feng Jiang*
Jingdezhen Ceramic University

(P-S4-03) Hot Oscillating Pressure of Tungsten-rhenium/graphite Joints with a TiAlC Ceramic Interlayer

Jialu Zhan, Hailiang Wang*, Hailong Wang*
School of Materials Science and Engineering, Zhengzhou University

(P-S4-04) Cu Ion Implantation Induced Cancer-cell Inhibition on MoS_2

Zuoda Liu, Dejun Li*
College of Physics and Materials Science, Tianjin Normal University

(P-S4-05) Ultralight α-Si_3N_{4w}/SiC Foam Ceramics with Superior Microwave Absorption Performance in X- and Ku-bands

Huihui Zhang, Xuejian Liu, Zhengren Huang*
Shanghai Institute of Ceramics, Chinese Academy of Sciences

(P-S4-06) Ta^++Ag^+ Ion Implantation Induced Novel Cell Adhesion and Antibacterial Activity of ZrO_2 Film on Medical Ti-6Al-4V

Yuan Gao, Dejun Li*
College of Physics and Materials Science, Tianjin Normal University

(P-S4-07) Preparation of Diamond/SiC Composites by the Liquid Silicon Infiltration Method and their Microstructure and Properties

Mingkang Zhang, Yihua Huang*
Shanghai Institute of Ceramics, Chinese Academy of Sciences

(P-S5-01) Effects of Annealing Treatment on Electrical Properties of ZnO Thin Films Fabricated by Aerosol Deposition

Toshiki Sakaguchi[1], Zheng Yumeng[2, *], Kenji Sakai[1, *], Shinzo Yoshikado[1, *], Yuki Sato[1, *]
[1]*Doshisha University*
[2]*Tokyo University of Science*

(P-S5-02) 3D Printing of Si_3N_4 Ceramics with High Thermal Conductivity and High Strength

Huilu Guo[1, 2], Pengcheng Ye[3], Zehui Du[1, 2, *], Chee Lip Gan[1, 2, *]
[1]*Temasek Laboratories, Nanyang Technological University*
[2]*School of Materials Science and Engineering, Nanyang Technological University*
[3]*Creatz3D*

(P-S5-03) A High Efficiency Process for Large Size Precise Si SiC Components Production

Taisheng Yang*, Yangli Huo, Hua Wang, Yufeng Chen, Hailin Liu, Shichao Zhang, Chunpeng Wang, Haoran Wang
China Building Materials Academy Limited Corporation

(P-S5-04) Densification Control of Silicon Carbide for Maskless Vat Photopolymerization Printing

Zhi wei Wang[1], Zhe Zhao[1, 2, *]
[1]*School of Material Science and Engineering, Shanghai Institute of Technology, Shanghai*
[2]*Jiaxing CeramPlus Technology Co., Ltd.*

(P-S5-05) Research on Photocuring Additive Manufacturing Technology of Low Silicon Residual Reaction Sintered Silicon Carbide

Xiao min He, zhe zhao*
School of Material Science and Engineering, Shanghai Institute of TechnologyShanghai

(P-S6-01) Effect of Adding a Massive Amount of SiO_2 on the Electrical Characteristics of Bi-Mn-Co Based ZnO Varistors

Yumeng Zheng[1, 2, *], Yuuki Sato[1], Shinzo Yoshikado[1]
[1]*Department of Electronics, Doshisha University*
[2]*Department of Applied Physics, Tokyo university of science*

(P-S6-02) Influence of beta-Si_3N_4 Whiskers on Crystallization and Mechanical Properties of Fused Silica Ceramics

Ming Huang[1], Zhihang Peng[2, *], Yang Xiang[2], Weijun Zhang[1], Xingyu Chen[1]
[1]*Department of Materials Science and Engineering, College of Aerospace Science and Engineering, National University of Defense Technology*
[2]*Science and Technology on Advanced Ceramic Fibers and Composites Laboratory, College of Aerospace Science and Engineering, National University of Defense Technology*

(P-S6-03) Introducing TiO_2 Aerogels into Mullite Fibers/Whiskers to Construct Hierarchical Porous Composites for High Temperature Thermal Insulation Performance

Qianqian zhang[1, 2], Pengyi zhang[1, 2], Pinxiang Li[1, 2], Ya Li[1, 2], Feng Hou[1, 2, *]
[1]*School of Materials Science and Engineering, Tianjin University*
[2]*Key Laboratory of Advanced Ceramics and Machining Technology of Ministry of Education, Tianjin University*

(P-S6-04) Effect of TiC Content on the Microstructure and Properties of TiC-ZrO_2 Composite Conductive Ceramics with Network Structure

Zhaobo Qin, Hongqiang Ru*, Xinyan Yue*
School of Materials Science and Engineering, Northeastern University

(P-S6-05) Diamond Reinforced Reaction Bonded Boron Carbide Composites: Fabrication, Microstructure Evolution, Mechanical Properties and Tribological Properties

Qian Xia[1], Shihao Sun[1], Jun Ye[1], Cuiping Zhang[1, 2, *], Hongqiang Ru[1, 2, *]
[1]*Institute of Advanced Ceramics, School of Materials Science and Engineering, Northeastern University*
[2]*Key Laboratory for Anisotropy and Texture of Materials (MOE), Northeastern University*

(P-S6-06) Development of High Strength SiC Ceramics Reinforced by Beta Si_3N_4 Rod-like Crystals

Naru Shinohara, Mikito Kitayama*
Department of Life, Environment and Applied Chemistry, Faculty of Engineering, Fukuoka Institute of Technology

(P-S6-07) Dynamic Mechanical Properties of B_4C-based Ceramic Composites

Bo Wang[1], Delong Cai[2, *], Dechang Jia[1, *]
[1]*School of Materials Science and Engineering, Harbin Institute of Technology*
[2]*College of Materials Science and Chemical Engineering, Harbin Engineering University*

(P-S6-08) Crystalline and Conductive Properties of ITO/Al_2O_3 Composite Films by Aerosol Deposition

Kotarou Ogawa, Kazuki Shinozuka*, Kenji Sakai*, Shinzo Yoshikado*, Yuuki Sato*
Doshisha University

(P-S7-01) The Distinct Long-term Oxidation Resistant Performance of SiC_f/SiC Composites Manufactured via the Respective Single PIP and Hybrid CVI and PIP Techniques at 1200 °C in the Air

Jin Zhang, Yue Zhang, Yanfei Wang*, Fan Wan, Junsheng Li, Duan Li, Rongjun Liu
Science and Technology on Advanced Ceramic Fibers and Composites Laboratory, College of Aerospace Science and Engineering, National University of Defense Technology

(P-S7-02) Microstructure and Performance Studies of C/C-SiC Composites by Reaction Melting Method

Yanli Huo, Taisheng Yang*, Yufeng Chen, Hailin Liu, Xiaoting Huang, Haoran Wang
China Building Materials Acdamy, Guanzhuang Dongli

(P-S7-03) Uniform and Spherical ZrC Nanoparticles Derived from Metal Organic Frameworks by Thermal Decomposition

Bichao Geng, Jian Gu*, Jian Yang; *Department of Materials Science and Engineering, Nanjing Tech University*

(P-S7-04) Heterogeneous Oxidation Behavior and Kinetic Mechanisms of SiBCN Ceramic with Structure of MA-SiBCN Coated by PDCs-SiBCN

Zibo Niu[1, 2], Daxin Li[1, 2, *], Dechang Jia[1, 2, 3]
[1]*Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology*
[2]*Key Laboratory of Advanced Structural-Function Integrated Materials and Green Manufacturing Technology, Ministry of Industry and Information Technology*
[3]*State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology*

(P-S8-01) Preparation of Carbon Nanotubes/SiBCN Composite Materials by UV Cured 3D Printing

Pengyi Zhang, Dongming Xiao*, Feng Hou*
Key Laboratory of Advanced Ceramics and Machining Technology of Ministry of Education, School of Materials Science and Engineering, Tianjin University

(P-S8-02) The Thermal Conversion Process of Tetraethyl Orthosilicate based Silica Sol and Perhydropolysilazaneinto Inorganic Silica Films

Yulin Zhang[1, 2], Zongbo Zhang[1, *]
[1]*Key Laboratory of Science and Technology on High-tech Polymer Materials, Institute of Chemistry, Chinese Academy of Sciences*
[2]*University of Chinese Academy of Sciences*

(P-S8-03) SiCN Ceramics with Controllable Carbon Nanomaterials for Electromagnetic Absorption Performance

Yuyu Zhang[1], Jia Sun[1, *], Yuqi Wang[1], Ralf Riedel[2], Qiangang Fu[1, *]
[1]*State Key Laboratory of Solidification Processing, Shaanxi Key Laboratory of Fiber Reinforced Light Composite Materials, Carbon/Carbon Composite Research Center, Northwestern Polytechnical University*
[2]*Institut für Materialwissenschaft, Technische Universität Darmstadt, Otto-Berndt-Straße 3*

(P-S8-04) Study on the Mechanical Properties and Interface of Oxidation Scale of KD-S Fiber after Anneal in Water-Oxygen Environment

Yongshou Wang, Xiaozhou Wang, Shuang Wu, Yingde Wang*
Science and Technology on Advanced Ceramic Fibres and Composites Laboratory, College of Aerospace Science and Engineering, National University of Defense Technology

(P-S8-05) Ablation Behavior of Mullite Modified C/C-SiC-HfC Composites under Oxyacetylene Torch

Xuemin Yin[1, *], Qinchuan He[2]
[1]*Northwestern Polytechnical University*
[2]*Chengdu University of Technology*

(P-S8-06) Antibacterial Bioactive Nano Composite Scaffold for Diabetic Wound Repair

Yannan Li[1, 3], Tianzhen Xu[2], Cong Mao[2, *], Bo Lei[3, *]
[1]*School of Physics Science and Technology, Inner Mongolia University*
[2]*First Affiliated Hospital of Wenzhou Medical University*
[3]*Institute of Frontier Science and Technology, Xi'an Jiaotong University*

(P-S8-07) Cobalt-modified Polycobaltsilazanes derived In Situ Formation SiC/SiCN Nanocomposites

Qian Zhang[1, *], Zhihua Yang[2], Dechang Jia[3]
[1]*College of Optoelectronic Engineering, Country Chongqing University of Posts and Telecommuni-cations*
[2]*Chongqing Research Institute of HIT*
[3]*Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology*

(P-S9-01) Study of SiC Modified Ytterbium Silicate Self-healing Environmental Barrier Coatings

Jinping Du, Yanfei Wang*, Fan Wan, Junsheng Li, Duan Li, Rongjun Liu*
Science and Technology on Advanced Ceramic Fibers and Composites Laboratory, National University of Defense Technology

(P-S9-02) Tribological Properties of NiCrAlY-Cr_3C_2-Ti_2SnC Coatings by APS

Mengmeng Ge, Hongfei Chen*, Yanfeng Gao*
School of Materials Science and Engineering, Shanghai University

(P-S9-03) Ablation Resistance of ZrC Coating Modified by Polymer-derived SiHfOC Ceramic Microspheres at Ultrahigh Temperature

Xuemeng Zhang, Yuyu Zhang, Lingxiang Guo, Yuqi Wang, Jia Sun*, Hejun Li*
Shaanxi Key Laboratory of Fiber Reinforced Light Composite Materials, State Key Laboratory of Solidification Processing, Northwestern Polytechnical University

(P-S9-04) Microstructure and Phase Evolution of Yb_2SiO_5/$MoSi_2$-mullite Environmental Barrier Coating at 1500 °C

Kaifei Fan, Lingxiang Guo, Hongkang Ou, Jia Sun*, Hejun Li*
State Key Laboratory of Solidification Processing, Shaanxi Key Laboratory of Fiber Reinforced Light Composite Materials, Northwestern Polytechnical University

(P-S9-05) One-step, Scalable and Rapid Approach to Fabricate Adjustable Wetting and Inorganic Nano-coatings

Dan Wang, Xiqiang Zhong, Wei Pan*
Tsinghua University

(P-S9-06) Sol-gel Derived Porous SiO_2 Thin Film Bearing Low Refractive Index and Low Scattering for Antireflective Coating

Ryoko Suzuki*
Nikon Corporation

(P-S9-07) Iridium Film Coating by Chemical Vapor Deposition on Metal Substrate

Hiroki Sato[1,2,3, *], Takashi Goto[1], Atsushi Okuno[2,3], Akira Yoshikawa[1]
[1]*New Industry Creation Hatchery Center, Tohoku University*
[2]*SANKO Co., Ltd.*
[3]*TUP Inc.*

(P-S9-08) Study of the Effect of SiC Reinforcement Phase on the Mechanical Properties and Emissivity of ZrO_2 Coatings

Jingrui Cao[1], Ying Mu[2], Peisen Liu[1], Liwen Yan[1], Anran Guo[1], Jiachen Liu[1, *]
[1]*School of Materials Science and Engineering, Key Lab of Advanced Ceramics and Machining Technology of Ministry of Education, Tianjin University*
[2]*AECC Beijing Institute of Aeronautical Materials*

(P-S11-01) The Oxidation Behaviors of High Entropy Carbide Ceramic

Chenran Li[1], Ke Ren[1], Haoxuan Wang[2], Lei Luo[2], Zuozheng Chen[1], Yiguang Wang[1,*]
[1]*Institute of Advanced Structure Technology, Beijing Institute of Technology*
[2]*Beijing Institute of Long March Aerospace Vehicles*

(P-S11-02) Phase Transformation and Radiation Resistance of High Entropy Pyrochlores

Yuxin Li, Yiming Lei, Shuang Zhao, Hao Xiao, Yugang Wang, Chenxu Wang*
[1]*State Key Laboratory of Nuclear Physics and Technology, Center for Applied Physics and Technology, Peking University*
[2]*Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences*

(P-S11-03) Study on the Preparation and Properties of h-BN Based Composite Ceramics on Hall Thruster Wall

Kangjia Xie, Bo Song*
School of Materials Science and Engineering, Zhengzhou University

(P-S11-04) The Influence of Sc^{3+} Doping on the Crystal Structure and Electrical Conductivity of High-entropy Perovskite Oxides $Sr(Ti,Zr,Y,Sn,Hf)O_{3-\sigma}$

Jiadong Hou, Yufeng Liu, Chufei Cheng, Teng Su, Chao Ma, Yang Miao*, Xiaomin Wang
College of Materials Science and Engineering, Taiyuan University of Technology

(P-S11-05) High-entropy Pyrochlore-type Zirconate Ceramics $(La_{0.2}Nd_{0.2}Sm_{0.2}Eu_{0.2}A_{0.2})_2Zr_2O_7$ (A=Gd, Dy, Ho, Er) for High-temperature NTC Thermistor

Xiaoyi Chen[1], Xiaohui Li[2], Aimin Chang[2], Bo Gao[2,*]
[1]*University of Chinese Academy of Sciences*
[2]*Xinjiang Technical Institute of Physics & Chemistry of CAS*

(P-S11-06) Corrosion Resistance of High-entropy Spinel Structure M_3O_4(M= Zn, Co, Mn, Cu, Mg, Ni, Cr, Fe, Ti, Al) Sidewalls in the Aluminum Electrolyte

Zijun Ma, Hailong Wang*, JinPeng Zhu*
School of Materials Science and Engineering, Zhengzhou University

(P-S11-07) Investigation of (Ca, Sr, Ba)ZrO_3 Crucible Prepared by Slip Casting for Titanium Alloys Melting

Shijia Ding, Mingliang Li*, Hailong Wang*
School of Materials Science and Engineering, Zhengzhou University

(P-S11-08) The Microstructural Evolution of High Entropy Pyrochlore during Flash Sintering

Guoliang Zhao, Jinmao He, Shikui Cai, Chen Xu*
Institute of Materials, China Academy of Engineering Physics

(P-S11-09) Point Defect Properties in High Entropy MAX Phases from First-principles Calculations

Hao Xiao, Chenxu Wang*
State Key Laboratory of Nuclear Physics and Technology, Center for Aplied Physics and Technology, Peking University

Poster Presentation II
(08:30-12:00, Location: Poster Area)

(P-S11-10) High-entropy $(Ti_{0.2}V_{0.2}Nb_{0.2}Mo_{0.2}W_{0.2})Si_2$ with Excellent High-temperature Wear Resistance

Jicheng Li[1, 2, 3], Shuna Chen[4], Hengzhong Fan[1, *], Qiangqiang Zhang[2], Yunfeng Su[1], Junjie Song[1], Litian Hu[1], Yanchun Zhou[5, *], Yongsheng Zhang[1, *]

[1]State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences
[2]College of Civil Engineering and Mechanics, Key Laboratory of Mechanics on Disaster and Environment in Western China, The Ministry of Education of China, Lanzhou University
[3]Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences
[4]Department of Mechanical and Energy Engineering, Southern University of Science and Technology
[5]School of Materials Science and Engineering, Zhengzhou University

(P-S11-11) Microstructure, Mechanical Properties and Oxidation Resistance of High-entropy Boride Composites Prepared by Reactive Spark Plasma Sintering

Chenchen Ji, Hailong Wang*, Mingliang Li, Jinpeng Zhu

School of Materials Science and Engineering, Zhengzhou University

(P-S11-12) Excellent Energy Storage Performance in $Bi_{0.5}Na_{0.5}TiO_3$-Based Lead-free High-entropy Relaxor Ferroelectrics

Kaihua Yang, Nengneng Luo*

State Key Laboratory of Featured Metal Materials and Life-cycle Safety for Composite Structures, School of Resources, Environment and Materials, Guangxi University

(P-S11-13) Preparation and Water Vapor Corrosion Resistance of High-entropy Rare-earth Disilicate $(Yb_{0.25}Y_{0.25}Ho_{0.25}Er_{0.25})_2Si_2O_7$ ceramics

Bingqing Zhao, Wei Xie*, Hailong Wang*

School of Materials Science and Engineering, Zhengzhou University

(P-S11-14) The Phase Structures, Dielectric Properties and Ferroelectric Properties of Rare-earth and Transition Metal Perovskite Type High-entropy Ceramics

Bo Ni[1], Shuai Zou[1], Yaohang Gu[2], Xiaoyan Zhang[2], Xiwei Qi[3, *]

[1]School of Materials Science and Engineering, Northeastern University
[2]School of Resources and Materials, Northeastern University at Qinhuangdao
[3]College of Metallurgy and Energy, North China University of Science and Technology

(P-S11-15) Preparation and properties of high entropy perovskite ceramics

Jingying Zhang, Boheng Zeng, Hongqiang Nian*

School of Materials Science and Engineering, Shanghai Institute of Technology

(P-S12-01) Optimization of Microwave Dielectric Properties in BMT Dielectric Ceramic Materials with Sintering Conditions

Jung-Hyun Lee[1], Tauseef Ahmed[1], Mingyu Kim[1], Hyo-Tae Kim[1], Ga-Yeon Lee[2], Dong-Hun Yeo[3], Soonil Lee[1, *]

[1]School of Materials Science and Engineering / Department of Materials Convergence and System Engineering, Changwon National University
[2]Nano Convergence Materials Center, Korea Institute of Ceramic Engineering and Technology
[3]Ceramic Total Solution Center, Icheon Branch of Korea Institute of Ceramic Engineering and Technology

(P-S12-02) Effects of Ca^{2+} Substitution on the Crystal Structure and Microwave/terahertz Dielectric Properties of Li_2SrSiO_4 Ceramics

Yutian Lu, Zhenxing Yue*, Weijia Guo, Zhiyu Ma

State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University

(P-S12-03) Machine Learning Assisted Q×f Value Prediction and Structure Design of Microwave Dielectric Ceramics

Liangyu Mo[1, 2], Jincheng Qin[1], Mingsheng Ma[1], Zhifu Liu[1, 2, *]

[1]Shanghai Institute of Ceramics
[2]University of Chinese Academy of Sciences

(P-S12-04) Crystallization and Thermal Expansion Properties of BaO-CaO-SiO_2 Glass-Ceramics for LTCC Applications

Haonan Hu[1, 2], Feng Liu[1], Mingsheng Ma[1], Zhifu Liu[1, 2, *]

[1]Shanghai Institute of Ceramics
[2]University of Chinese Academy of Sciences

(P-S12-05) Effects of LiF Additive on Crystal Structures, Lattice Vibrational Characteristics and Dielectric Properties of $CaWO_4$ Microwave Dielectric Ceramics for LTCC Applications

Zhongfen An[1], Jiqing Lv[2], Xiangyu Wang[1], Yue Xu[1], Lingcui zhang[1], Feng Shi[1,*], Hai Guo[3], Di Zhou[4], Bing Liu[5], Kaixin Song[5]
[1]*Qilu University of Technology (Shandong Academy of Sciences)*
[2]*Shandong University of Science and Technology*
[3]*Shenzhen Sunlord Electronics Co., Ltd.*
[4]*Xi'an Jiaotong University*
[5]*Hangzhou Dianzi University*

(P-S12-06) Crystal Structures, Lattice Vibrational Characteristics, and Dielectric Response of $Mg_3(VO_4)_2$ Microwave Dielectric Ceramics Sintered at Different Temperatures

Zhongfen An[1], Wenhao Yu[2], Juan Zhang[1], Lingcui Zhang[1], Jinbo Zhao[1], Jian Wei[3], Xiaoning Wang[3], Ripeng Xu[3], Pei Xi[3], Jia Zhao[3], Feng Shi[1,*]
[1]*Qilu University of Technology (Shandong Academy of Sciences)*
[2]*Shandong University of Science and Technology*
[3]*Shandong Advanced Materials Research Institute*

(P-S12-07) Amorphism SiBON Interface Anchored rGO Nanoplatelets Composites with Tunable Electromagnetic Properties for Microwave Absorption

Heqi Li[1,2], Tianyu Zhang[1], Jiaqi Zhang[1], Hongyu Lu[1], Jiapei Wang[1], Ran Wang[1], Hao Lv[1], Mingrui Yang[1], Dongdong Lv[1,*], Long Xia[1,*]
[1]*School of Materials Science and Engineering, Harbin Institute of Technology, Weihai*
[2]*School of Materials Science and Engineering, Harbin Institute of Technology*

(P-S12-08) Nitrogen-doped Modified Graphene Aerogels to Strengthen the Interfacial Bonding of LAS Ceramic Particles for Microwave Absorption

Jiaqi Zhang, Yu An, Tianyu Zhang, Ran Wang, Wenxuan Zhang, Hao Lv, Mingrui Yang, Long Xia*
School of Materials Science and Engineering, Harbin Institute of Technology, Weihai

(P-S12-09) Lattice Vibrational Characteristics and Structure-Property Relationships of $Ca(Mg_{1/2}W_{1/2})O_3$ Microwave Dielectric Ceramics with Different Sintering Temperatures

Xiangyu Wang[1], Tong Liu[1], Zhikai Cao[2], Zeying Li[1], Yue Xu[1], Feng Shi[1,*], Lingcui Zhang[1], Zeming Qi[3]
[1]*School of Materials Science and Engineering, Qilu University of Technology (Shandong Academy of Sciences)*
[2]*School of Material Science and Engineering, Shandong University of Science and Technology*
[3]*National Synchrotron Radiation Laboratory, University of Science and Technology of China*

(P-S12-10) Dielectric Responses and Structure-property Relationships of $Ca_{1-x}Ba_xWO_4$ Composite Microwave Dielectric Ceramics

Xiangyu Wang[1], Jiqing Lv[2], Yue Xu[1], Lingcui Zhang[1], Yan Shen[1], Huanfu Zhou[3], Di Zhou[4], Kaixin Song[5], Hai Guo[6], Feng Shi[1,*]
[1]*School of Materials Science and Engineering, Qilu University of Technology (Shandong Academy of Sciences)*
[2]*School of Material Science and Engineering, Shandong University of Science and Technology*
[3]*Guangxi Ministry-Province Jointly-Constructed Cultivation Base for State Key Laboratory of Processing for Non-ferrous Metal and Featured Materials, School of Materials Science and Engineering, Guilin University of Technology*
[4]*Electronic Materials Research Laboratory, Key Laboratory of the Ministry of Education and International Center for Dielectric Research, Xi'an Jiaotong University*
[5]*College of Electronic Information, Hangzhou Dianzi University*
[6]*Shenzhen Sunlord Electronics Co., Ltd.*

(P-S12-11) Lattice Vibrational Characteristics and Structure-Property Relationships of $SrWO_4$- x wt.% LiF (x = 0.5-3.0) Microwave Dielectric Ceramics

Fuzhou Song, Feng Shi*
Key Laboratory of Processing and Testing Technology of Glass & Functional Ceramics of Shandong Province, School of Materials Science and Engineering, Qilu University of Technology (Shandong Academy of Sciences)

(P-S13-01) Influence of Sintering Atmosphere on the Dielectric Characteristics of $K_{0.5}Na_{0.5}NbO_3$-Based Ceramic Sheets for Multilayer Ceramic Capacitor (MLCC) Applications

Gyeongmi Hwang[1], Songah Ha[1], Hongwoo Park[1], Ju-Hyeon Lee[2], Wook Jo[2], Soonil Lee[1,*]
[1]*School of Materials Science and Engineering / Department of Materials Convergence and System Engineering, Changwon National University*
[2]*Department of Materials Science and Engineering, Ulsan National Institute of Science and Technology*

(P-S13-02) Investigation of the Electrical Properties and Defect Chemistry of BNT-based Dielectric Ceramics Using HiTEC

Jeongwon Lee[1], soo-yong Choi[1], Ju-hyeon Lee[2], Wook Jo[2], Myungho Kim[1], Soonil Lee[1,*]
[1]*School of Materials Science and Engineering / Department of Materials Convergence and System Engineering, Changwon National University*
[2]*Department of Materials Science and Engineering, Ulsan National Institute of Science and Technology*

(P-S13-03) Dielectric Properties and Redox Behavior of BNT-based and BT-BNT-based MLCCs in Different Atmospheres

Songah Ha[1], Gyeongmi Hwang[1], Hongwoo Park[1], Juhyeon Lee[2], Wook Jo[2], Seongcheol Lee[3], Soonil Lee[1, *]
[1]*School of Materials Science and Engineering / Department of Materials Convergence and System Engineering, Changwon National University*
[2]*Department of Materials Science and Engineering, Ulsan National Institute of Science and Technology*
[3]*Winner Technology, CO., LTD*

(P-S13-04) Relaxation Behavior of BF-BT Based Ceramics and Improvement of its Energy Storage Performance under Low Electric Field

LeTian Xie, YuCheng Tang, XiaoXiao Zhou, YiJin Hao, Yang Yin, BoPing Zhang*
School of Materials Science and Engineering, University of Science and Technology Beijing

(P-S13-05) Ferroelectric Properties and Photovoltaic Effect of $BiFeO_3$-$BaTiO_3$ Lead-free Ceramics

Wenxin Qiu, Bingzhao Zhu, Bo-Ping Zhang*
School of Materials Science and Engineering, University of Science and Technology Beijing

(P-S13-06) Unveiling the Role of Chemical Pressure on Antiferroelectricity in $NaNbO_3$-based Antiferroelectrics

Gengguang Luo, Nengneng Luo*
State Key Laboratory of Featured Metal Materials and Life-cycle Safety for Composite Structures, School of Resources, Environment and Materials, Guangxi University

(P-S13-07) Effect of Excess Ba on Electric Properties of BaTiO3-based Dielectrics for MLCC Applications

Song Liu[1, 2], Fa qiang Zhang[2], Zhi fu Liu[2, *], Jin Luo[1, *]
[1]*The State Key Laboratory of Materials-Oriented Chemical Engineering, College of Materials Science and Engineering, Nanjing Tech University*
[2]*CAS Key Laboratory of Inorganic Functional Materials and Devices, Shanghai Institute of Ceramics, Chinese Academy of Sciences*

(P-S13-08) Enhancement in Piezoelectric Property and Domain Structure of $(Bi_{0.5}Li_{0.5})TiO_3$-Doped $BiFeO_3$-$BaTiO_3$ Ceramics

Mingyue Mo, Lixu Xie, Hao Chen, Zhongqin Yang, Jie Xing*, Jianguo Zhu*
College of Materials Science and Engineering, Sichuan University

(P-S13-09) Phase Engineering in $NaNbO_3$ Antiferroelectrics for High Energy Storage Density

Zhengu Chen, Nengneng Luo*
School of Resources, Environment and Materials, Guangxi University

(P-S13-10) Dual-Channel Dielectric Tunability in Highly Textured $BaTi_{0.99}Fe_{0.01}O_{3-\delta}$ Ceramics with Micro-Twin Boundary

Hua Ke*, Shaojie Sun; *Harbin Institute of Technology*

(P-S14-01) Enhancing Thermoelectric Performance of n-type Bi_2Te_3-based Alloys by Incorporating Sulphide Nanoparticles

Zhengqin Wang, Jincheng Yu, Hezhang Li, Jun Pei, Jingfeng Li*
State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University

(P-S14-02) Remarkable Roles of CuI Inmodifying the Intrinsic Ge Vacancies and Enhancing Thermoelectric Performances of GeTe-based Alloys

Hezhang Li[1], Rui Zhang[2], Zhihang Shan[2], Jun Pei[2], Boping Zhang[2], Chao Wang[1, *]
[1]*The Department of Precision Instrument of Tsinghua University, Tsinghua University*
[2]*The Beijing Municipal Key Laboratory of New Energy Materials and Technologies, School of Materials Science and Engineering, University of Science and Technology Beijing*

(P-S14-03) Electrical Transport Optimization of Bismuth Telluride Thin Film Using Magnetron Sputtering

Zhanran Han[1], Jincheng Yu[1], Hualu Zhuang[1], Bowen Cai[2], Jing-Feng Li[1, *]
[1]*School of Materials Science and Engineering, Tsinghua University*
[2]*Jianju Technology Co., Ltd*

(P-S14-04) Thermoelectric Enhancement of p-type $Si_{80}Ge_{20}$ Alloy via Co-compositing of Dual Oxides: Respective Regulation for Power Factor and Thermal Conductivity by β-Ga_2O_3 and SiO_2 Aerogel Powders

Huajun Lai[1, 2], Ying Peng[2], Junliang Chen[1], Chenyan Liu[1], Lei Miao[1, 3, *]
[1]*Key Laboratory of Information Material, Ministry of Education, Guangxi Key Laboratory of Information Material, School of Materials Science and Engineering, Guilin University of Electronic Technology*
[2]*Guangxi Key Laboratory of Precision Navigation Technology and Application, School of Information and Communication, Guilin University of Electronic Technology*
[3]*School of Physical Science and Technology, Guangxi University*

(P-S14-05) Optimization of Thermoelectric Properties and Study of Shallow Cryogenic Temperature Devices of MgAgSb-based Alloys

Junliang Chen, Lei Miao*
Guilin University of Electronic Technology, Guilin
Guangxi University

(P-S14-06) Enhanced thermoelectric performance of $In_xCu_{1.8}$ (S, Se) through point defect engineering and energy filtration effects

Shikuo Lu, Hezhang Li, Zhihang Shan, Xingyuan Qi, Wei Zhou, Jun Pei, Zhenhua Ge, Boping Zhang*
[1]*School of Materials Science and Engineering, University of Science and Technology Beijing*
[2]*Department of Precision Instrument, Tsinghua University*
[3]*Faculty of Materials Science and Engineering, Kunming University of Science and Technology*

(P-S14-07) Simultaneous Optimization of the Electrical and Thermal Transport Properties of Lu Ni Sb via Aliovalent Doping

Pu Miao[1], Cheng Yang[2], Chenguang Fu[1, *], Lili Xi[2, *], Tiejun Zhu[1, *], Jiong Yang[2, *]
[1]*School of Materials Science and Engineering, Zhejiang University*
[2]*Materials Genome Institute, Shanghai University*

(P-S14-08) Twisted Interfaces for Enhancement of Thermoelectric Properties

Stanley Abbey[1], Hanhwi Jang[2], Min-Wook Oh[1, *]
[1]*Dept. of Materials Science and Engineering, Hanbat National University*
[2]*Dept. of Materials Science and Engineering, KAIST*

(P-S15-01) Molecular Anchor Enhanced Buried Interface for High-performance Inverted Formamidinium-cesium Perovskite Solar Cells and Modules

Wei Chen*, Zonghao Liu*, Sanwan Liu
Wuhan National Laboratory for Optoelectronics (WNLO), Huazhong University of Science and Technology (HUST)

(P-S15-02) Understanding the Impact of Field Effect Passivation on Perovskite Solar Cells Using SCAPS 1-D Model

Siyang Cheng, Yuanhang Yang, Zhiping Wang*
School of Physics and Technology, Wuhan university

(P-S15-03) Inverted Perovskite Solar Cells with Over 2,000-hour Operational Stability at 85℃ Using Fixed Charge Passivation

Yuanhang Yang, Siyang Cheng, Zhiping Wang*
School of Physical Science and Technology, Wuhan university

(P-S15-04) Study on Low-temperature Performances of Organic-inorganic Hybrid Perovskite Solar Cells

Hong Lin*, Youcheng Xu, Ziyi Wu
School of Materials Science and Engineering, Tsinghua University

(P-S15-05) The Enhanced Performance of Environmental-friendly Tin Perovskite Solar Cells by the Crystallization Regulation and Defect Passivation

Zhiqi Xu, Jiajia Li, Bin-Bin Yu*
College of Physics and Optoelectronic Engineering, Shenzhen University

(P-S15-06) 333 cm^2 High-Performance Flexible Perovskite Solar Cell Modules Fabrication Enabled by Amino Acid Modification

Xuanyu Wang, Ziyi Wu, Hong Lin*
State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University

(P-S15-07) Periodic Acid Post Treatment of Chemical Bath Deposited SnO_2 Electron Transport Layer for Perovskite Solar Cells and Modules

Ziling Zhang, Ziyi Wu, Hong Lin*
State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering

(P-S15-08) A Perovskite Solar Cell-Photothermal-Thermoelectric Tandem System for Enhanced Solar Spectral Utilization

Han Zhong[1], Yangying Zhou[1, 2], Hong Lin[1, *]
[1]*State Key Laboratory of New Ceramics & Fine Processing, School of Materials Science and Engineering, Tsinghua*

University
[2]Huaneng Clean Energy Research Institute

(P-S15-09) High-efficiency Inorganic Tin-Lead Perovskite Solar Cells without a Hole Transport Layer

Ting Zhang*
School of Optoelectronic Science and Engineering, University of Electronic Science and Technology of China

(P-S15-10) Crystal Orientation Engineering for High Carrier Transport Pathways in Vertically-Aligned Quasi-2D Perovskite Solar Cells

Jianfei Yang, Xuanling Liu, Hong Lin*
State Key Laboratory of New Ceramics & Fine Processing, School of Materials Science and Engineering, Tsinghua University

(P-S15-11) Rational Construct Molecular Linkage at the Buried Interface for High-performance Inverted Form amidinium-cesium Perovskite Solar Cells and Modules

Sanwan Liu, Wei Chen*
Wuhan National Laboratory for Optoelectronics (WNLO), Huazhong University of Science and Technology (HUST)

(P-S15-12) Printable High-efficiency and Stable Semitransparent Inverted Perovskite Solar Modules in Air

Feng Qian, Shihao Yuan, Ting Zhang, Lei Wang, Xiaobo Li, Hualin Zheng, Shibin Li*
School of optoelectronic science and engineering, University of Electronic Science and Technology of China

(P-S15-13) A Generic Strategy to Stabilize Wide Bandgap Perovskites for Efficient Tandem Solar Cells

Sheng Li, Zhiping Wang*
School of Physics and Technology, Hubei Luojia Laboratory, Key Lab of Artificial Micro- and Nano-Structures of Ministry of Education, School of Microelectronics, Wuhan University

(P-S16-01) Novel Transparent Phosphor Ceramics for Laser-driven Lighting and Display

Shaowei Feng[1], Jianqiang Li[2, *], Dongfeng Xue[3, *]
[1]Shenzhen Institute of Advanced Technology, CAS
[2]University of Science and Technology Beijing
[3]Shenzhen Institute of Advanced Technology, CAS

(P-S16-02) Single-pulse Plane-by-plane Inscription of Low Scattering-loss FBG Using Femtosecond Laser

Jiacheng Hu[1], Yuying Wang[1], Lijing Zhong[2, *], Jianrong Qiu[1, 2, *]
[1]State Key Laboratory of Modern Optical Instrumentation, College of Optical Science and Engineering, Zhejiang University
[2]Institute of Light+X Science and Technology, Faculty of Electrical Engineering and Computer Science, Ningbo University

(P-S16-03) Photoluminescent Glass Enables Optical Data Storage with Ultrahigh Capacity and Ultralong Lifetime

Zhuo Wang, Bo Zhang, Dezhi Tan, Jianrong Qiu*
[1]College of Optical Science and Engineering, Zhejiang University
[2]Zhejiang Laboratory

(P-S16-04) Glass - Crystallized Luminescence Translucent Ceramics toward High-Performance Broadband NIR LEDs

Guojun Zheng, Wenge Xiao, Jianrong Qiu*
[1]Ningbo University
[2]Zhejiang University

(P-S16-05) Effect of MgO Doping on the Microstructure and Optical Properties of Infrared Transparent 3YSZ Ceramics

Yongzhi Luo, Shengquan Yu*
Institute of Chemical Materials, China Academy of Engineering Physics

(P-S16-06) Study of Gd_3NbO_7 Phase Transition: toward the Elaboration of New Transparent Ceramic as Infrared LASER Sources

Louis Cornet[1, 2], Rémy Boulesteix[2, *], Jean-Marc Heintz[1], Alexandre Maitre[2], Veronique Jubera[1]
[1]Université de Bordeaux
[2]Université de Limoges

(P-S16-07) Preparation and Properties of Spinel-type $MgO{\cdot}nGa_2O_3$ Transparent Ceramics

Weihan Tao[1, 2], Dan Han[2], Jian Zhang[2, *], Ying Shi[1, *], Shiwei Wang[2]
[1]School of Materials Science and Engineering, Shanghai University

[2]*Shanghai Institute of Ceramics, Chinese Academy of Sciences*

(P-S16-08) YAG: Ce-Al_2O_3 Ceramics with High Thermal Conductivity for High-power Blue LD Applications

Haojie Ding*
Engineering Research Center for Nanophotonics & Advanced Instrument, Ministry of Education, School of Physics and Electronic Sciences, East China Normal University

(P-S16-09) Phosphor Properties of Ce,Mn:$Y_3Al_5O_{12}$ Transparent Ceramics Prepared by Improved Hot Press Sintering Process

Qingle Pang[1, 2, *], Xiankai Sun[1], Shichao Zhang[1], Haoran Sun[1], Jianxing Shen[2, *]
[1]*China building materials academy*
[2]*Key Laboratory of Processing and Testing Technology of Glass & Functional Ceramics of Shandong Province, School of Materials, Science and Engineering, Qilu University of Technology (Shandong Academy of Sciences)*

(P-S16-10) Preparation and performance research on DLP-3D printed transparent ceramics

Miao Jiang, zhe zhao*
School of Material Science and Engineering, Shanghai Institute of Technology

(P-S17-01) The Effect of Glass Composition on Glass-ceramics for Immobilization of Actinide-Rich Nuclear Waste

Hongru Jin, Chong Wei*, Xiaoqiang Li*
Northwestern Polytechnical University

(P-S17-02) Hydrothermal Corrosion of High Density Liquid Phase Sintered SiC Ceramics

Zhiyuan Wang, Chong Wei*, Xiaoqiang Li*
Northwestern Polytechnical University

(P-S17-03) High-temperature Oxidation Behavior of Sintered Cr-Al Intermetallic Alloy

Sangha Park*, Jung Ho Shin
Advanced Materials Research Group, Daegu Mechatronics and Materials Institute (DMI)

(P-S17-04) Hydrothermal Corrosion Behaviors of Cr-Based Alloy and SiC Coating for Accident Tolerant Fuel Cladding

Jung Ho Shin*, Sangha Park
Advanced materials research department, Daegu Mechatronics & Materials Institute

(P-S17-05) Preparation of High-entropy Pyrochlore Ceramics for Immobilization of High-level Radioactive Waste

Zili Liu, Chong Wei*, Xiaoqiang Li
Northwestern Polytechnical University

(P-S17-06) In-situ Observation of Damage Evolution in Mo-SiC_f/SiC Heterogeneous Cladding Tube

Songbin Zhang, Chong Wei*, Xiaoqiang Li*
Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University

Poster Presentation III
(13:30-18:00, Location: Poster Area)

(P-S18-01) Tuning $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_{3-\delta}$ Cathode to High Stability and Activity via Ce-Doping for Ceramic Fuel Cells

Quan Yang[1, 2, 3], Shiyue Zhu[1, 2, 3], Dong Tian[1, 2, 3, *], Bin Lin[1, 2, 3, *]
[1]*Anhui Key Laboratory of Low-Temperature Co-Fired Material, Huainan Normal University*
[2]*School of Mechanical and Electrical Engineering, University of Electronic Science and Technology of China*
[3]*Anhui Key Laboratory of Low-Temperature Co-Fired Material, Huainan Normal University*

(P-S18-02) Improved Sealant-to-Interconnect Interfaces for High-Pressure SOC Stacks

Elisa Zanchi[1, *], Devanarayanan Meena Narayana Menon[1], Simone Anelli[1], Antonio Gianfranco Sabato[2], Milena Salvo[1], Davide Janner[1], Albert Tarancón[2, 3], Federico Smeacetto[1]
[1]*Politecnico di Torino, Department of Applied Science and Technology*
[2]*IREC, Catalonia Institute for Energy Research, Department of Advanced Materials for Energy Applications*
[3]*ICREA*

(P-S18-03) $BaCo_{0.4}Fe_{0.4}Zr_{0.1}Yb_{0.1}O_{3-\delta}$ as Air Electrode for Protonic Ceramic Electrochemical Cells

Yueyue Sun, Zhengrong Liu, Jiaming Yang, Hongfei Zhao, Chaofan Yin, Zilin Zhou, Kai Wu, Jun Zhou*
State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University

(P-S18-04) SOFC Technologies and Products: From Powder to Power

Duruo Li, Kaihua Sun*; *Xuzhou HuaTsing Jingkun Energy Co., Ltd*

(P-S18-05) How Does the Gas Atmosphere Affect the Performance of Protonic Ceramic Fuel Cells? - Investigation by Numerical Analysis

Kunpeng Li[1, *], Yohei Nagata[2], Takeru Murakami[2], Hiroyuki Shimada[3], Yuji Okuyama[4], Masashi Mori[5], Takuto Araki[6]
[1]*Institute of Advanced Sciences, Yokohama National University*
[2]*Graduate School of Engineering, Yokohama National University*
[3]*Innovative Functional Materials Research Institute, Department of Materials and Chemistry, National Institute of Advanced Industrial Science and Technology (AIST)*
[4]*Research Center for Sustainable Energy & Environmental Engineering, Faculty of Engineering, University of Miyazaki*
[5]*Central Research Institute of Electric Power Industry*
[6]*Faculty of Engineering, Yokohama National University*

(P-S18-06) Design and Analysis of a Novel Opposite Trapezoidal Flow Channel for Solid Oxide Electrolysis Cell Stack

Zhen Zhang[1, 2], Chengzhi Guan[1, 3, 4, *], Leidong Xie[5, *], Jian-Qiang Wang[1, 3, 4, *]
[1]*Department of Hydrogen Technique, Shanghai Institute of Applied Physics, Chinese Academy of Sciences*
[2]*University of Chinese Academy of Sciences*
[3]*Key Laboratory of Interfacial Physics and Technology, Chinese Academy of Sciences*
[4]*Dalian National Laboratory for Clean Energy*
[5]*Center for Thorium Molten Salts Reactor System, Shanghai Institute of Applied Physics, Chinese Academy of Sciences*

(P-S18-07) Optimally Operating Concentrating Solar Spectrums Splitter for Hydrogen Production via Solid Oxide Electrolysis Cell

Shaocheng Lang[1], Jinliang Yuan[1, *], Houcheng Zhang[2, *]
[1]*Faculty of Maritime and Transportation, Ningbo University*
[2]*College of New Energy, Ningbo University of Technology*

(P-S18-08) Enhanced Electrocatalytic Performance of Heterostructure Air Electrode Materials for Reversible Proton Ceramic Cells

Yuxuan Zhang[1], Jingzeng Cui[1, 2], Linjuan Zhang[1, 2, 3, *]
[1]*Key Laboratory of Interfacial Physics and Technology, Shanghai Institute of Applied Physics, Chinese Academy of Sciences*
[2]*University of Chinese Academy of Sciences*
[3]*Dalian National Laboratory for Clean Energy*

(P-S18-09) Effect of Ln Cation (Ln=Pr, Nd, and Gd) Size on Hydration Properties and Electrochemical Performances in Layered Perovskite Cathodes for Protonic Ceramic Fuel Cells

Inhyeok Cho[1, 2], Sihyuk Choi[1, 2, *]
[1]*Department of Mechanical Engineering, Kumoh National Institute of Technology*
[2]*Department of Aeronautics, Mechanical and Electronic Convergence Engineering, Kumoh National Institute of Technology*

(P-S18-10) Effects of Isovalent Doping on the Layered Perovskite Air Electrode for Highly Efficient Reversible Protonic Ceramic Cells

Seungchan Kim[1, 2], Sihyuk Choi[1, 2, *]
[1]*Department of Mechanical Engineering, Kumoh National Institute of Technology*
[2]*Department of Aeronautics, Mechanical and Electronic Convergence Engineering, Kumoh National Institute of Technology*

(P-S18-11) Conformally Coated Tungsten Diselenide Quantum Dots (WSe_2 QDs) on Copper Nanowire Electrocatalyst for Highly Active and Durable Hydrogen Production

Ashraful Azam, Sean Li*; *MSE, UNSW*

(P-S18-12) Novel Design of Finger-Like Nickel-Based Anode for High Performance Direct Carbon Solid Oxide Fuel Cells: Numerical Simulation and Experimental Study

Tingting Han, Jinjin Zhang, Xiuxia Meng, Fangyong Yu*, Naitao Yang*
School of Chemistry and Chemical Engineering, Shandong University of Technology

(P-S18-13) Electrolyte-supported Solid Oxide Fuel Cells with ultra-thin honeycomb structure prepared by Digital Light Processing 3D Printing Technology

Xiaoyu Zhang, Lijuan Peng, Bohang Xing*, Zhe Zhao*
School of Material Science and Engineering, Shanghai Institute of Technology

(P-S18-14) Study on the Electrochemical Performance of SOFC using Underground Coal Gasification Gas as Fuel

Zhongxuan Zhang, Minfang Han*
Fuel Cell and Energy Storage Center, State Key Laboratory of Power System and Generation Equipment, Department of Energy and Power Engineering, Tsinghua University

(P-S19-01) AI-Based High-Performance Materials Research

Nian Ran, Jianjun Liu*
Shanghai Institute of Ceramics, Chinese Academy of Science

(P-S19-02) Preparation and Electrochemical Properties of Heavily Doped Proton Conducting Perovskite Oxides

Hui Guo, Donglin Han *
College of Energy, Soochow University

(P-S20-01) Fe,N Co-Doped GQDs Modified Assembly of In_2O_3 Nanosheets with Open Interlayer Spaces for Ultrasensitive NO_2 Gas Sensor

Jiayin Han, Yuan Gao*, Geyu Lu*
College of Electronic Science and Engineering, Jilin University

(P-S20-02) Highly Selective Gas Sensor for Rapid Detection of Triethylamine Using Pd Ru Alloy Nanoparticles Functionalized SnO_2

Yilin Wang, Fengmin Liu*, Geyu Lu*; *Jilin University*

(P-S20-03) Bimetallic MOFs Derived Mesoporous Structure of Ru Doped SnO_2 Enable High-Sensitivity Gas Sensors for Triethylamine in High Humidity

Ziqi Liu, Yilin Wang[1], Fengmin Liu[1,*], Geyu Lu[1,*]
State Key Laboratory on Integrated Optoelectronics, College of Electronic Science and Engineering, Jilin University

(P-S20-04) Multi-Parametric Graphene Field-Effect Transistor Biosensors

Xiaoyan Zhang[2], Lei Bao[1], Shen Ao[1], Lishuang Wang[2], Zhihong Zhang[3], Mingchao Ding[3], Muhong Wu[3], Kaihui Liu[3], Gregory F Schneider[4], Weipeng Wang[1], Yunhan Ling[1], Zhengjun Zhang[1], Wangyang Fu[1,*]
[1]*School of Materials Science and Engineering, Tsinghua University*
[2]*School of Pharmaceutical Sciences, Capital Medical University*
[3]*School of Physics, Peking University*
[4]*Leiden Institute of Chemistry, Leiden University*

(P-S20-05) A Novel Dense Diffusion Barrier Limiting Current Oxygen Sensor for Detecting in Air (Oxygen Concentration: 2.1%-21%)

Shuangxiao Guo[1], Gangjie You[1,*], Fangxiao Zhang[1], Dongxu Luo[2]
[1]*School of Materials and Metallurgy, University of Science and Technology Liaoning*
[2]*Liaoning Institute of Science and Technology*

(P-S20-06) PbS/MoS_2 Bilayer Thin Film Transistor for Sensitive NO_2 Detection

Bowen Zhou[1], Jingyao Liu[1], Zhixiang Hu[1], Yanting Tang[1], Hua-Yao Li[1], Dehui Li[2], Huan Liu[1,*]
[1]*School of Integrated Circuits, School of Optical and Electronic Information, Wuhan National Laboratory for Optoelectronics, Optics Valley Laboratory, Huazhong University of Science and Technology*
[2]*School of Optical and Electronic Information, Wuhan National Laboratory for Optoelectronics, Optics Valley Laboratory, Huazhong University of Science and Technology*

(P-S20-07) Ultrasensitive Frequency-Doubling Graphene Field-effect Biosensor

Honglei Xue, Wangyang Fu*
Key laboratory of advanced materials of ministry of education, school of material science and engineering, Tsinghua university

(P-S20-08) Graphene Quantum Dot Mediated Signaling in Graphene Field-Effect Immunosensors

Jianwei Gao[1], Honglei Xue[2], Gregory Schneider[1, *], Wangyang Fu[2, *]
[1]*Leiden University*
[2]*Tsinghua University*

(P-S20-09) Advancements and Research Progress in Glucose Electrochemical Sensors

Jingqiu Chen, Qing Huang, Yunong Zhao, Jing Huang, Huan Liu*
School of Integrated Circuits, School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan National Laboratory for Optoelectronics, Optics Valley Laboratory

(P-S21-01) Enhanced Energy Storage Properties of $(Ba_{0.4}Sr_{0.6})TiO_3$ Ceramics through Doping of $Bi_{0.2}Sr_{0.7}(Mg_{1/3}Nb_{2/3})O_3$

Long Cheng[1], Qi Wang[2], Bing Xie[2], Haibo Zhang[3], Zilin Yan[1, *]
[1]*School of Science, Harbin Institute of Technology*
[2]*School of Materials Science and Engineering, Nanchang Hangkong University*
[3]*School of Materials Science and Engineering, State Key Laboratory of Material Processing and Die & Mould Technology, Huazhong University of Science and Technology*

(P-S21-02) Optimization of Dilute Sulfuric Acid Neutralization Process Synthesis Using Natural and Synthetic Carbonate Ceramic Materials

Ohhyun Gweon, Hyesun Lee*
Bio-Convergence R&D Division, Korea Institute of Ceramic Engineering & Technology (KICET)

(P-S21-03) Carbones with its Elusive Bonding Description and Broad Implication Complementary to NHC-Carbenes

Ting-Hsuan Wang[1], Tiow-Gan Ong[1, 2, *]
[1]*Institute of Chemistry, Academia Sinica*
[2]*Department of Chemistry, National Taiwan University*

(P-S22-01) Two-step joining of reaction bonded silicon carbide (RBCS) using borosilicate glass

Changcong Huang, Jian Chen*
Shanghai institute of Ceramics, Chinese Academy of Sciences

(P-S23-01) WO_3 Quantum Dot Photochromical Film

Yong Zhu, Yanfeng Gao*
School of Materials Science and Engineering, Shanghai University

(P-S23-02) From Bulk to Porous Structures: Tailoring Monoclinic $SrAl_2Si_2O_8$ Ceramic by Geopolymer Precursor Technique

TongTian Li, Peigang He*
Department of Materials Science, Institute for Advanced Ceramics, Harbin Institute of Technology

(P-S23-03) Preparation of Geopolymer by Cold Sintering

Xiang Xiao, Peigang He*
Institute for Advanced Ceramics, Harbin Institute of Technology

(P-S24-01) Temperature-Dependent Evolution of Grain Growth in Oxide Fibers

Zhongyan Wang, Jiachen Liu*, Anran Guo, Liwen Yan, Mengjie Liu, Zhijie Liang
School of Materials Science and Engineering, Key Lab of Advanced Ceramics and Machining Technology of Ministry of Education, Tianjin University

(P-S24-02) Advanced Wide Temperature Range (RT-1200℃) Ceramizable Si-BPF-based Adhesive for the Connection of Ni-based Superalloys

Peisen Liu, Jiachen Liu*, Liwen Yan, Anran Guo, Zhongyan Wang, Zhijie Liang
School of Materials Science and Engineering, Key Lab of Advanced Ceramics and Machining Technology of Ministry of Education, Tianjin University

(P-S24-03) The Development of Ceramic Glazes with Buffalo Crap Ash

Smith Takroodkaew*
Faculty of Fine and Applied Arts, Khon Kaen University

(P-S24-04) Densification Mechanism and Properties of h-BN/$MgAl_2O_4$ Composites by Hot-Pressed Sintering

Yongshun Qi[1], Hailong Wang[1], Bingbing Fan[1], Rui Zhang[1], Hongxia Li[2, 3], Yongqiang Chen[1, *]
[1]*School of Material Science and Engineering, Zhengzhou University*
[2]*Sinosteel Luoyang Institute of Refractories Research Co., Ltd.*
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(P-S24-05) A High-Temperature Wave-Transparent Insulation Material: BN@SiO_2 Composite Ceramic Aerogel

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(P-S24-06) Preparation and Properties of Al_2O_3 / SiC Coating on Nano-SiO_2 Powder Based Thermal Insulation Materials

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(P-S24-07) Changes in Microstructure and Properties of SiC-$MgAl_2O_4$ Composite Refractories Containing Metals During Heat Treatment

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(P-S24-08) Effect of GNSs/Al_2O_3 Composite Powders on Properties of Low Carbon Al_2O_3-ZrO_2-C Refractories

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(P-S24-09) High Temperature Shrinkage Performance of Nanoporous Silica/Alumina Composite Thermal Insulation Materials

Bing Ai*, Shichao Zhang; *China Building Material Academy*

(P-S24-10) Preparation and properties of ablation resistant rigid zirconia fiber board

Dachen Yan*; *China Building Materials Acdemey*

(P-S24-11) Preparation and Infrared Emissivity of Ca-Cr Co-Doped $LaAlO_3$/$CaZrO_3$ Multiphase Ceramics

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(P-S24-12) New Thinkings on Anti-Clogging for Submerged Entry Nozzle

Qiang Gu, Guoqi Liu, Gang Wang*, Hongxia Li*
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(P-S24-13) Study on the Performance of Alumina Insulation Tile with Different Binders

Liushi Tao; *China Building Materials Academy, Ceramic research institute*

(P-S24-14) Microstructure and Properties of Mullite Whiskers/Anorthite Porous Ceramics

Linghao Wu*, Shichao Zhang; *China Building Materials Academy*

(P-S25-01) Fabrication of Al_2O_3-SiO_2 Aerogel with High-Temperature Resistance and Low Thermal Conductivity Using Cheap Inorganic Silicon, Aluminium Sources and Ammonia

Ruixiang Liu, Xiaolei Li*; *Tianjin University*

(P-S25-02) Effect of Sintering Temperature on Microstructure of Porous Silicon Nitride with High Porosity and Excellent Mechanical Properties

Yuanhang Zheng, Xiaolei Li*; *Tianjin University*

(P-S25-03) Preparation of Porous SiC Ceramic Membrane Support with Excellent Corrosion Resistance using Al_2O_3 and TiO_2 as bonding additives

Yan Liang, Long Cheng, Ruiqiang Yang, Mingmin Bai, Yue Zha, Yongqing Wang*
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(P-S26-01) Bioactive Strong Biodegradable Poly(citrate-silicon)-Reinforced Cement for Rapid Bone Repair and Osteointegration

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(P-S26-02) Engineering Multifunctional Bioceramic Coatings for Polyether ether Ketone Implant

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(P-S26-03) Development of MTA Composites Using Hydroxyapatite with High Surface Area

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(P-S26-04) Multifunctional Bioactive Glass-Ceramic Nanodrug for Post-Surgical Infection/Cancer Therapy and Tissue Regeneration

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(P-S26-05) Optimized Fabrication of 3D-Printed Calcium Phosphate Bioceramics with Good Osteoinduction and Their Applications in Segmental Bone Regeneration

Xiangfeng Li*, Xiangdong Zhu, Xingdong Zhang
National Engineering Research Center for Biomaterials, Sichuan University

(P-S26-06) Ultrasound-Driven Reversible Wettability Transition of Superhydrophobic Coating Modified Magnesium Alloys with Excellent Corrosion Resistance and Antibacterial Properties

Lei Ling, Shu Cai*, You Zuo, Hang Zhang, Huanlin Zhang
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(P-S26-07) A Citrate-based Bioactive Hydrogel Promoting Early Angiogenesis in Wound Healing Through Modulation of M2 Macrophages.

Chenxi Xie, Bo Lei*; *Frontier Institute of Science and Technology, Xi'an Jiaotong University*

(P-S26-08) Bioactive Anti-Inflammatory Antibacterial Metformin Hydrogel Dressing for Accelerating Wound Healing

Tong Tong Leng[1], Yi Dan Wang[1], Wei Cheng[1], WenSi Wang[2], Xiao Yan Qu[1], Bo Lei[1, *]
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(P-S26-09) Single Component Self-healing Antibacterial Anti-inflammatory Intracellular-Antioxidative Poly(itaconic acid-pluronic) Hydrogel for Rapid Repair of MRSA Impaired Wound

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(P-S27-01) Investigation of Intrafibrillarmineralization of Hydroxyapatite in Multiscale Collagen

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(P-S28-01) Synergistic Effect of ZnO and MgZnO Nanoparticles on the Properties of PVDF Nanofibers by Electrospinning

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(P-S28-02) High-Performance Copper Selenide Nanocomposites for Power Generation

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(P-S28-03) Oxidation Behavior of the Free-Standing NiCrAlYHf Bondcoat with Silicide Modified at 1100 ℃

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(P-S28-04) Synthesis and Characterization of MgO-ZrO_2 Heterostructure: Optical, Mechanical and Electrical Properties

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