Session Program

Scientific Session

Oral Presentation

July 9, 2025 – July 11, 2025

July 9, 2025

Room I

Session A: Interface Science and Powder Technology for Sustainable Development Goals (60th Summer Symposium on Powder Technology)

08:30 - 10:20 Chair: Kenji Iimura (University of Hyogo, Japan)

08:30 - 09:00 1-I-A-01 INVITED

Electric Pulse-Driven Dismantling Technologies to Support the Circular Economy

Chiharu Tokoro*[1, 2]

1 Faculty of Science and Engineering, Waseda University, Japan

2 Faculty of Engineering, The University of Tokyo, Japan

09:00 - 09:30 1-I-A-02 INVITED

Characterization of the long-term stability of zirconia products

Wei-Hsing Tuan*[1], Yan-Ting Lin[1], Yu-Wen Hsiao[1], I-Ting Kuo[1], Jin-Ren Chen[2], Po-Liang Lai[2]

1 Department of Materials Science and Engineering, National Taiwan University, Taiwan

2 Department of Orthopedic Surgery, Bone and Joint Research Center, Chang Gung Memorial Hospital at Linkou, College of Medicine, Chang Gung University, Taoyuan, Taiwan

09:30 - 10:00 1-I-A-03 INVITED

Interfacial Phase-like Transitions: From Computing Grain Boundary Phase Diagrams to Tailoring Microstructures with Electric Fields

Jian Luo *

University of California San Diego, U.S.A.

10:00 - 10:20

Coffee break

10:20 - 12:00 Chair: Hiroshi Satone (University of Hyogo, Japan)

10:20 - 10:40 1-I-A-04

Degradation of organic substances using peroxotitanic acid sol

Kenji Iimura*, Kazuma Shimoyama, Kouji Maeda, Hiroshi Satone

University of Hyogo, Japan

10:40 - 11:00 1-I-A-05

Characterization of Particles Dispersion State in Nano-Particle Slurries by Osmotic Pressure Measurement

Takamasa Mori*, Kenta Kitamura, Koshi Takei, Satoru Konabe

Hosei University

11:00 - 11:20 1-I-A-06

Effects of Fine Powder on Granular Dam-Break Collapse Flow

Shu-San Hsiau*[1], Li-Tsung Sheng[2], Yu-Hsiang Sung[1]

1 Department of Mechanical Engineering, National Central University, No. 300, Zhongda Rd., Zhongli District, Taoyuan City 320317, Taiwan, R.O.C.

2 Department of Mechanical and Electro-Mechanical Engineering, National Ilan University, No.1, Sec. 1, Shennong Rd., Yilan City, Yilan County 26047, Taiwan, R.O.C.

11:20 - 11:40 1-I-A-07

A mechanism study on stress and pressure management during Binder Burnout Process

Ashwin Mylappurath Sunil *[1,2] ,Binghuan Gao [1] , Hyeon-Jin Son[1], YangYang Li [1], Oeun Kwon [1], Ho-young Ahn [1],Chang-Jun Bae[1,2]
1 3D Printing Materials Center, Korea Institute of Materials Science, Changwon 51508, Republic of Korea
2 Department of Advanced Materials Engineering, University of Science & Technology (UST), Daejeon 34113, Republic of Korea

11:40 - 12:00 1-I-A-08

Design of transparent photocurable Pickering emulsion for high-resolution DLP-3D printing of porous ceramics

Shogo Tsutaki *[1], Junichi Tatami [2], Motoyuki Iijima [2]
1 Graduate School of Environment and Information Sciences, Yokohama National University, Japan
2 Faculty of Environment and Information Sciences, Yokohama National University, Japan

12:00 - 13:20

Lunch

13:20 - 14:50 Chair: Manabu Fukushima (AIST, Japan)

13:20 - 13:50 1-I-A-09 INVITED

Strategically Aligned and Innovation Driven Strategies for Achieving Net-Zero Emissions and Sustainable Development Goals (SDGs)

Mrityunjay Singh
President, Global Alliance for Technology and Society, USA; President, World Academy of Ceramics, Italy; Past President, The American Ceramic Society

13:50 - 14:20 1-I-A-10 INVITED

Recent Progress of Silicon Nitride Ceramics

Tatsuki Ohji*, Junichi Tatami
Yokohama National University, Japan

14:20 - 14:50 1-I-A-11 INVITED

Fundamental issues of wetting and interfacial reactivity in ceramic to metal brazing

Fiqiri Hodaj*
Univ. Grenoble Alpes, CNRS, Grenoble INP, SIMAP, F-38000 Grenoble, France

14:50 - 15:10

Coffee break

15:10 - 17:10 Chair: Tatsuki Ohji (Yokohama National University, Japan)

15:10 - 15:40 1-I-A-12 INVITED

Nanoparticle Engineering in Advanced Semiconductor Fabrication Manufacturing

Ungyu Paik*[1], Taeseup Song[1,2], Yeon-gil Jung[3], Je-hyun Lee[3], Jeong-gu Yeo[4], Joonhyeok Park[1], Jaeik Kim[1], Insung Hwang[1], Jiwoon Kim[1], Ganggyu Lee[1], Minsung Kim[1], Seungmin Han[1], Jooheon Sun[1]
1 Department of Energy Engineering, Hanyang University, Seoul 04763
2 Department of Battery Engineering, Hanyang University, Seoul 04763, Korea
3 Department of Advanced Materials, Changwon National University, Changwon 51140, Korea
4 Advanced Materials and Devices Lab., Korea Institute of Energy Research, Daejeon 34129, Korea

15:40 - 16:10 1-I-A-13 INVITED

Development of LGVO-based composite solid electrolytes for low-temperature sintering and high ionic conductivity

Satoshi Tanaka*, Takahiro Hirata, Maho Sato
Nagaoka University of Technology, Japan

16:10 - 16:30 1-I-A-14

Highly-dispersed hollow silica nanoparticles synthesized using emulsion droplet templates and their applications

Kento Ishii*[1], Ryoma Ichihara[1], Yuuki Yoshida[1], Nao Tanaka[1], Jisheng Zhou[2], Masayoshi Fuji[1]
1 Advanced Ceramics Research Center, Nagoya Institute of Technology, Japan
2 State Key Laboratory of Chemical Resource Engineering, Beijing University of Chemical Technology, China

16:30 - 16:50 1-I-A-15

Evaluation of the Interface Characteristics of Hybrid Mesoporous Silicates Powders Synthesized via Soft-templating Approach from Bio-agricultural Waste, and its Potential Applications

Glenn Ruel F. Maujon*[1,2], Harvey D. Melendrez[1,2], Maria Elisa Refugio[1,2], Sean Kenneth Manlupig[1,2], Corrine Iris Cahimtong[1,2], Liezl M. Jabile[1,2], Ivyleen B. Arugay[1,2], and Raymond V. Rivera- Virtudazo[1,2]
1 Advanced Porous Ceramic Particles (APCerP) Lab., Ceramic Researches for Engineering Advanced Technology & Environment (CREATE) Lab, Research Center for Advanced Ceramics (RCAC), Research Institute for Engineering and Innovative Technology (RIEIT), Mindanao State University – Iligan Institute of Technology, Iligan City 9200, Philippines
2 Department of Materials and Resources Engineering and Technology, College of Engineering and Technology, Mindanao State University – Iligan Institute of Technology, Iligan City 9200, Philippines

16:50 - 17:10 1-I-A-16

Sintering and Piezoelectric Properties of BNT-6BT Lead-Free Piezoceramics Using TGG-Enhanced Ultra-fast High Temperature Sintering (UHS)

Hoyoung AN*[1,2], Seongwan Jang[1], Chang-jun Bae[1]
1 Department of 3D printing Materials, Korea Institute of Materials Science (KIMS), Changwon 51508, Republic of Korea
2 Department of Materials Science and Engineering, Pusan national University, Busan, Republic of

17:10 - 19:00

Poster session

Room II

Session C: Energy and Environment

08:30 - 10:00 Chair: Maria Eugenia Rabanal (Universidad Carlos III de Madrid, Spain)

08:30 - 09:00 1-II-C-01 INVITED
Laser Processing Machinces for Ceramic Drilling and Cutting
Shibin Jiang*[1,2]
1 AdValue Photonics Inc, Tucson, Arizona, USA
2 Hangzhou Silverlake Laser, Hangzhou, China

09:00 - 09:30 1-II-C-02 INVITED
Glass and ceramics for hydrogen technologies: design, processing, joining and integration
Federico Smeacetto*
Department of Applied Science and Technology, Politecnico di Torino, Italy

09:30 - 10:00 1-II-C-03 INVITED
Joining and Integration of Ceramic Matrix Composites for Energy Applications
Monica Ferraris*
Politecnico di Torino, Italy

10:00 - 10:20
Coffee break

Session D: Material Design and Evaluation

10:20 - 12:00 Chair: Pavol Sajgalik (Slovak Academy of Sciences, Slovakia)

10:20 - 10:50 1-II-D-04 INVITED
Low-temperature Processing of (Ti, Zr, Nb, Ta, Mo)C High-entropy Carbides with Ultrafine Grain and Enhanced Hardness
Yang Liu, Wei Ming Guo, Yu Tian, Hua Tay Lin*
School of Electromechanical Engineering, Guangdong University of Technology, Guangzhou, China

10:50 - 11:20 1-II-D-05 INVITED
Interfaces in Reactively Sintered Borides/Carbides UHTC Composites
Zbigniew Pedzich*[1], Agnieszka Gubernat[1], Dawid Kozien[1], Piotr Klimczyk[2], Csaba Balazsi[3], Peter Tatarko[4], David Salamon[5]
1 AGH University of Krakow, Department of Ceramics and Refractory Materials, Krakow, Poland
2 Lukasiewicz Research Network, Krakow Institute of Technology, Krakow, Poland
3 Centre for Energy Research of Hungarian Academy of Sciences, Budapest, Hungary
4 Slovak Academy of Sciences, Institute of Inorganic Chemistry, Bratislava, Slovakia
5 Brno University of Technology, Central European Institute of Technology, Brno, Czech Republic

11:20 - 11:40 1-II-D-06
Effects of Grain Boundaries on Plasticity in Ti_2SiC_2-MAX Phase
Koji Morita*[1, 2, 3], Tokifusa Higuchi[2], Daisuke Terada[2] and Takahito Ohmura[3, 4]
1 Research Center for Electronic and Optical Materials, National Institute for Materials Science, Tsukuba, Japan
2 Division of Advanced Materials Science and Engineering, Graduate School of Engineering, Chiba Institute of Technology, Narashino, Japan
3 Department of Materials Science and Engineering, Kyushu University, Fukuoka, Japan
4 Research Center for Structural Materials, National Institute for Materials Science, Tsukuba, Japan

11:40 - 12:00 1-II-D-07
Composition Design and Performance Evaluation of High-entropy $A_2B_2O_7$-type Rare-earth Zirconate Ceramics
Guo-Jun Zhang*[1, 2], Ji-Xuan Liu[1]
1 Institute of Functional Materials, Donghua University, China
2 State Key Laboratory of Advanced Fiber Materials, Donghua University, China

12:00 - 13:20
Lunch

13:20 - 14:50 Chair: Katalin Balazsi (Institute for Technical Physics and Materials Science, Hungary)

13:20 - 13:50 1-II-D-08 INVITED
Photocatalysis and its Environmental applications: a Sustainable Approach
A. Ferreiro[1], A. Urbieta[2], M. Quevedo-Lopez[3], P. Fernandez[2], ME. Rabanal*[1, 4]
1 Materials Science and Engineering Department, Universidad Carlos III de Madrid, Leganés (Madrid), Spain
2 Material Physics Department, Universidad Complutense
3 University of Texas at Dallas, USA
4 Instituto Tecnológico de Química - Materiales "Álvaro Alonso Barba", Leganés (Madrid), Spain

13:50 - 14:10 1-II-D-09
Ag^+ Superionic Conductors Based on AgI and Silver Oxyacid Salts
Yuta Matsushima*[1], Ryota Kawanago[1], Kakeru Arai[1], Shu Yin[2]
1 Applied Chemistry, Chemical Engineering, and Biochemical Engineering, Yamagata University, Japan.
2 Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan

14:10 - 14:30 1-II-D-10
Experimental and numerical investigation of cyclodextrin-based MOF particles with amphiphilic pores for multiple drug carriers
Ayumi Ohashi*, Shuji Ohsaki, Hideya Nakamura, Satoru Watano
Department of Chemical Engineering, Osaka Metropolitan University, Japan

14:30 - 14:50 1-II-D-11
Control of the Composition Ratio of CHA/PHI Zeolite Particles toward the Stabilization of CO_2 Gate Adsorption Behavior
Yuto Higuchi*[1, 2], Shunsuke Tanaka[1, 2]
1 Department of Chemical, Energy and Environmental Engineering, Kansai University, Japan
2 Organization for Research and Development of Innovative Science and Technology, Kansai University, Japan

14:50 - 15:10
Coffee break

15:10 - 17:10 Chair: Hua Tay Lin (Guangdong University of Technology, Guangzhou, China)

15:10 - 15:40 1-II-D-12 INVITED
Characterization prediction of high thermal conductivity silicon nitride ceramics with engineered microstructural characteristics
Yuki Nakashima1, Manabu Fukushima*, Ryoichi Furushima, You Zhou, Tatsuki Ohji, Kiyoshi Hirao
National Institute of Advanced Industrial Science and Technology (AIST), Japan

15:40 - 16:10 1-II-D-13 INVITED
Carbon Nanophases in Silicon Nitride
Csaba Balázsi*, Katalin Balázsi
HUN-REN Centre for Energy Research, Institute for Technical Physics and Materials Science, 1121 Budapest, Konkoly-Thege str. 29-33.

16:10 - 16:40 1-II-D-14 INVITED

Is Silicon Nitride-based Ceramics Suitable for the Drug Delivery?

Pavol Šajgalík*
Institute of Inorganic Chemistry, Slovak Academy of Sciences, 845 36 Bratislava, Slovakia

16:40 - 17:10 1-II-D-15 INVITED

Pressureless sintering in hydrogen of hot isostatic pressed Al_2O_3 prepared from oxidized AlN powder

Katalin Balázsi*, Csaba Balázsi
HUN-REN Centre for Energy Research, Institute for Technical Physics and Materials Science, 1121 Budapest, Konkoly-Thege str. 29-33.

17:10 - 19:00

Poster session

Room III

Session F: Global Young Scientist Forum

08:30 - 09:50 Chair: Motoyuki Iijima (Yokohama National University, Japan)

08:30 - 09:00 1-III-F-01 INVITED
Size Controlled Synthesis of Flexible Metal-Organic Framework Particles to Regulate Their Adsorption Properties
Satoshi Watanabe*
Department of Chemical Engineering, Kyoto University, Japan

09:00 - 09:30 1-III-F-02 INVITED
Supraparticles as model systems to investigate structure-property relations in particulate systems
Nicolas Vogel*
Institute of Particle Technology, Friedrich-Alexander-Universität Erlangen-Nürnberg

09:30 - 09:50 1-III-F-03 INVITED
Sustainable Structural Color Pigments From Bacteria-Based Materials
Junwei Wang *[1,2,4], Marina Portoghese[1,2], Javiera Gormaz[1], Jost Kirchner[1], Maria Murace[2], Laura Caton[2], Colin Ingham[3], Silvia Vignolini[1,2]
1 Max Planck Institute of Colloids and Interfaces, Germany
2 University of Cambridge, UK
3 Hoekmine BV, Netherland
4 Eastern Institute of Technology Ningbo, China

09:50 - 10:20
Coffee break

10:20 - 11:50 Chair: Satoshi Watanabe (Kyoto University, Japan)

10:20 - 10:50 1-III-F-04 INVITED
Large internal stress induced nonlinear current-voltage behavior in nanodiamond strengthened ZnO ceramics
Yuchi Fan*, Peng Yan
Institute of Functional Materials, Donghua University, China

10:50 - 11:20 1-III-F-05 INVITED
Parametric Investigation of Ceramic Additive Manufacturing
Chang-Jun Bae*[1,2], Yang-yang Li[1]
1 Korea Institute of Materials Science (KIMS), South Korea
2 Advanced Materials Engineering, University of Science & Technology (UST), South Korea

11:20 - 11:50 1-III-F-06 INVITED
Photocurable suspension design for sustainable 3D printing of ceramic components
Motoyuki Iijima*, Yuki Hiroshige, Yoshihiko Yamanoi, Junichi Tatami
Yokohama National University, Japan

11:50 - 13:20
Lunch

Session B: Powder Processing for Advanced Materials

13:20 - 14:50 Chair: Hidehiro Kamiya (Waseda University, Japan)

13:20 - 13:50 1-III-B-07 INVITED

Fabrication of textured lanthanum silicate oxyapatite phosphor by magnetic field and SPS

Tohru S. Suzuki*[1], Harune Ariga[1, 2], Kiyoshi Kobayashi[1], Akihiro Kawamura[1, 2], Hajime Kiyono[2]
1 Optical Ceramics Group, Research Center for Electronic and Optical Materials, NIMS, Japan
2 Department of Applied Chemistry, College of Engineering, Shibaura Institute of Technology, Japan

13:50 - 14:10 1-III-B-08

Development of beta-tricalcium phosphate-contained scaffolds using spray drying and freeze-drying techniques

Shao-Ju Shih*, Dwi Fortuna Anjusa Putra, and Wu Ting-Wei
Department of Materials Science and Engineering, National Taiwan University of Science and Technology, Taiwan

14:10 - 14:30 1-III-B-09

Effect of Addition of Cellulose Nanofiber to Solid Dispersion Formulations to Improve the Solubility of Poorly Water-Soluble Drugs

Hiromitsu Yamamoto*, Tomomi Takabayashi, Toshiya Yasunaga
School of Pharmacy, Aichi Gakuin University, Japan

14:30 - 14:50 1-III-B-10

Spray freeze granulation drying using non-aqueous slurries for fabricating homogeneous silicon nitride ceramics

Riko Yamazaki*[1], Junichi Tatami[2], Motoyuki Iijima[2], Shinya Kawaguchi[3], Naoki Kondo[4]
1 Graduate School of Environment and Information Sciences, Yokohama National University, Japan
2 Faculty of Environment and Information Sciences, Yokohama National University, Japan
3 Preci Co., Ltd.
4 National Institute of Advanced Industrial Science and Technology

14:50 - 15:10
Coffee break

15:10 - 17:00 Chair: Junya Kano (Tohoku University, Japan)

15:10 - 15:40 1-III-B-11 INVITED

Texturing and mechanical properties of MAX phase ceramics

Yoshio Sakka*, Tohru S. Suzuki, Koji Morita
National Institute for Materials Science, Japan

15:40 - 16:00 1-III-B-12

Organonickel complexes constructed solar energy-to-heating interfacial evaporators for high-effective desalination

Jen-Shyang Ni *[1,2], Joanna S. Lin [1], Yung-Cong Yang [1], Yi-Ting Lin [1]
1 Department of Chemical and Materials Engineering, National Kaohsiung University of Science and Technology (NKUST), Taiwan,
2 Photo-sensitive Material Advanced Research and Technology Center (Photo-SMART), NKUST, Taiwan

16:00 - 16:20 1-III-B-13

Surface Functionalisation of Boron Carbide Nanoparticles for Enhanced Biocompatibility and Targeting in Boron Neutron Capture Therapy

Dawid Kozień *[1], Magdalena Gil [1], Paulina Żeliszewska [2], Bożena Szermer-Olearnik [3], Karolina Krygowska [1], Agnieszka Szczygieł [3], Szymon Tott [4], Maciej Roman [4], Zbigniew Pędzich [1]
1 AGH University of Krakow, Department of Ceramics and Refractory Materials, Krakow, Poland
2 Jerzy Haber Institute of Catalysis and Surface Chemistry Polish Academy of Sciences, Krakow, Poland
3 Hirszfeld Institute of Immunology and Experimental Therapy, Polish Academy of Sciences, Wroclaw, Poland
4 Solaris National Synchrotron Radiation Centre, Jagiellonian University, Krakow, Poland

16:20 - 16:40 1-III-B-14

Engineering of Layered Rare-Earth Hydroxide for Green Synthesis of Oxysulfide Nanopowders and Low-Temperature Sintering of Dense Ceramics

Ji-Guang Li *[1], Koji Morita [1]
1 Research Center for Electronic and Optical Materials, National Institute for Materials Science, Japan

16:40 - 17:00 1-III-B-15

Effects of SiC on the microstructure and properties of high-entropy diboride ceramics

Ji-Xuan Liu *[1], Guo-Jun Zhang [1,2]
1 Institute of Functional Materials, Donghua Uninversity, China
2 State Key Laboratory of Advanced Fiber Materials, Donghua Uninversity, China

17:10 - 19:00

Poster session

Room IV

Session E: Advanced Modeling & Simulation

08:30 - 10:00 Chair: Mikio Sakai (The University of Tokyo, Japan)

08:30 - 09:00 1-IV-E-01 INVITED

Integrating DEM Simulations and Data Science for Next-Generation Industrial Powder Processing

Mikio Sakai *[1]

1 Department of Nuclear Engineering & Management, School of Engineering, The University of Tokyo, Japan

09:00 - 09:30 1-IV-E-02 INVITED

Industrial Multi-Physics simulations using accurate particle shape on GPU

Nicolin Govender *[1,2]

1 Advanced Research Computing, University College London, United Kingdom

2 RCPE, Graz, Austria

09:30 - 10:00 1-IV-E-03 INVITED

Coupled SPH-DEM-FEM Model for Interaction between Water, Sea Ice and Marine Structures

Shunying Ji *[1], Jie Wu1, Lu Liu [1]

1 Dalian University of Technology, China

10:00 - 10:20

Coffee break

10:20 - 11:50 Chair: Shunying Ji (Dalian University of Technology, China)

10:20 - 10:50 1-IV-E-04 INVITED

Modelling Dispersion of Particles in Fluids using DEM-SPH

Dinesh Adepu, Chuan-Yu Wu*

School of Chemistry and Chemical Engineering, University of Surrey, Guildford, UK

10:50 - 11:20 1-IV-E-05 INVITED

Trans-level multi-scale simulation of reaction-diffusion processes

Wei Ge*[1,2], Chengxiang Li[1,2], Ji Xu[1,2]

1 State Key Laboratory of Mesoscience and Engineering, Institute of Process Engineering, Chinese Academy of Sciences, Beijing 100190, China,

2 School of Chemical Engineering, University of Chinese Academy of Sciences, Beijing 101408, China

11:20 - 11:50 1-IV-E-06 INVITED

Efficient Simulation of Dense Gas-solid Reactive Flows

Kun Luo*, Shuai Wang, Junjie Lin, Jianren Fan

State Key Laboratory of Clean Energy Utilization, Zhejiang University, Hangzhou, P. R. China

11:50 - 13:20

Lunch

13:20 - 14:50 Chair: Charley Wu (University of Surrey, UK)

13:20 - 13:50 1-IV-E-07 INVITED

High-fidelity Computational Modeling of Keyhole Formation in Laser Powder Bed Fusion

Jidong Zhao*, Tao Yu

Department of Civil and Environmental Engineering, The Hong Kong University of Science and Technology, Hong Kong SAR, China

13:50 - 14:20 1-IV-E-08 INVITED
Effects of particle elongation and deformation on granular dissipation and jamming in multiphase flows
Yu Guo*, Peng Wang, Jiawei Han, Junjie Chen
Department of Engineering Mechanics, Zhejiang University, Hangzhou, 320027, China

14:20 - 14:50 1-IV-E-09 INVITED
DEM Simulations of Packing Behaviour of Fine and Cohesive Granular Materials
Kimiaki Washino*
Department of Mechanical Engineering, The University of Osaka, Japan

14:50 - 15:10
Coffee break

15:10 - 16:40 Chair: Kun Luo (Zhejiang University, China)

15:10 - 15:40 1-IV-E-10 INVITED
Numerical Analysis of the Density Segregation Mechanism on a Shaking Table Using the Discrete Element Method
Yuki Tsunazawa*, Yoshiaki Kon
Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology (AIST), Japan

15:40 - 16:00 1-IV-E-11 INVITED
Lattice Boltzmann Simulation of Capillary Interactions between Colloidal Particles
Yasushi Mino*
Graduate School of Environmental, Life, Natural Science and Technology, Okayama University, Japan

16:00 - 16:20 1-IV-E-12
Mathematically Simplified Solid-Solid-Liquid Phase Diagram for Chiral Resolution Process Development
Jhe-Wei Wu*, Dhanang Edy Pratama, Chia-Yen Huang, Tu Lee
Department of Chemical and Materials Engineering, National Central University, 300 Zhongda Road, Zhongli District, Taoyuan City 320317, Taiwan R.O.C

16:20 - 16:40 1-IV-E-13
Numerical Simulation of the Interface Failure Behavior of Ytterbium Disilicate Environmental Barrier Coatings under Water Vapor Corrosion and Thermal Cycling Conditions
Qi Chen*[1,2], Jiemin Wang[1], Jie Zhang[1], Jingyang Wang[1]
1 Institute of Metal Research, Chinese Academy of Sciences, China
2 School of Materials Science and Engineering, University of Science and Technology of China, China

17:20 - 19:00
Poster session

July 10, 2025

Room I

Session C: Energy and Environment

08:30 - 10:20 Chair: Norifumi Isu (Shinshu University, Japan)

08:30 - 09:00 2-I-C-01 INVITED

Engineering the interface between electrolyte and electrode in all-solid-state batteries

Taeseup Song*[1,2], Seuncheol Myeong[1], Seungwoo Lee[1], Hyungjun Lee[1], Joonhyeok Park[1], Jaeik Kim[1], Insung Hwang[1], Jiwoon Kim[1], Ganggyu Lee[1], Minsung Kim[1], Seungmin Han[1], Jooheon Sun[1], Soomin Hong[1], Jinwoo Jeong[2], Yeseung Lee[2], Ungyu Paik[1]

1 Department of Energy Engineering, Hanyang University, Republic of Korea

2 Department of Battery Engineering, Hanyang University, Republic of Korea

09:00 - 09:20 2-I-C-02

Exploring Densification of Sulfide-Based Electrolytes: The Role of Hydrogenated Nitrile Butadiene Rubber in Enabling Scalable Production of Separator Films for Solid-State Batteries

Carina A. Heck*[1,2], Duc Hien Nguyen[3], Lars Bröcker[4], Martin A. Lange[5], Vasiliki Faka[6], Alexander Diener[1,2], Timon Scharmann[2,7], Jeff Bastian Wongso Wijaya[3], Lennart Blume[1,2], Peter Michalowski[1,2], Klaus Dröder[2,7], Wolfgang G. Zeier[5,6], Bettina V. Lotsch[3], Arno Kwade[1,2]

1 Institute for Particle Technology, Technische Universität Braunschweig, Germany

2 Battery LabFactory Braunschweig, Technische Universität Braunschweig, Germany

3 Max Planck Institute for Solid State Research, Germany

4 Institute for Surface Technology, Technische Universität Braunschweig, Germany

5 Institute of Energy Materials and Devices, Helmholtz Institute Münster Ionics in Energy Storage, Forschungszentrum Jülich GmbH, Germany

6 Institute of Inorganic and Analytical Chemistry, University of Münster, Germany

7 Institute of Machine Tools and Production Technology, Technische Universität Braunschweig, Germany

09:20 - 09:40 2-I-C-03

Tailoring Calendering Behavior and Cell Performance through Carbon Black Agglomerate Control in NMC622 Cathodes

Alexander Diener*[1], Julian Kristoffer Mayer [1,2], Tim Grenda[1,2], Peter Michalowski Arno Kwade [1,2]

1 Institute for Particle Technology, Technische Universität Braunschweig, Germany

2 Battery LabFactory Braunschweig, Technische Universität Braunschweig, Germany

09:40 - 10:00 2-I-C-04

Flexible Electronic Devices based on Ga-doped ZnO Nanorods

Wen-Wei Shih*, Chun-Wei Huang

Feng Chia University, Taichung, Taiwan

10:00 - 10:20

Coffee break

10:20 - 12:00 Chair: Masayoshi Fuji (Nagoya Institute of Technology, Japan)

10:20 - 10:50 2-I-C-05 INVITED

Systems for Recovering Electrical Energy from Mechanical Vibrations Using Piezoelectric MFC Transducers: Research and Simulation

Marek Płaczek *

Silesian University of Technology, Faculty of Mechanical Engineering, Department of Engineering Processes Automation and Integrated Manufacturing Systems, Poland

10:50 - 11:20 2-I-C-06 INVITED

Enhanced photoelectrochemical activity of inorganic/organic powders containing antiperovskite Ni_3ZnN and metal-organic framework $Cu_3(HHTP)_2$

Hsin-Yun Wu, Wenjea J. Tseng*
Department of Materials Science and Engineering, National Chung Hsing University, Taiwan

11:20 - 11:40 2-I-C-07

Photothermal HCHO oxidation using MOF-derived MnO_2@C catalyst

Wei-Han Wei[1], Masaaki Yoshida[2], Chechia Hu*[1]
1 Department of Chemical Engineering, Sustainable Electrochemical Energy Development Center (SEED), National Taiwan University of Science and Technology, Daan Dist., Taipei City, Taiwan 10607
2 Blue energy center for SGE technology (BEST), Yamaguchi University, Ube, Yamaguchi, Japan 755-8611

11:40 - 12:00 2-I-C-08

Possibility of selective leaching of Cr from electric arc furnace slag by mechanical activation treatment

Masami Koide*[1,2], Yutaro Takaya[3,4], Hidehiro Kamiya[5], Chiharu Tokoro[3,4]
1 Production planning and coordination department, Kyoei Steel Ltd., Japan
2 Graduate School of Creative Science and Engineering, Waseda University, Japan
3 Faculty of Science and Engineering, Waseda University, Japan
4 Faculty of Engineering, The University of Tokyo, Japan
5 Sustainable Energy and Environmental Society Open Innovation Research Organization, Waseda University, Japan

12:00 - 13:00

Lunch

Room II

Session D: Material Design and Evaluation

08:30 - 10:00 Chair: Csaba Balazsi (Institute for Technical Physics and Materials Science, Hungary)

08:30 - 09:00 2-II-D-01 INVITED
Diverse changes in morphology caused by mass transfer phenomenon
Toshihiro Ishikawa
Tokyo University of Science, Yamaguchi (Sanyo-Onoda City University), 1-1-1
Daigaku-Dori, Sanyo-Onoda, Yamaguchi 756-0884, Japan

09:00 - 09:20 2-II-D-02
Theoretical Investigation on the Effects of Silicon Doping on the Interface Adhesion and Failure Behaviors of SiC/BN Interface
Jiemin Wang*[1], Siyan Zhang[2], Jingyang Wang[1,2]
1 Institute of Metal Research, Chinese Academy of Science, China
2 Institute of Coating Technology for Hydrogen Gas Turbines, Liaoning Academy of Materials, China

09:20 - 09:40 2-II-D-03
Microstructure Design and Evolution of Water-oxygen Resistant SiC_f/SiC Composites
Xiaowu Chen*[1], Junmin Zhang[2], Feiyu Guo[2], Shaoming Dong[1]
1 Shanghai Institute of Ceramics, Chinese Academy of Sciences, China,
2 Suzhou National Laboratory, China

09:40 - 10:00 2-II-D-04
Lightweight and Porous Ceramic Matrix Composites with Hierarchical Structure for Broadband Electromagnetic Wave Absorption
Xiao You*, Jinshan Yang, Shaoming Dong
Shanghai Institute of Ceramics, Chinese Academy of Sciences, China

10:00 - 10:20
Coffee break

10:20 - 12:00 Chair: Toshihiro Ishikawa (Tokyo University of Science, Yamaguchi , Japan)

10:20 - 10:50 2-II-D-05 INVITED
Unique Route to Grow Single-crystals of Non-stoichiometric Rare Earth Oxides and Aluminum Oxide
Nobuhito Imanaka*
Osaka University Japan

10:50 - 11:20 2-II-D-06 INVITED
Nanostructured (bio)ceramics and advanced fabrication technologies to design multifunctional constructs for hard and soft tissue regeneration
Sonia Fiorilli*, Giorgia Montalbano, Chiara Vitale Brovarone
Department of Applied Science and Technology, Politecnico di Torino, Torino, Italy

11:20 - 11:40 2-II-D-07
Investigation of the Solidification Process of Liquid Tellurium-Selenium Alloys and Surface Printing Technology for Fabricating Two-Dimensional TeO_2 Thin Films
Xin-Yi Qiu*, Chun-Wei Huang
Department of Materials Science and Engineering, Feng Chia University, Taichung, Taiwan

11:40 - 12:00 2-II-D-08

PLA-lignine-Based Composite Films Filled with $Cu_2(OH)_3NO_3$ Nanoparticles Active Material for the Food Industry packaging: Biocidal Properties and Environmental Sustainability

Olga Martin*[1], Gabriela Dominguez[2], Weijun Liang[1], Manuel Hernández[2], Juana Rodríguez[2] and Carmen Fajardo[2].
1 Dto Cc. e Ingeniería de Materiales e Ing. Química; Universidad Carlos III de Madrid; España
2 Dto de Biomedicina y Biotecnología; Universidad de Alcalá; España

12:00 - 13:00

Lunch

Room III

Session B: Powder Processing for Advanced Materials

08:30 - 10:00 Chair: Jingxian Zhang (Shanghai Institute of Ceramics, CAS, China)

08:30 - 09:00 2-III-B-01 INVITED

Lunar highlands regolith simulant as raw material for in-space manufacturing

Loredana Santo*, Alice Proietti, Fabrizio Quadrini
Department of Industrial Engineering, University of Rome Tor Vergata, Italy

09:00 - 09:20 2-III-B-02

Evaluating and optimizing the plastic additive pelleting process with a single-die press

Prutha Nagaraja*[1], Shailendra Singh[1], Laurent Cavin[2], Thomas Gfroerer[2], Andreas Thuermer[2], Rou Hua Chua[3] & Kristian Berland[1]
1 Department of Mechanical Engineering and Technology Management, Norwegian University of Life Sciences, Elizabeth Stephansens v. 15, 1430 Ås, Norway
2 Form giving and Customer Specific Blends, Plastic Additive, BASF Schweiz AG, Postfach, 4005 Basel, Switzerland
3 Process Research & Chemical Engineering, BASF SE, 67056 Ludwigshafen am Rhein, Germany

09:20 - 09:40 2-III-B-03

Synthesis of Short-Chain Ligand-Capped Colloidal Metal Oxide Nanoparticles for Flexible Devices

Yusuke Otsuka*, Hiroyuki Kondo, Keigo Suzuki
Murata Manufacturing Co., Ltd., Japan

09:40 - 10:00 2-III-B-04

Formation of chain-structured hollow silica nanoparticles utilizing emulsion self-assembly

Taito Ogiya* [1], Kento Ishii [1], Jisheng Zhou [2], Nao Tanaka [1], Kousuke Tsukigi [1], Masayoshi. Fuji [1]
1 Advanced Ceramics Research Center, Nagoya Institute of Technology, Japan
2 State Key Laboratory of Chemical Resource Engineering, Beijing Key Laboratory of Electrochemical Process and Technology for Materials, Beijing University of Chemical Technology, China

10:00 - 10:20
Coffee break

10:20 - 12:00 Chair: Loredana Santo (University of Rome Tor Vergata, Italy)

10:20 - 10:50 2-III-B-05 INVITED

Low-temperature Densification of Silicon Nitride Ceramics through Cold Sintering Process

Masaya Minehira [1], Yeongjun Seo [1], Sunghun Cho [1], Yoshifumi Kondo [1], Tomoyo Goto [2,1], Tohru Sekino* [1]
1 SANKEN, The University of Osaka, Japan
2 Division of Materials Science, Nara Institute of Science and Technology, Japan

10:50 - 11:20 2-III-B-06 INVITED

Study on the reliability of Si_3N_4 substrate from tape casting and gas pressure sintering

Jingxian Zhang* Yusen Duan, Dongliang Jiang
State Key Laboratory of High Performance Ceramics and Superfine Microstructures, Shanghai Institute of Ceramics, 1295 Dingxi Road, Shanghai 200050, China

11:20 - 11:40 2-III-B-07

Evolution of heterogeneous microstructure in sintering of tape-cast alumina laminates observed by synchrotron X-ray CT

Gaku Okuma* [1], Ryutaro Usukawa [2], Toshio Osada [1], Fumihiro Wakai [1]
1 National Institute for Materials Science (NIMS), Japan
2 National Institute of Advanced Industrial Science and Technology, Japan

11:40 - 12:00 2-III-B-08

Internal Structure Imaging of Cathode Slurry by Equivalent Circuit-based Electrical Impedance Tomography

Songshi Li* [1], Taichi Kanamoto [2], Daisuke Kawashima [1], Masahiro Takei [1]
1 Graduate School of Engineering, Chiba University, Japan
2 Graduate School of Science and Engineering, Chiba University, Japan

12:00 - 13:00

Lunch

Room IV

Session E: Advanced Modeling & Simulation

08:30 - 10:00 Chair: Kimiaki Washino (The University of Osaka, Japan)

08:30 - 09:00 2-IV-E-01 INVITED

Exploring a steady-state multiscale CFD method

Wei Wang*, Xuekuan Zhang, Yujie Tian, Bona Lu, Fei Li
State Key Laboratory of Mesoscience and Engineering, Institute of Process Engineering, Chinese Academy of Sciences, Beijing 100190, China

09:00 - 09:30 2-IV-E-02 INVITED

A higher order particle method SPH(2) and its applications

Mitsuteru Asai*[1], Shujiro Fujioka[1], Kumpei Tsuji[2]
1 Department of Civil Engineering, Kyushu University, Japan
2 Department of Civil Engineering, Tohoku University, Japan

09:30 - 10:00 2-IV-E-03 INVITED

A CT-CFD-DEM Study on Coke Formation during the Catalytic Ethylene Oxychlorination Reactions

Hsiu-Po Kuo*[1], Cheng-En Li[1], Tsuo-Feng Wang[1], An-Ni Huang[2], Wan-Yi Hsu[3]
1 Department of Chemical Engineering, National Taiwan University, Taiwan
2 Dept of Chemical Engineering, National Taiwan University of Science and Technology, Taiwan
3 Center for Sustainability and Energy Technologies, Chang Gung University, Taiwan

10:00 - 10:20
Coffee break

10:20 - 11:50 Chair: Wei Wang (Chinese Academy of Sciences, China)

10:20 - 10:50 2-IV-E-04 INVITED

Towards digital twins for powder processes with AI-accelerated surrogate models

Shuo Li*, Mikio Sakai
The University of Tokyo, Japan

10:50 - 11:20 2-IV-E-05 INVITED

DEM Modeling and Experimental Analysis of Dynamic Powder Flow in a Continuous Blender

Jiawei Hu[1], Bernardus Joseph Nitert [2], Nicolin Govender[1], and Chuan-Yu Wu [1]
1 School of Chemistry and Chemical Engineering, University of Surrey, United Kingdom
2 Johnson & Johnson Innovative Medicine NV, Turnhoutseweg 30, 2340 Beerse, Belgium

11:20 - 11:50 2-IV-E-06 INVITED

Development of Cross Bond DEM (XB-DEM) for representing particle breakage behavior

Kizuku Kushimoto*, Junya Kano
Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University

11:50 - 13:00
Lunch

July 11, 2025

Room I

Session A: Interface Science and Powder Technology for Sustainable Development Goals (60th Summer Symposium on Powder Technology)

08:30 - 10:00 Chair: Kunihiro Fukui (Hiroshima University, Japan)

08:30 - 09:00 3-I-A-01 INVITED
In-situ high temperature TEM observations of nano-grains
Hiromi Nakano*
Toyohashi University of Technology, 1-1 Hibariga-oka, Tempaku, Toyohashi, Japan

09:00 - 09:20 3-I-A-02
Direct Observation and Analysis of Particle Fracture Phenomena by Impact on the Wall
Hiroshi Satone*[1], Kenji Iimura[1], Koichi Kawagushi[2], Tomoomi Segawa[2]
1 Graduate School of Engineering, University of Hyogo, Japan
2 Japan Atomic Energy Agency, Japan

09:20 - 09:40 3-I-A-03
In Situ Synchrotron X-ray Diffraction Investigation of ZIF-8 Particle Formation in Water/methanol Mixtures
Shotaro Danjo*, Shotaro Hiraide, Satoshi Watanabe
Department of Chemical Engineering, Kyoto University, Japan

09:40 - 10:00 3-I-A-04
Deep Eutectic Solvent-Mediated Growth of Metal-Organic Frameworks on Metal-Crosslinked Biopolymer Hydrogels
Paul Kinyanjui Kimani*[1], Chika Takai-Yamashita [1,2]
1 Faculty of Engineering, Gifu University, Japan
2 Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan

10:00 - 11:40 Chair: Wei-Hsing Tuan (National Taiwan University, Taiwan)

10:00 - 10:30 3-I-A-05 INVITED
Modelling of reacting flows and industry applications
Yansong Shen*
School of Chemical Engineering at the University of New South Wales, Australia

10:30 - 10:50 3-I-A-06
Numerical Study of Electrolyser and Hydrogen Storage Design and Optimisation
Yuting Zhuo*, Yansong Shen
School of Chemical Engineering, University of New South Wales, Australia

10:50 - 11:10 3-I-A-07

Functionalization, Interfacial Transition, and Surface Modification of Acid-Treated Philippine Coal Fly Ash via Mechanochemical Treatment

Harvey Melendrez*[1,2,3], Kosuke Tsukigi[4], Glenn Ruel Maujon[1,3], Vannie Joy Resabal[2,3], Masayoshi Fuji[4], Raymond Rivera-Virtudazo[1,3]
1 Advanced Porous Ceramic Particles (APCerP) Lab., Ceramic Researches for Engineering Advanced Technology & Environment (CREATE) Lab, Research Center for Advanced Ceramics (RCAC), Research Institute for Engineering and Innovative Technology (RIEIT), Mindanao State University – Iligan Institute of Technology, Iligan City 9200, Philippines
2 Resources Processing and Technology Center, Research Institute for Engineering and Innovative Technology (RIEIT), Mindanao State University – Iligan Institute of Technology, Iligan City 9200, Philippines
3 Department of Materials and Resources Engineering and Technology, College of Engineering and Technology, Mindanao State University – Iligan Institute of Technology, Iligan City 9200, Philippines
4 Advanced Ceramics Research Center, Nagoya Institute of Technology, Honmachi3-101-1, Tajimi, Gifu, 507-0033, Japan

11:10 - 11:40 3-I-A-08 INVITED

Internal structure changes of ceramic slurry observed by optical coherence tomography

Junichi Tatami*[1], Miu Nakamura[1], Motoyuki Iijima[1], Takuma Takahashi[2]
1 Yokohama National University, Japan
2 Kanagawa Institute of Industrial Science and Technology, Japan

11:40 - 13:00

Lunch

Room II

Session D: Material Design and Evaluation

08:30 - 10:20 Chair: Yoshio Sakka (National Institute for Materials Science, Japan)

08:30 - 09:00 3-II-D-01 INVITED
Progress of high temperature coatings for SiC_f/SiC composites
Jingyang Wang*[1, 2]
1 Institute of Metal Research, Chinese Academy of Sciences, China
2 Liaoning Academy of Materials, China

09:00 - 09:30 3-II-D-02 INVITED
Progress of continuous fiber reinforced ceramic matrix composites
Shaoming Dong*, Dewei Ni, Jianbao Hu, Xihai Jin
Structural Ceramics and Composites Engineering Research Center, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai 201899, P. R. China

09:30 - 10:00 3-II-D-03 INVITED
High-throughput Design of Environmental Barrier Coating Materials with Co-doping Rare-earth Elements
Yehan Wang[1,2], Xirui Lv[1], Jie Zhang*[1], Jingyang Wang[1]
1 Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, Shenyang 110016, China
2 School of Materials Science and Engineering, University of Science and Technology of China, Hefei 230026, China

10:00 - 10:20 3-II-D-04
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
Feiyan Cai*[1,2], 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, Shanghai 200050, China
2 Structural Ceramics and Composites Engineering Research Center, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai 200050, China

10:20 - 12:00 Chair: Jingyang Wang (Institute of Metal Research, Chinese Academy of Sciences, China)

10:20 - 10:40 3-II-D-05
Preparation, microstructure and CMAS corrosion of $Y_3Al_5O_{12}$/Al_2O_3 eutectic coatings deposited by atmospheric plasma spraying
Jie Li*[1,2], Luchao Sun[1], Jingyang Wang[1]
1 Institute of Metal Research, Chinese Academy of Sciences, China
2 School of Materials Science and Engineering, University of Science and Technology of China, China

10:40 - 11:00 3-II-D-06
Microstructure and properties of directionally solidified Garnet/Al_2O_3 eutectic ceramics: Insights of high entropy design
Luchao Sun*, Jingyang Wang
Institute of Metal Research, Chinese Academy of Sciences, China

11:00 - 11:20 3-II-D-07
Multifunctional Hierarchical Metamaterial for Thermal Insulation and Electromagnetic Interference Shielding at Elevated Temperatures
Li Tian*, Jinshan Yang, Shaoming Dong
Shanghai Institute of Ceramics, Chinese Academy of Sciences, China

11:20 - 11:40 3-II-D-08

Fabrication of Er:$(Y, La)_2O_3$ ceramics with high transparency by spark plasma sintering

Zehao Xu*[1,2], Hiroaki Furuse[2], Tohru S. Suzuki[1,2]
1 Department of Nanoscience and Nanoengineering, Graduate School of Advanced Science and Engineering, Waseda University, Tokyo 169-8555, JAPAN
2 Research Center for Electronic and Optical Materials, National Institute for Materials Science (NIMS), Tsukuba, Ibaraki 305-0047, JAPAN

11:40 - 12:00 3-II-D-09

Mitigating Galvanic Corrosion in Cu/Ru Interfaces through Selective Surface Interactions

Ganggyu Lee[1),*], Joonhyeok Park[1)], Jaeik Kim[1)], Insung Hwang[1)], Jiwoon Kim[1)], Minsung Kim[1)], Seungmin Han[1)], Jooheon Sun[1)], Soomin Hong[1)], Taeseup Song[1),2)], Ungyu Paik[1)]
1) Department of Energy Engineering, Hanyang University, Republic of Korea
2) Department of Department of Battery Engineering, Hanyang University, Republic of Korea

12:00 - 13:00

Lunch

Room III

Session B: Powder Processing for Advanced Materials

08:30 - 10:00 Chair: Satoshi Tanaka (Nagaoka University of Technology, Japan)

08:30 - 09:00 3-III-B-01 INVITED
Multi-material Microstereolithography using Various Materials
Shoji Maruo*
Faculty of Engineering, Yokohama National University, Japan

09:00 - 09:30 3-III-B-02 INVITED
How to Overcome Transparency Limitations in 3D Printed Ceramics
Hui-suk Yun*
Korea Institute of Materials Science, Korea

09:30 - 10:00 3-III-B-03 INVITED
Coatings and surface modification on 3D-printed architectures
Steven Mullens*1, Janne Gys1,2, David Vogelsang1, Vera Meynen2
1 Flemish Institute for Technological Research, Mol, Belgium
2 University Antwerp, Antwerp, Belgium

10:00 - 11:30 Chair: Steven Mullens (Flemish Institute for Technological Research, Belgium)

10:00 - 10:30 3-III-B-04 INVITED
Densification, microstructure and properties of advanced ceramics from ultra-fine ceramic powders under ultrahigh pressure
Wei Ji, Zhengyi Fu
State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan, China

10:30 - 10:50 3-III-B-05
Wear Response of Al_2O_3 Ceramics Produced Using Digital Light Projection Additive Manufacturing
Kevin P. Plucknett*, Achilles M. David, Galina Boubnova, Shannon Clemens
Dalhousie University, Department of Mechanical Engineering, 1360 Barrington Street, Halifax, NS, B 3 H 4R2, Canada

10:50 - 11:10 3-III-B-06
$(NH_4)_xMF_{3+x}$ ammonium fluorometallates (x =1,3): solvothermal synthesis, thermolysis and derivation of MF_3 for near-infrared luminescence
Sihan Feng*1,Yun Wang1, Qi Zhu1, Ji-Guang Li2
1 Key Laboratory for Anisotropy and Texture of Materials, School of Materials Science and Engineering, Northeastern University, Shenyang, Liaoning 110819, China
2 Research Center for Electronic and Optical Mate

11:10 - 11:30 3-III-B-07
Innovative Liquid Metal-Assisted Synthesis of Bimetallic MOFs toward Advanced Photodetector Applications
Jui Chi Lin*, Chun Wei Huang
Department of Materials Science and Engineering, Feng Chia University, Taiwan

11:30 - 13:00
Lunch

Room IV

Session C: Energy and Environment

08:30 - 10:00 Chair: Takuma Takahashi (Kanagawa Institute of Industrial Science and Technology, Japan)

08:30 - 09:00 3-IV-C-01 INVITED
Antibacterial Ceramics Using Ag and Future Tasks of Antibacterial Test Method
Norifumi Isu*
Research Initiative for Supra-Materials (RISM), Shinshu University, Japan

09:00 - 09:30 3-IV-C-02 INVITED
Development of Biocoke from Industrial By-products
Jintawat Chaichanawong*
Center of Research Excellence in Material Engineering and BCG Economy, Faculty of Engineering, Thai-Nichi Institute of Technology, Thailand

09:30 - 10:00 3-IV-C-03 INVITED
Biodegradable Materials Coated Ceramic Particles
Alina Mărguță, Simona – Nicoleta Mazurchevici, Bogdan Istrate, Ciprian Ciofu, Dumitru Nedelcu*
"Gheorghe Asachi" Technical University of Iasi, Blvd. Mangeron No. 59A, 700050, Iasi, Romania

10:00 - 11:00 Chair: Koji Morita (National Institute for Materials Science, Japan)

10:00 - 10:20 3-IV-C-04
Chemical Recycling Development of Poly(ethyleneterephthalate) by Glycolysis and Cooling Crystallization with Water
Chun-Hung Chiang*[1], Yu-Kun Peng[1], Hung Lin Lee[1,2], Dhanang Edy Pratama[1], Tu Lee[1]
1 Department of Chemical and Materials Engineering, National Central University, Taiwan R.O.C.
2 Department of Chemical Engineering, Massachusetts Institute of Technology, United States

10:20 - 10:40 3-IV-C-05
Fabrication and mechanical properties of porous Si_3N_4 ceramics prepared via SHS
Yu-Ping Zeng*, Ye Zhang
State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences

10:40 - 11:00 3-IV-C-06
Mesoscale Mechanical Property Changes in 3 mol% Yttria-Stabilized Zirconia Near the Surface under Hydrothermal Conditions
Takuma Takahashi* [1], Kaito Niregi [1], Tsukaho Yahagi [1], Tatsuki Ohji [2], Junichi Tatami [2]
1 Mechanical and Materials Engineering, Kanagawa Institute of Industrial Science and Technology, Japan
2 Graduate School of Environment and Information Sciences, Yokohama National University, Japan

11:30 - 13:00
Lunch

Scientific Session

Poster Presentation

July 9, 2025 at 12:00 － July 10, 2025 at 11:00

Core time
Odd presentation number: 17:10 – 18:00
Even presentation number: 18:00 – 18:50

Room V and Foyer

P-A-01

Design of interparticle photo-cross-linkable suspension using γ-Al_2O_3 nanoparticles and 3D printing by stereolithography

Fumiya Yokomori* [1], Junichi Tatami [2], Motoyuki Iijima [2]
1 Graduate School of Environment and Information Sciences, Yokohama National University, Japan
2 Faculty of Environment and Information Sciences, Yokohama National University, Japan

P-A-02

Three-dimensional structuring of porous materials using interparticle photo-cross-linkable slurry and ceramic beads

Haruki Sakurai* [1], Junichi Tatami [2], Motoyuki Iijima [2]
1 Graduate School of Environment and Information Sciences, Yokohama National University, Japan
2 Faculty of Environment and Information Sciences, Yokohama National University, Japan

P-A-03

Evaluation of Reaction Characteristics of $Ca(OH)_2$ Powder with CO_2 and HCl at High Temperature

Katsuya Onishi*, Tomonori Fukasawa, Toru Ishigami, Ayaka Tamaru, Kunihiro Fukui
Chemical Engineering Program, Graduate School of Advanced Science and Engineering, Hiroshima University, Japan

P-A-04

Internal Structure evolution of alumina slurry during slip casting process visualized by OCT in situ observation - Effect of the amount of PVA binder -

Akari Honda*, Junichi Tatami, Motoyuki Iijima
Graduate School of Environment and Information Sciences, Yokohama National University, Japan

P-A-05

In-situ OCT visualization of internal structural changes during liquid phase sintering of $CaSiO_3$-doped Al_2O_3 green bodies

Nozomu Tozawa*, Junichi Tatami, Motoyuki Iijima
Graduate School of Environment and Information Sciences, Yokohama National University, Japan

P-A-06

Effects of aerating methods and conditions on the improvement of particle flowability

Reona Nomura* [1], Mikio Yoshida [2], Yoshiyuki Shirakawa [1, 2]
1 Graduate School of Science and Engineering, Doshisha University, Japan
2 Faculty of Science and Engineering, Doshisha University, Japan

P-A-07

Microscale mechanical properties of sliding friction surface of α/β SiAlON composite ceramics

Yuto Masuda* [1], Junichi Tatami [1], Motoyuki Iijima [1], Tatsuki Ohji [1], Kentaro Yoshida [2], Takuma Takahashi [2], Hiromi Nakano [3]
1 Graduate School of Environment and Information Sciences, Yokohama National University, Japan
2 Kanagawa Institute of Industrial Science and Technology, Japan
3 Toyohashi University of Technology, Japan

P-A-08

Effect of cyclic applied stress on grain boundary strength of silicon nitride ceramics

Komaki Matsuura*[1], Junichi Tatami [1], Motoyuki Iijima [1], Tatsuki Ohji [1], Takuma Takahashi [2], Hiromi Nakano [3]
1 Yokohama National University, Japan
2 Kanagawa Institute of Industrial Science and Technology, Japan
3 Toyohashi University of Technology, Japan

P-A-09
Understanding the tablet internal structure and the capping mechanism by measuring the distribution of die wall pressure
Issei Kubota*[1], Yusuke Imayoshi [1], Shuji Ohsaki [1], Hideya Nakamura [1], Satoru Watano [1]
1 Department of Chemical Engineering, Osaka Metropolitan University, Japan

P-A-10
Effect of structural defects in MOFs on drug loading capacity
Haruki Kanai*[1], Shuji Ohsaki [1], Hideya Nakamura [1], Satoru Watano [1]
1 Osaka Metropolitan University, Japan

P-A-11
Synthesis of high functional pesticides using biodegradable carrier particles
Yugo Sato*[1], Toshiyuki Nomura [1]
1 Osaka Metropolitan University, Japan

P-A-12
Improving the efficiency of the bio-reduction process for recovering palladium from urban mines
Shunichi Ishibashi*[1], Toshiyuki Nomura [1]
1 Osaka Metropolitan University, Japan

P-A-13
Homogenized silicon nitride green compacts prepared by in-situ solidification of nonaqueous slurries
Takahiro Oikawa*[1], Junichi Tatami [2], Motoyuki Iijima [2]
1 Graduate School of Environment and Information Sciences, Yokohama National University, Japan
2 Faculty of Environment and Information Sciences, Yokohama National University, Japan

P-A-14
Design of interparticle photo-cross-linkable suspension for DLP-3D printing of ZrO2 ceramic components
Akihito Ide*[1], Junichi Tatami [1], Motoyuki Iijima [1]
1 Graduate School of Environment and Information Sciences, Yokohama National University, Japan
2 Faculty of Environment and Information Sciences, Yokohama National University, Japan

P-A-15
Synthesis of Co-Crystals via Liquid-Liquid Interfacial Crystallization and Effects of Precipitation Conditions on Polymorphism
Minami Matsuo*, Mikio Yoshida, Yoshiyuki Shirakawa
1 Graduate School of Science and Engineering, Doshisha University, Japan

P-A-16
Aqueous based photocurable ZrO_2 suspensions for greener DLP-3D printing process
Ryota Tomiyama* [1], Junichi Tatami [2], Motoyuki Iijima [2]
1 Graduate School of Enginnering Science, Yokohama National University, Japan
2 Faculty of Environment and Information Sciences, Yokohama National University, Japan

P-A-17
Visualization of drying behavior of aqueous silica slurries with different organic additives by operand OCT observation
Hiromasa Kuroda *[1], Junichi Tatami [1], Motoyuki Iijima [1], Takuma Takahashi [2]
1 Graduate School of Engineering Science and Faculty of Engineering, Yokohama National University, Japan
2 Kanagawa Institute of Industrial Science and Technology, Japan

P-A-18
Analysis of the Adsorption Kinetics of Metal–Organic Frameworks Using a Quartz Crystal Microbalance
Makoto Moriwaki*, Hajime Uematsu, Shotaro Hiraide, Satoshi Watanbe
1 Department of Chemical Engineering, Kyoto University, Japan

P-A-19
Time-Dependent Changes in the Dispersion State of Aqueous Alumina Slurry and the Effect of Additive Timing
Kenta Kitamura*[1, 2], Takamasa Mori [1,2]
1 Department of Chemical Science and Technology, Faculty of Bioscience and Applied Chemistry, Hosei University, Japan
2 Hosei University Research Institute for Slurry Engineering, Japan

P-A-20
Dewaxing behavior of ceramic compacts observed in-situ by a combined OCT-TG-FTIR-MS system
Fumiya Kimura [*1], Junichi Tatami [1], Motoyuki Iijima [1], Takumi Takahashi [2]
1 Yokohama National University
2 Kanagawa Institute of Industrial Science and Technology

P-A-21
Simulation analysis of the effects of adhesive and frictional particle interactions on slurry viscosity behaviors
Kaito Yamada*[1], Mikio Yoshida[1,2], Yoshiyuki Shirakawa[1,2]
1 Graduate School of Science and Engineering, Doshisha University, Japan
2 Faculty of Science and Engineering, Doshisha University, Japan

P-A-22
Oxide coating of cathode active material in all-solid-state batteries using spray drying method
Ryo Osaki*, Shuji Ohsaki, Hideya Nakamura, Satoru Watano
1 Department of Chemical Engineering, Osaka Metropolitan University, Japan

P-A-23
Preparation of Poly-L-Lactic Acid Microparticles Encapsulating Drug-Containing Gel for Sustained-Release
Takayoshi Kiguchi[*1], Miori Sato[2], Akihiro C. Yamashita[1,2]
1 Faculty of Bioscience and Applied Chemistry, Hosei University, Tokyo, Japan
2 Graduate School of Science and Engineering, Hosei University, Tokyo, Japan

P-B-01
Dispersion of cellulose nanofibers in acrylic resin with surface modified SiO_2 nanoparticles
Takuto Furukawa[*1], Junichi Tatami[2], Motoyuki Iijima[2]
1) Graduate School of Environment and Information Sciences, Yokohama National University, Japan
2) Faculty of Environment and Information Sciences, Yokohama National University, Japan

P-B-02
Effect of Particle Properties and Concentration on Classification Performance of Cyclone Separator
Nao Ozamoto[*1], Tomoomi Segawa[2], Katsunori Ishii[2], Koichi Kawaguchi[2], Tomonori Fukasawa[1], Toru Ishigami[1], Kunihiro Fukui[1]
1 Hiroshima University, Japan
2 MOX Fuel Cyclone Design Group, Strategy and Management Department, Japan Atomic Energy Agency

P-B-03
Effect of Mixing Ratio of Multivalent Cations on Shear Yield Stress of Particle Suspensions
Haruto Ikeda*, Toru Ishigami, Kunihiro Fukui, Tomonori Fukasawa
Hiroshima University, Japan

P-B-04

Drying shrinkage behavior of green bodies 3D printed using interparticle photo-cross-linkable SiO_2 slurry

Misato Takahashi[*1], Junichi Tatami[2], Motoyuki Iijima[2]
1 Graduate School of Environment and Information Sciences, Yokohama National University, Japan
2 Faculty of Environment and Information Sciences, Yokohama National University, Japan

P-B-05

Exploring the optimal crushing method of iron ore －Proposal based on cross-sectional morphology and crack observation of iron ore

Kazumi Yoshiya[*1, 2], Yuto Yamamoto [2], Kento Izumi [1], Yutaro Takaya[1, 2], Chiharu Tokoro[1, 2]
1 Department of Resources and Environmental Engineering, Graduate School of Creative Science and Engineering, Waseda University, Tokyo, Japan
2 Department of Systems Innovation, Graduate School of Engineering, The University of Tokyo, Tokyo, Japan

P-B-06

Effect of polyethyleneimine molecular weight on the flowing properties of highly concentrated SiO_2/BC slurry

Yuki Imai[*1], Junichi Tatami[2], Motoyuki Iijima[2]
1 Graduate School of Environment and Information Sciences, Yokohama National University, Japan
2 Faculty of Environment and Information Sciences, Yokohama National University, Japan

P-B-07

Automation of Mineral Liberation Measurement of Iron Ore by Using Image Processing

Yuto Yamamoto[*1], Kazumi Yoshiya[2,1], Chiharu Tokoro[2,1], Yutaro Takaya[1,2]
1 Graduate School of Engineering, The University of Tokyo, Japan
2 Faculty of Science and Engineering, Waseda University, Japan

P-B-08

Green luminescence of $ZnSi_2O_4:Mn^{2+}$ derived from precursors prepared by hydrothermal synthesis

Taisei Suzuki,* Yuta Matsushima
Yamagata University, Japan

P-B-09

Effects of Precursors on the Synthesis and Dielectric Properties for $(Mg_{0.2}Ni_{0.2}Zn_{0.2}Co_{0.2}Mn_{0.2})_2SiO_4$ High-Entropy Ceramics

Li-Heng Tai*, Shao-Ju Shih and Tzu-Yun Lin

P-B-10

Spray Freeze Granulation Drying of Non-aqueous Si_3N_4 Slurries Prepared by Adding PEI-OA complex with Various Amount of OA

Riko Yamazaki*[1], Junichi Tatami[2], Motoyuki Iijima[2], Shinya Kawaguchi[3], Naoki Kondo[4]
1 Graduate School of Environment and Information Sciences, Yokohama National University, Japan
2 Faculty of Environment and Information Sciences, Yokohama National University, Japan
3 Preci Co. Ltd., Japan
4 National Institute of Advanced Industrial Science and Technology, Japan

P-B-11

Fabrication of translucent Eu^{2+}-doped Ca α-SiAlON ceramics by spray freeze granulation drying technique

Hidekazu Okaya *[1], Riko Yamazaki[1], Junichi Tatami [1], Motoyuki Iijima [1], Takuma Takahashi[1,2]
1 Yokohama National University, Japan
2 Kanagawa Institute of Industrial Science and Technology, Japan

P-B-12

Compositionally Complex Ceramic oxides based on (MgCoCuNiZn)O and $(CoCrFeNiMn)_3O_4$: Sintering behavior, final microstructure, chemical homogeneity and their final electro-magnetic properties.

Vaclav Pouchly *[1,2], Erik Scasnovic [2], Tomas Spusta [2], Dinara Sobola [2]
1 Faculty of Mechanical Engineering, Brno University of Technology, Czech Republic
2 CEITEC, Brno University of Technology, Czech Republic

P-C-01

Preparation and Visible-Light-Driven Photocatalytic Degradation Properties of Heterostructured $MoS_2/Bi_2WO_6/BiOBr$ Composite Powder

Yu-Tse Lin, Chin-Yi Chen*
Department of Materials Science and Engineering, Feng Chia University, Taiwan.

P-C-02

Design of Zinc Battery Separator for Dendrite Suppression

Shunsuke Sugimoto*, Yuhei Tsugawa, Masatsugu Morimitsu, Mikio Yoshida, Yoshiyuki Shirakawa
Graduate School of Science and Engineering, Doshisha University, Japan

P-C-03

All-solid-state Batteries Composed of Ag^+ Superionic Conductor

Kakeru Arai*, Takuto Shimizu, Sora Wajima, Yuta Matsushima
Applied Chemistry, Chemical Engineering, and Biochemical Engineering, Yamagata University, Japan

P-C-04

Effect of the resistance at the interface with discharge electrodes on separation of lithium-ion batteries cathode materials by direct electrical pulsed discharge method

Takatoshi Kurihara*[1], Asako Narita[2], Moe Nakahara[1], Chiharu Tokoro[2,3]
1 Graduate School of Creative Science and Engineering, Waseda University, Japan
2 Faculty of Science and Engineering, Waseda University, Japan
3 Faculty of Engineering, The University of Tokyo, Japan

P-C-05

Dismantling of photovoltaic panels for silicon recovery using microwave heating

Tomoyuki Yonezawa*[1], Akiko Kubota[2], Manabu Inutsuka[3], Michio Kondo[4], Hidehiro Kamiya[2], Chiharu Tokoro[5,6]
1 School of Creative Science and Engineering, Waseda University, Japan
2 Sustainable Energy & Environmental Society Open Innovation Research Organization, Waseda University, Japan
3 Waseda Center for a Carbon Neutral Society, Waseda University, Japan
4 Research Innovation Center, Waseda University, Japan
5 Faculty of Science and Engineering, Waseda University, Japan
6 Graduate School of Engineering, The University of Tokyo, Japan

P-C-06

Carbon nanotube–MXene membranes for electrochemical energy applications

Mehdi Estili,* Tohru S. Suzuki
National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan

P-C-07

Experimental and Simulation Studies on Countercurrent Fluidized Bed VOC Absorber using Bead Activated Carbon as the Fluidizing Media

Wan-Yi Hsu*[1], Wei-Han Jen[2], Hsiu-Po Kuo[2]
1 Chang Gung University, Taiwan
2 National Taiwan University, Taiwan

P-D-01

Specific Activities of PdAu Octahedral, Truncated Octahedral, and Cubic Nanopowders as Non-Enzymatic Glucose Sensors

Chin-Wei Wu, Ming-Hung Chiang, Chien-Liang Lee*
Department of Chemical and Materials Engineering, National Kaohsiung University of Science and Technology, Kaohsiung 807, Taiwan.

P-D-02

Research on Phosphate Semiconductor Glasses Applying in RRAM

Hong-Lin Lu[1], Jui-Yuan Chen*[1], Wen-Wei Wu[2]
1 Department of Materials Science and Engineering, National United University, Taiwan
2 Department of Materials Science and Engineering, National Yang Ming Chiao Tung University, Taiwan

P-D-03

Effect of Phase Transformation on Wear Resistance of Yttria-stabilized Zirconia

I-Ting Kuo*[1], Wei-Hsing Tuan[1]
Department of Materials Science and Engineering, National Taiwan University, Taipei, Taiwan

P-D-04

Effect of Inserting Layer on Electrical Characterization of Hafnium Aluminum Oxide Ferroelectric Memory

Jia-Hui Lin[1], Cheng-Chun Lin[1], Sheng-Hong Wang[1], Kuan-Chieh Lee[1], Shu-Xuan Lin[2], Ruo-Yin Liao[3], Hsiao-Hsuan Hsu[1] and Chun-Hu Cheng[2]
1 Institute of Materials Science and Engineering, National Taipei University of Technology, Taipei, Taiwan
2 Department of Mechatronic Engineering, National Taiwan Normal University, Taipei, Taiwan
3 Department of Electrophysics, National Yang Ming Chiao Tung University, Hsinchu, Taiwan

P-D-05

Fabrication of $NaNbO_3$ ferroelectric thin films by a solution process and their photoinduced properties

Hidetomo Nishio *, Kei Sakurai, Yukana Fujii, Wataru Sakamoto
Department of Applied Chemistry,Chubu University, Japan

P-D-06

Synthesis and characterization of CeO_2-HfO_2 ferroelectric thin films by chemical solution deposition method

Keisuke Nishida *[1], Wataru Sakamoto [1], Ken-ichi Mimura [2]
1 Department of Applied Chemistry,Chubu University, Japan
2 National Institute of Advanced Industrial Science and Technology (AIST), Japan

P-D-07

Effect of ZrO_2 Addition on the Properties of Reduction-Resistant (Na,Ba)(Nb,Ti)O_3 Piezoelectric Ceramics

Yuki Tsuchiya*, Akito Terada, Mikia Fukaya, Wataru Sakamoto
Department of Applied Chemistry, Chubu University, Japan

P-D-08

Aging and fatigue resistance of zirconia with low yttria addition

Yu-Wen Hsiao*[1], Wei-Hsing Tuan[1], Jin-Ren Chen[2], Po-Liang Lai[2]
1 Department of Materials Science and Engineering, National Taiwan University, Taipei, Taiwan.
2 Department of Orthopedic Surgery, Bone and Joint Research Center, Chang Gung Memorial Hospital, Taiwan.

P-D-09

Preparation of amorphous aluminosilicates derived from rice husk charcoal for the recovery of ammonium cations from wastewater

Eisuke Hatano*[1] , Raquel Simancas[1], Masamori Takemura[1], Yukichi Sasaki[2], Anand Chokkalingam[2], S. P. Elangovan[1], Kenta Iyoki[1], Tatsuya Okubo[1], Toru Wakihara[1,3]
1 Department of Chemical System Engineering, The University of Tokyo, Japan
2 Nanostructures Research Laboratory, Japan Fine Ceramics Center, Japan
3 Institute of Engineering Innovation, The University of Tokyo, Japan

P-D-10

Evaluation of Microstructure and Properties of Thermal Barrier Coating Co-doped with Rare Earth Elements

Jeong-hyeon Lee[1], Janghyeok Pyeon[1], Sohee Baek[1], Junhyeok Nam[1], Seung-Cheol Yang[2], Byung-il Yang[2], Yeon-Gil Jung[2]
1 Department of Materials Convergence and System Engineering /
2 School of Materials Science and Engineering, Changwon National University, 51140, Republic of Korea

P-D-11

Influence of reduction treatment in vacuum at high temperature on the mechanical properties near the surface of single crystal 8YSZ

Nagaru Baba* [1], Junichi Tatami [1], Tatsuki Ohji [1], Motoyuki Iijima [1], Takuma Takahashi [2], Hiromi Nakano [3]
1 Yokohama National University
2 Kanagawa Institute of Industrial Science and Technology
3 Toyohashi University of Technology

P-D-12

SnO_2/ITO-Based Self-Powered Triboelectric Nanogenerator for Environmental and Multi-Mode Sensing Applications

Che-Feng Hsu*[1], Chian-Yu Yao[1], Jei-Li Hou[2], Ting-Jen Hsueh[1]
1 Department of Electronic Engineering National Kaohsiung University of Science and Technology Kaohsiung 807, Taiwan
2 Department of Microelectronics Engineering National Kaohsiung University of Science and Technology Kaohsiung 807, Taiwan

P-D-13

Effects of Surface-Modified Powders on the Sintering and Dielectric Properties of $(Mg1\text{-}xZnx)_2SiO_4$ Dielectric Ceramics

Tzung-Yuan Wu*, Shao-Ju Shih
Department of Materials Science and Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan

P-D-14

Substitution behavior of rare-earth elements in apatite under high pressure condition

Kaoru Miyashita*[1], Masanori Takemoto[1], Tatsuya Okubo[1], Toru Wakihara[1,2]
1 Department of Chemical System Engineering, The University of Tokyo, Japan
2 Institute of Engineering Innovation, The University of Tokyo, Japan

P-D-15

Preparation and Characterization of Yttrium Aluminum Garnet Phosphor Ceramics Using Laser-assisted Flash Sintering

Yung-Tang Nien*, Zong-Ye Ho, Xu-Min Su, Shih-Cheng Ma, Chien-Ying Chen
Department of Materials Science and Engineering, National Formosa University, Taiwan

P-D-16
Effect of residual stress on low-temperature degradation resistance of zirconia
Yan-Ting Lin *[1], Wei-Hsing Tuan [1], Jin-Ren Chen [2], Po-Liang Lai [2]
1 Department of Materials Science and Engineering, National Taiwan University
2 Department of Orthopedic Surgery, Bone and Joint Research Center, Chang Gung Memorial Hospital at Linkou, Taoyuan, Taiwan 333

P-D-17
Evaluation of Thermal Properties of Thermal Barrier Coatings Deposited with Ceramic Fine Particles
Haruka Abe* [1], Kentaro Shinoda [2], Megumi Akoshima [1], Koichi Kinoshita [3], Masato Suzuki [4], Mohammed Shahien [2]
1 National Metrology Institute of Japan, National Institute of Advanced Industrial Science and Technology (AIST), Japan
2 Advanced Manufacturing Research Institute (AMRI), AIST, Japan
3 Department of Energy and Environment, AIST, Japan
4 Global Zero Emission Research Center (GZR), AIST, Japan

P-D-18
Development of a Method for Measuring Thermal Conductivity of Powders using Spherical Structures
Haruka Abe*
National Metrology Institute of Japan, National Institute of Advanced Industrial Science and Technology (AIST), Japan

P-D-19
Effect of TiO_2 and AlN addition on the mesoscale mechanical properties of Si_3N_4 ceramics
Takahiro Saito*[1], Junichi Tatami[1], Motoyuki Iijima[1], Tatsuki Ohji[1], Tsukaho Yahagi[2], Takuma Takahashi[2], Hiromi Nakano[3]
1 Yokohama National University
2 Kanagawa Institute of Industrial Science and Technology
3 Toyohashi University of Technology

P-D-20
Surface affinity of silica particles investigated by a time-domain nuclear magnetic resonance (TD-NMR)
Tomoya Nagata[1], Ariga Kato[1], Junko Ikeda[2,3], Tomonori Fukasawa[4], Paul Kinyanjui Kimani[5], Yukari Sasaki[5], Chika Takai-Yamashita*[1, 3, 5]

P-D-21
Fabrication and Characteristics of WIZO MSM UV Photodetectors
Sheng-Po Chang*, Yi Chou
Department of Microelectronics Engineering, National Kaohsiung University of Science and Technology, Taiwan

P-D-22
Effect of Annealing Temperature on RF-Sputtered Ga_2O_3 MSM Deep Ultraviolet Photodetectors on Sapphire Substrate
Chun-Kai Wang* [1], Yu-Zung Chiou [2], Hong-De Liou [2]
1 Department of Microelectronics Engineering, National Kaohsiung University of Science and Technology, Taiwan
2 Department of Electronics Engineering, Southern Taiwan University of Science and Technology, Taiwan

P-E-01
Development of a Reduced-order Model for Gas-Solid Flow with Heat Transfer
Michael Castro*, Shou Li, Kai-en Yang, Toshiki Imatani, Mikio Sakai
Department of Nuclear Engineering and Management, The University of Tokyo, Tokyo, Japan

P-E-02
Numerical simulation on sequential powder die-filling processes in a rotary tablet press
Arata Hashimoto*, Mikio Sakai
School of Engineering, The University of Tokyo, Japan

P-E-03
Carrier-phase Direct Numerical Simulations of Coal Gasification Using Detailed and Global Chemistry
Jiangkuan Xing* [1], Satoshi Umemoto [2], Kenji Tanno [2], Hiroaki Watanabe [3], Ryoichi Kurose [3]
1 Department of Mechanical Engineering and Science, Kyoto University, Japan
2 Central Research Institute of Electric Power Industry (CRIEPI), Japan
3 Department of Advanced Environmental Science and Engineering, Kyushu University, Japan

P-E-04
Multi-timescale Reduced-order Model: A Data-driven Approach for Fast DEM-CFD Simulations
Kai-en Yang*, Shuo Li, Mikio Sakai
Department of Nuclear Engineering and Management, The University of Tokyo, Japan

P-E-05
Numerical analysis on gas-solid-liquid flow system by the DEM-VOF method
Boen Li*, Toshiki Imatani, Mikio Sakai
Department of Nuclear Engineering & Management, the University of Tokyo

P-E-06
Influences of interfacial shear stress in phase change heat transfer on a non-isothermal sphere with eddy diffusivity
Hai-Ping Hu*
Department of Marine Engineering, National Taiwan Ocean University, Taiwan

P-E-07
Mesoscale numerical modeling of reactive flow in packed bed reactor of porous particles
Masato Nii *, Mohammadreza Shirzadi, Takashi Ogi, Tomonori Fukasawa, Kunihiro Fukui, Toru Ishigami
Graduate School of Advanced Science and Engineering, Hiroshima University, Japan

P-E-08
Analysis of the Influence of Hot Briquetted Iron Addition on the Charging and Discharging Behavior in a Blast Furnace-Top Hopper Using the Discrete Element Method
Li-Shin Lu *[1], Qi-Han Jiang [2], Shu-San Hsiau [2,3] , Tsung-Yen Huang [4], Yong-Hao Siao [4]
1 Department of Industrial Engineering and Management, National Quemoy University, Kinmen, Taiwan
2 Department of Mechanical Engineering, National Central University, Taoyuan, Taiwan
3 Institute of Energy Engineering, National Central University, Taoyuan, Taiwan
4 China Steel Corporation, Kaohsiung, Taiwan

P-E-09
CFD-DEM simulation of pneumatic conveying using a coarse grain model
Ryo Tamai *, Takuya Tsuji, Toshitsugu Tanaka, Kimiaki Washino
Department of Mechanical Engineering, The University of Osaka, Osaka, Japan

P-E-10
Modeling Consolidation Behaviour Using DEM-Based Approach
Iori Nishizawa *[1], Kizuku Kushimoto [2], Junya Kano [2]
1 Graduate School of Environmental Studies, Tohoku University, Japan
2 Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan

P-E-11
LS-SPH: A high order SPH formulation based on the moving least squares with boundary constraints
Kota Matsunaga *[1], Shujiro Fujioka [1], Kensuke Shobuzako [2], Mitsuteru Asai [1]
1 Graduate School of Civil Engineering, Kyushu University, Japan
2 Department of Earth and Planetary Sciences, Graduate School of Science, Kyushu University, Japan

P-E-12
SPH Formulation on Non-Newtonian Model for Fresh Concrete Flow Prediction
Taiki Segawa *[1], Yoshiya Shirakami [1], Yoichi Yuki [2], Suguru Kano [2], Mitsuteru Asai [1]
1 Graduate School of Civil Engineering, Kyushu University, Japan
2 Yokogawa Bridge Holdings Corporation, Japan

P-E-13
DEM-CFD simulation on the suction effect in powder die filling
Masafumi Komiya *, Mikio Sakai
Department of Nuclear Engineering & Management, School of Engineering, the University of Tokyo, Japan

P-E-14
Optimization of Air Filter Microstructure Using Machine Learning and Numerical Simulation
Hina Tsuzuki *, Mohammadreza Shirzadi, Tomonori Fukasawa, Kunihiro Fukui, Toru Ishigami
Graduate School of Advanced Science and Engineering, Hiroshima University, Japan

Industry and Art Session

July 9, 2025 – July 11, 2025

Foyer

IA-01 Anton Paar Japan K.K.

IA-02 Ashizawa Finetech Ltd.

IA-03 Fuji Electronic Industrial Co., Ltd.

IA-04 KOZO KEIKAKU ENGINEERING Inc.

IA-05 Mageleka Japan Co., Ltd.

IA-06 MicrotracBEL Corp.

IA-07 NIPPON COKE & ENGINEERING CO., LTD.

IA-08 Nissin Seifun Group Inc.

IA-09 OHKAWARA KAKOHKI CO., LTD.

IA-10 PRIMIX Corporation

IA-11 SANTEC CORPORATION

IA-12 Society for the Study of Natural Pigments and the Grinding Process Using Stones from Mount Fuji (NPO)

IA-13 TOKUJU CORPORATION

IA-14 TOKYO SCREEN CO., LTD.

IA-15 TOYO TANSO CO., LTD.

IA-16 YONEKURA MFG. Co., LTD.