December 13 – 16, 2021 | **Virtual Conference**

A World of Science and Technology

PACRIM 14

14TH PACIFIC RIM CONFERENCE ON CERAMIC AND GLASS TECHNOLOGY

including Glass & Optical Materials Division Meeting (GOMD 2021)

CONFERENCE PROGRAM

ceramics.org/pacrim14

The American Ceramic Society
www.ceramics.org

PACRIM Organizing Chair:
Michael C. Halbig, NASA Glenn Research Center

GOMD Organizing Chairs:
Mathieu Hubert, Corning Incorporated
Doris Moncke, Alfred University

WELCOME

I am pleased to welcome you to the 14th Pacific Rim Conference on Ceramic and Glass Technology (PACRIM 14). The Pacific Rim Conference on Ceramic and Glass Technology is a bi-annual conference held in collaboration with the ceramic societies of the Pacific Rim countries, namely The American Ceramic Society, Chinese Ceramic Society, Ceramic Society of Japan, Korean Ceramic Society, and the Australian Ceramic Society. The 1st PACRIM conference was hosted by The American Ceramic Society (ACerS) in Honolulu, Hawaii, in 1993. For this 14th PACRIM, we are happy to see that we all could come together virtually during these challenging times.

The comprehensive PACRIM 14 technical program offers a wide range of very exciting and emerging topics with 40 symposia divided into 7 different tracks. The PACRIM 14 program provides participants with a forum to identify global challenges and opportunities in various ceramic technologies and for knowledge exchange to facilitate the establishment of new contacts from all over the world.

I highly encourage you to join your colleagues in attending the special symposia. The Plenary Session on Monday morning features keynote talks by Mary Anne White, Dalhousie University: Jaw-shen Tsai, Tokyo University of Science / RIKEN Center for Quantum Computing (RQC); Melissa Orme, Boeing Company; and Sang Il Seok, Ulsan National Institute of Science and Technology (UNIST). The talks are focused on the theme of materials and manufacturing technologies for sustainable development. Other special symposia include The 6th International Richard M. Fulrath Symposium which is focused on "Frontiers of Ceramics for a Sustainable Society" and the Young Investigator forum which is focused on "Next-Generation Materials for Multifunctional Applications and Sustainable Development, and Concurrent Societal Challenges in the New Millennium."

PACRIM 14 also includes the important topics covered in the Glass and Optical Materials Division (GOMD) Annual Meeting, including six award lectures and a student poster competition. Please refer to the GOMD section of this program for all the details.

Finally, we appreciate the support of our sponsors for their generosity. Please refer to this program for the full list of sponsors.

We sincerely hope you take advantage of all the opportunities PACRIM14 offers to learn about the latest technologies, meet friends and acquaintance, share ideas, and form collaborations.

Organizing Chair:

Michael C. Halbig,
NASA Glenn Research Center

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GOMD Annual Meeting

Combined Final Program by Day

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AMERICAN CERAMIC SOCIETY bulletin

MEETING REGULATIONS

MEETING REGULATIONS

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Diversity Statement: The American Ceramic Society values diverse and inclusive participation within the field of ceramic science and engineering. ACerS strives to promote involvement and access to leadership opportunity regardless of race, ethnicity, gender, religion, age, sexual orientation, nationality, disability, appearance, geographic location, career path or academic level.

The American Ceramic Society will record all virtual sessions and make them available for viewing by registered attendees until February 28, 2022 through the Bravura Connect O portal.

By participating in the conference, you grant The American Ceramic the right to use your name, whether in print, electronic or other media, including The American Ceramic Society's website.

Registration Requirements: Attendance at any meeting of the Society shall be limited to duly registered persons.

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SCHEDULE AT A GLANCE

The virtual meeting will run in the Pacific Standard Time zone (PST)	PACRIM	GOMD
MONDAY, DECEMBER 13, 2021		
PACRIM Opening remarks and plenary lectures and Samuel Geijsbeek PACRIM International award announcement	8:30 a.m. – 8:45 a.m. PST	
GOMD Opening remarks and Otto Schott award presentation and lectures		9:30 a.m. – 11:00 a.m. PST
International Year of Glass announcement		11:00 a.m. – 12:00 p.m. PST
Concurrent sessions	1:30 p.m. – 6:00 p.m. PST	1:40 p.m. – 5:30 p.m. PST
Welcome live networking session	6:00 p.m. – 6:45 p.m. PST	6:00 p.m. – 6:45 p.m. PST
TUESDAY, DECEMBER 14, 2021		
George W. Morey award presentation and lecture		8:30 a.m. – 9:20 a.m. PST
Concurrent sessions	8:30 a.m. – 12:00 p.m. PST	9:40 a.m. – 12:00 p.m. PST
Concurrent sessions	1:30 p.m. – 5:30 p.m. PST	1:30 p.m. – 5:30 p.m. PST
WEDNESDAY, DECEMBER 15, 2021		
Concurrent sessions	8:30 a.m. – 12:00 p.m. PST	8:30 a.m. – 12:00 p.m. PST
Norbert J Kreidl Award presentation and lecture		12:00 p.m. – 1:00 p.m. PST
THURSDAY, DECEMBER 16, 2021		
Varshneya Glass Technology award lecture		8:30 a.m. – 9:20 a.m. PST
Alfred R. Cooper Award lecture		9:20 a.m. – 10:00 a.m. PST
Concurrent sessions	8:30 a.m. – 12:00 p.m. PST	10:20 a.m. – 12:00 p.m. PST
Concurrent sessions	1:30 p.m. – 5:30 p.m. PST	1:30 p.m. – 5:30 p.m. PST

PLENARY SESSION

Monday, December 13, 2021

The Samuel Geijsbeek PACRIM International Awards

8:45 – 9:00 a.m.

Award honors Samuel Geijsbeek, one of the founders of The American Ceramic Society, who died in 1943.

The award recognizes individuals who are members of the Pacific Rim Conference (PACRIM) societies, for their contributions in the field of ceramics and glass technology that have resulted in significant industrial and/or academic impact, international advocacy, and visibility of the field.

Two Geijsbeek Awards will be presented during the plenary session honoring **Makio Naito** and **Young-Wook Kim**.

Makio Naito
Joining and Welding Research Institute (JWRI), Osaka University, Japan

Young-Wook Kim
University of Seoul, Korea

PACRIM Plenary Session

9:00 – 9:40 a.m.

Mary Anne White, Harry Shirreff Professor of Chemical Research (Emerita), Department of Chemistry, Dalhousie University, Canada

Title: ***Thermal properties of advanced ceramics***

9:40 – 10:20 a.m.

Jaw-Shen Tsai, Professor of Physics, Tokyo University of Science, Dept. of Physics, Japan; Laboratory Head of Macroscopic Quantum Coherence Research, RIKEN Center for Quantum Computing (RQC), Japan

Title: ***Superconducting quantum computer and its future issues***

10:40 – 11:20 a.m.

Melissa Orme, Vice President, Boeing Additive Manufacturing, The Boeing Company, USA

Title: ***Recent advances in the disruptive technology of additive manufacturing at Boeing***

11:20 a.m. – 12:00 p.m.

Sang Il Seok, Distinguished Professor, Laboratory for Energy Harvesting Materials and Systems (LEHMS), School of Energy and Chemical Engineering, Ulsan National Institute of Science and Technology (UNIST), Korea

Title: ***Halide perovskite-based photovoltaics - from materials to devices***

SESSIONS by SYMPOSIA

PACRIM

Sessions	Date	Time
PLENARY SESSION	Monday, December 13, 2021	8:30 AM - 12:00 PM

MULTISCALE MODELING, SIMULATION, AND CHARACTERIZATION

Symposium 1: Characterization and Modeling of Ceramic Interfaces: Structure, Bonding, and Grain Growth

Correlation of Interfaces with Macroscopic Properties / Grain Boundary and Interface Structures	Thursday, December 16, 2021	8:30 AM - 11:40 AM
Microstructure Evolution and Grain Growth / Advances in Interface Characterization and Modeling	Thursday, December 16, 2021	1:30 PM - 4:10 PM

Symposium 2: Frontier of Modeling and Design of Ceramics and Composites

Modeling and Design of Ceramics and Composites	Wednesday, December 15, 2021	8:30 AM - 11:00 AM

Symposium 3: Advanced Structure Analysis and Characterization of Ceramics

Electron Microscopy and Probe Microscopy	Thursday, December 16, 2021	8:30 AM - 12:00 PM
Spectroscopic and Scattering Methods	Thursday, December 16, 2021	1:30 PM - 4:50 PM

INNOVATIVE PROCESSING AND MANUFACTURING

Symposium 4: Novel, Green, and Strategic Processing and Manufacturing Technologies

Novel, Green, and Strategic Processing I	Monday, December 13, 2021	3:00 PM - 5:30 PM
Novel, Green, and Strategic Processing II	Tuesday, December 14, 2021	8:30 AM - 11:40 AM
Novel, Green, and Strategic Processing III	Tuesday, December 14, 2021	1:30 PM - 4:50 PM
Novel, Green, and Strategic Processing IV	Wednesday, December 15, 2021	8:30 AM - 10:50 AM

Symposium 5: Polymer Derived Ceramics (PDCs) and Composites

Precursors and Properties	Thursday, December 16, 2021	8:30 AM - 9:40 AM
Processing and Simulations	Thursday, December 16, 2021	10:00 AM - 12:00 PM
Processing and Applications I	Thursday, December 16, 2021	1:30 PM - 3:10 PM
Processing and Applications II	Thursday, December 16, 2021	3:10 PM - 3:50 PM

Symposium 6: Advanced Powder Processing and Manufacturing Technologies

Advanced Recycling Technology and Energy-saving Processes	Monday, December 13, 2021	1:30 PM - 3:10 PM
Novel Forming and Sintering Technology	Monday, December 13, 2021	3:20 PM - 5:20 PM
Controlled Composites or Pore Structure	Tuesday, December 14, 2021	8:30 AM - 9:30 AM
Particle and Powder Design and Synthesis	Tuesday, December 14, 2021	10:00 AM - 12:00 PM

Symposium 7: Synthesis, Processing, and Micro-structural Control of Materials using Electric Currents, Magnetic fields and/or Pressures

Synthesis, Processing, and Micro-structural Control of Materials using Electric Currents, Magnetic fields and/or Pressures	Wednesday, December 15, 2021	8:30 AM - 10:50 AM

SESSIONS by SYMPOSIA

PACRIM

Sessions	Date	Time
Symposium 8: Porous Ceramics: Innovative Processing and Advanced Applications		
Additive Manufacturing for Porous Ceramics	Wednesday, December 15, 2021	8:30 AM - 9:40 AM
Catalytic Performances of Porous Ceramics	Wednesday, December 15, 2021	9:40 AM - 11:10 AM
Ceramic Membranes	Thursday, December 16, 2021	8:30 AM - 9:20 AM
Properties of Porous Ceramics	Thursday, December 16, 2021	10:00 AM - 11:40 AM
Innovative Processing Route for Porous Ceramics	Thursday, December 16, 2021	1:30 PM - 2:30 PM
Porous Ceramics for Thermal Management	Thursday, December 16, 2021	3:20 PM - 4:20 PM
Symposium 9: Additive Manufacturing and 3D Printing Technologies—Sponsored by: AMERICAN ELEMENTS THE ADVANCED MATERIALS MANUFACTURER®		
Emerging Technology	Thursday, December 16, 2021	8:30 AM - 9:40 AM
Slurry-Based Technique	Thursday, December 16, 2021	10:00 AM - 11:40 AM
Multi-Material Process	Thursday, December 16, 2021	1:30 PM - 2:40 PM
Laser Processing	Thursday, December 16, 2021	3:20 PM - 4:20 PM
Symposium 10: Sol-Gel Processing and Related Liquid-Phase Synthesis of Ceramics		
Liquid-Phase Synthesis/Sol-Gel Process	Tuesday, December 14, 2021	8:30 AM - 11:30 AM
Powders, Fibers, Films, Monoliths, and Gels	Tuesday, December 14, 2021	1:30 PM - 3:10 PM
Nanoparticles, Nanofibers, Nanorods, and Nanosheets	Tuesday, December 14, 2021	3:10 PM - 5:10 PM
Hierarchical Structuring Method	Wednesday, December 15, 2021	8:30 AM - 9:30 AM
Porous Low-density Materials (Aerogels)	Wednesday, December 15, 2021	9:30 AM - 10:50 AM
Symposium 12: Specific Reaction Field and Material Fabrication Design		
Specific Reaction Field and Material Fabrication Design	Wednesday, December 15, 2021	8:30 AM - 10:10 AM

NANOTECHNOLOGY AND STRUCTURAL CERAMICS

Symposium 13: Novel Nanocrystal Technologies for Advanced Ceramic Materials & Devices—Sponsored by: AMERICAN ELEMENTS THE ADVANCED MATERIALS MANUFACTURER®		
Synthesis of Nanocrystals and Nanocomposites	Thursday, December 16, 2021	8:30 AM - 10:00 AM
Fabrication of 1D-, 2D-, and 3D-Assemblies, Coating Films, and Bulk Ceramics by using Nanocrystals	Thursday, December 16, 2021	10:00 AM - 11:00 AM
Applications and Functional Devices using Nanocrystals and Characterizations	T hursday, December 16, 2021	11:00 AM - 11:40 AM
Applications and Functional Devices using Nanocrystals	Thursday, December 16, 2021	1:30 PM - 2:30 PM
Symposium 14: Functional Nanomaterials for Energy Harvesting and Solar Fuels		
Functional Metal Oxide Nano- and Heterostructures for Photocatalysis and Solar Fuels	Wednesday, December 15, 2021	8:30 AM - 10:50 AM
Innovative Processing of Functional Nanomaterials for Optoelectronic Devices / Advanced Materials for Next Generation Photovoltaic Devices	Thursday, December 16, 2021	8:30 AM - 10:50 AM
Symposium 15: Engineering Ceramics and Ceramic Matrix Composites: Design, Development, and Applications		
Advanced Processing of Ceramic Matrix Composites	Tuesday, December 14, 2021	8:30 AM - 10:20 AM
Mechanical Properties of Ceramic Matrix Composites	Tuesday, December 14, 2021	10:20 AM - 11:40 AM
Polymer-Derived Ceramic Matrix Composites	Tuesday, December 14, 2021	1:30 PM - 3:10 PM
Sintering and Properties of Engineering Ceramics	Tuesday, December 14, 2021	3:40 PM - 5:20 PM
Symposium 16: Advanced Structural Ceramics for Extreme Environments		
Advanced Structural Ceramics for Extreme Environments	Thursday, December 16, 2021	8:30 AM - 11:10 AM

SESSIONS by SYMPOSIA

PACRIM

Sessions	Date	Time
Symposium 17: Multifunctional Coatings for Structural, Energy, and Environmental Applications—Sponsored by: AMERICAN ELEMENTS		
Multifunctional Coatings	Wednesday, December 15, 2021	8:30 AM - 10:40 AM
Symposium 18: Advanced Wear Resistant Materials: Tribology and Reliability		
Mechanical and Tribological Behavior of Advanced Materials	Thursday, December 16, 2021	8:30 AM - 10:50 AM
Design of Novel Functional Materials	Thursday, December 16, 2021	1:30 PM - 2:40 PM
Symposium 19: Geopolymers: Low Energy and Environmentally Friendly Ceramics		
Geopolymers	Wednesday, December 15, 2021	8:30 AM - 10:00 AM

MULTIFUNCTIONAL MATERIALS AND SYSTEMS

Symposium 20: Multiferroic Materials, Devices, and Applications		
Multiferroic Materials, Devices, and Applications I	Monday, December 13, 2021	1:30 PM - 3:20 PM
Multiferroic Materials, Devices, and Applications II	Monday, December 13, 2021	3:20 PM - 5:20 PM
Multiferroic Materials, Devices, and Applications III	Tuesday, December 14, 2021	8:30 AM - 9:40 AM
Multiferroic Materials, Devices, and Applications IV	Tuesday, December 14, 2021	10:00 AM - 12:00 PM
Multiferroic Materials, Devices, and Applications V	Tuesday, December 14, 2021	1:30 PM - 3:20 PM
Symposium 21: Crystalline Materials for Electrical, Optical, and Medical Applications		
Piezo/Ferro-electric Materials	Tuesday, December 14, 2021	9:00 AM - 9:40 AM
Semiconductors	Tuesday, December 14, 2021	10:00 AM - 12:00 PM
Scintillation Materials	Tuesday, December 14, 2021	1:30 PM - 3:20 PM
Optical Materials I	Wednesday, December 15, 2021	8:40 AM - 10:00 AM
Optical Materials II	Wednesday, December 15, 2021	10:00 AM - 12:00 PM
Symposium 22: Microwave Dielectric Materials and Their Applicationss		
Millimeter-wave Materials for 5G Applications	Monday, December 13, 2021	1:30 PM - 5:20 PM
Dielectric Materials and Metamaterials for Microwave Applications	Tuesday, December 14, 2021	8:30 AM - 10:50 AM
Microwave Dielectric Materials and Applications	Tuesday, December 14, 2021	1:30 PM - 2:30 PM
Symposium 23: Transparent Ceramic Materials and Devices		
Transparent Ceramic Materials I	Thursday, December 16, 2021	10:00 AM - 12:00 PM
Transparent Ceramic Materials II	Thursday, December 16, 2021	1:30 PM - 3:50 PM

SESSIONS by SYMPOSIA

PACRIM

Sessions	Date	Time
CERAMICS FOR ENERGY SYSTEMS		
Symposium 24: Solid Oxide Fuel Cells and Hydrogen Technologies		
Proton Conducting SOFC I	Monday, December 13, 2021	1:30 PM - 3:20 PM
Proton Conducting SOFC II	Monday, December 13, 2021	3:20 PM - 6:00 PM
Electrode Materials and Degradation/Oxygen Ion and Mixed Conductors	Tuesday, December 14, 2021	8:40 AM - 9:50 AM
Proton Conducting SOFC III	Tuesday, December 14, 2021	1:30 PM - 3:20 PM
Proton Conducting SOFC IV	Tuesday, December 14, 2021	3:20 PM - 5:00 PM
Electrode Materials	Wednesday, December 15, 2021	8:40 AM - 10:00 AM
Electrode Materials and Interconnects	Wednesday, December 15, 2021	10:00 AM - 11:40 AM
High Temperature Electrolysis and Electrodes	Thursday, December 16, 2021	10:00 AM - 12:00 PM
Reliability and Degradation	Thursday, December 16, 2021	1:30 PM - 2:50 PM
SOFC Prototypes, Electrodes and Sealants	Thursday, December 16, 2021	3:20 PM - 5:00 PM
Symposium 25: Direct Thermal to Electrical Energy Conversion Materials, Applications, and Thermal Energy Harnessing Challenges		
Computation and Theories	Tuesday, December 14, 2021	1:30 PM - 3:20 PM
Oxides, Nitrides, Sulfides	Tuesday, December 14, 2021	3:20 PM - 5:00 PM
Tellurides	Wednesday, December 15, 2021	8:30 AM - 10:00 AM
Emerging Materials	Wednesday, December 15, 2021	10:00 AM - 11:50 AM
Symposium 26: Materials for Solar Thermal Energy Conversion and Storage		
Materials to Produce Synthetic Fuels	Wednesday, December 15, 2021	8:30 AM - 10:00 AM
Symposium 27: Advanced Materials and Technologies for Electrochemical Energy Storage Systems—Sponsored by: AMERICAN ELEMENTS THE ADVANCED MATERIALS MANUFACTURER®		
Materials Design, Screening and Electrode Architecture	Monday, December 13, 2021	1:30 PM - 3:30 PM
Electrode/Electrolyte Interphase	Tuesday, December 14, 2021	8:40 AM - 10:00 AM
Solid Electrolytes	Tuesday, December 14, 2021	10:00 AM - 12:00 PM
Advanced Anode and Cathode Materials/Supercapacitors	Tuesday, December 14, 2021	1:30 PM - 2:50 PM
All Solid State Batteries/Li/Na-Sulfur Batteries	Wednesday, December 15, 2021	8:40 AM - 10:10 AM
Symposium 28: Atomic Structure and Electrochemical Property Diagnosis Toward Full Crystal Rechargeable Batteries		
All Solid-state Battery System	Thursday, December 16, 2021	8:30 AM - 10:00 AM
Solid-state Electrolytes	Thursday, December 16, 2021	10:00 AM - 12:00 PM
Characterization of Battery Materials and Interfaces I	Thursday, December 16, 2021	1:30 PM - 2:50 PM
Characterization of Battery Materials and Interfaces II	Thursday, December 16, 2021	3:20 PM - 5:20 PM
Symposium 29: Ceramics and Ceramic Matrix Composites for Next Generation Nuclear Energy		
Ceramics and Ceramic Matrix Composites for Next Generation Nuclear Energy	Monday, December 13, 2021	1:30 PM - 4:30 PM
CERAMICS FOR ENVIRONMENTAL SYSTEMS		
Symposium 31: Advanced Functional Materials, Devices, and Systems for Environmental Conservation, Pollution Control, and Critical Materials—Sponsored by: AMERICAN ELEMENTS THE ADVANCED MATERIALS MANUFACTURER®		
Phosphors and Optical Ceramics for LEDs	Monday, December 13, 2021	2:00 PM - 3:20 PM
Critical Materials / Recovery and Recycling of Rare Metals	Monday, December 13, 2021	3:20 PM - 5:50 PM
VOCs / Ion-conducting Ceramics I	Tuesday, December 14, 2021	10:00 AM - 11:40 AM
Automotive Ceramic Sensors / Critical Materials	Tuesday, December 14, 2021	1:40 PM - 3:00 PM
OCs / Ion-conducting Ceramics II	Tuesday, December 14, 2021	3:00 PM - 4:50 PM

SESSIONS by SYMPOSIA

PACRIM

Sessions	Date	Time
Symposium 32: Ceramics for Enabling Environmental Protection: Clean Air and Water		
Ceramics for Enabling Environmental Protection: Clean Air and Water	Thursday, December 16, 2021	8:30 AM - 9:20 AM
Symposium 33: Photocatalysts for Energy and Environmental Applications		
Photocatalysts for Energy and Environmental Applications	Thursday, December 16, 2021	1:30 PM - 2:10 PM
Symposium 34: Glass and Ceramics for Nuclear Waste Treatment and Sequestration		
Waste Form Matrices-Synthesis and Characterization I	Tuesday, December 14, 2021	8:30 AM - 9:40 AM
Waste Form Matrices-Synthesis and Characterization II	Tuesday, December 14, 2021	10:00 AM - 11:40 AM
Waste Form Matrices-Synthesis and Characterization III	Tuesday, December 14, 2021	1:30 PM - 3:00 PM
Waste Form Matrices-Synthesis and Characterization IV	Tuesday, December 14, 2021	3:20 PM - 4:20 PM
Waste Form Matrices-Synthesis and Characterization V	Wednesday, December 15, 2021	8:30 AM - 9:40 AM
Waste Form Matrices-Synthesis and Characterization VI	Wednesday, December 15, 2021	10:00 AM - 12:00 PM

BIOMATERIALS, BIOTECHNOLOGIES, AND BIOINSPIRED MATERIALS

Symposium 35: Advanced Additive Manufacturing Technologies for Bio-applications; Materials, Processes, and Systems		
Advanced Additive Manufacturing Technologies for Bio-applications; Materials, Processes, and Systems I	Monday, December 13, 2021	1:30 PM - 3:20 PM
Advanced Additive Manufacturing Technologies for Bio-applications; Materials, Processes, and Systems II	Monday, December 13, 2021	3:20 PM - 6:00 PM
Symposium 36: Advanced Multifunctional Bioceramics and Clinical Applications		
Bioceramic Coatings / Bioglass	Tuesday, December 14, 2021	8:30 AM - 11:30 AM
Biological Cell Response / Clinical Research / Calcium Phosphates	Tuesday, December 14, 2021	1:30 PM - 2:50 PM
Symposium 37: Material and Technology Needs for Medical Devices, Sensors, and Tissue Regeneration— Sponsored by: AMERICAN ELEMENTS THE ADVANCED MATERIALS MANUFACTURER®		
Device, Sensor, and Tissue Regeneration I	Tuesday, December 14, 2021	8:30 AM - 9:50 AM
Device, Sensor, and Tissue Regeneration II	Tuesday, December 14, 2021	10:00 AM - 11:30 AM
Device, Sensor, and Tissue Regeneration III	Tuesday, December 14, 2021	1:30 PM - 3:00 PM
Device, Sensor, and Tissue Regeneration IV	Tuesday, December 14, 2021	3:20 PM - 4:40 PM
Symposium 38: Nanotechnology in Medicine—Sponsored by: AMERICAN ELEMENTS THE ADVANCED MATERIALS MANUFACTURER®		
Nanotechnology in Medicine I	Monday, December 13, 2021	1:30 PM - 3:20 PM
Nanotechnology in Medicine II	Monday, December 13, 2021	3:20 PM - 5:50 PM
Symposium 39: Biomimetics and Bioinspired Processing of Advanced Materials		
Biomimetics and Bioinspired Processing	Monday, December 13, 2021	1:30 PM - 4:40 PM

SESSIONS by SYMPOSIA

PACRIM

Sessions	Date	Time
SPECIAL TOPICS		
Symposium 40: 6th International Richard M. Fulrath Symposium, "Frontiers of Ceramics for a Sustainable Society"— Sponsored by: AMERICAN ELEMENTS THE ADVANCED MATERIALS MANUFACTURER®		
Ceramics for Sustainable Energy and Environmental Systems I	Monday, December 13, 2021	1:30 PM - 2:50 PM
Ceramics for Sustainable Energy and Environmental Systems II	Monday, December 13, 2021	3:20 PM - 4:50 PM
Advanced Ceramic Technologies in AI, IoT, and Big Data	Monday, December 13, 2021	5:20 PM - 5:50 PM
Emerging Ceramic Materials and Technologies I	Tuesday, December 14, 2021	8:40 AM - 10:00 AM
Emerging Ceramic Materials and Technologies II	Tuesday, December 14, 2021	10:00 AM - 11:30 AM
Global Human Health Challenges	Tuesday, December 14, 2021	1:30 PM - 2:50 PM
Emerging Ceramic Materials and Technologies III	Tuesday, December 14, 2021	3:20 PM - 5:20 PM
Symposium 42: Young Investigator Forum - Next-Generation Materials for Multifunctional Applications and Sustainable Development, and Concurrent Societal Challenges in the New Millennium—Sponsored by: AMERICAN ELEMENTS THE ADVANCED MATERIALS MANUFACTURER®		
Energy: Advances in Fundamental Science of Emerging Energy Materials I	Monday, December 13, 2021	1:30 PM - 3:20 PM
Energy: Advances in Fundamental Science of Emerging Energy Materials II	Monday, December 13, 2021	3:20 PM - 5:50 PM
Computational Materials Prediction and Design Toward New Functional Materials	Tuesday, December 14, 2021	8:30 AM - 10:00 AM
Health: Diagnostics and Therapy Towards Multifunctional Theranostics I	Tuesday, December 14, 2021	10:00 AM - 11:10 AM
Health: Diagnostics and Therapy Towards Multifunctional Theranostics II	Tuesday, December 14, 2021	1:30 PM - 2:50 PM
Health: Diagnostics and Therapy Towards Multifunctional Theranostics III	Tuesday, December 14, 2021	3:20 PM - 5:20 PM
ALL POSTERS PACRIM AND GOMD POSTERS	**ON DEMAND THROUGHOUT THE CONFERENCE**	

SYMPOSIA ORGANIZERS

Program Chair:

Michael C. Halbig, NASA Glenn Research Center

MULTISCALE MODELING, SIMULATION, AND CHARACTERIZATION

S1: Characterization and Modeling of Ceramic Interfaces: Structure, Bonding, and Grain Growth

Klaus van Benthem, University of California Davis, USA; **Naoya Shibata**, The University of Tokyo, Japan; **Katsuyuki Matsunaga**, Nagoya University, Japan; **Sung-Yoon Chung**, KAIST Institute, Republic of Korea

S2: Frontier of Modeling and Design of Ceramics and Composites

Jingyang Wang, Institute of Metal Research, Chinese Academy of Sciences, China; **Wai-Yim Ching**, University of Missouri-Kansas City, USA; **Hyung-Tae Kim**, Korean Institute of Ceramic Engineering and Technology, Korea; **Kwang-Ryeol Lee**, Korea Institute of Science and Technology, Korea; **Bin Liu**, Shanghai University, China; **Jian Luo**, University of California San Diego, USA; **Katsuyuki Matsunaga**, Nagoya University, Japan; **Isao Tanaka**, Kyoto University, Japan; **Gerard L. Vignoles**, University of Bordeaux, France; **William J. Weber**, University of Tennessee, USA

S3: Advanced Structure Analysis and Characterization of Ceramics

Scott T. Misture, Alfred University, USA; **Jie Zhang**, Institute of Metal Research CAS, China; **Masatomo Yashima**, Tokyo Institute of Technology, Japan; **Chunlin Chen**, Institute of Metal Research, Chinese Academy of Sciences, China; **Toru Asaka**, Nagoya Institute of Technology, Japan

INNOVATIVE PROCESSING AND MANUFACTURING

S4: Novel, Green, and Strategic Process ing and Manufacturing Technologies

Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology, Japan; **Zhengyi Fu**, Wuhan University of Technology, China; **Samuel Bernard**, CNRS, France; **Eugene Medvedovski**, Endurance Technologies Inc., Canada; **Richard D. Sisson, Jr.**, Worcester Polytechnic Institute, USA; **Tohru S. Suzuki**, National Institute for Materials Science, Japan; **Richard Todd**, University of Oxford, UK; **Naoki Wakiya**, Shizuoka University, Japan; **Changan Wang**, Tsinghua University, China; **Weimin Wang**, Wuhan University of Technology, China; **Yiquan Wu**, Alfred University, USA

S5: Polymer Derived Ceramics (PD Cs) and Composites

Paolo Colombo, University of Padova, Italy; **Ralf Riedel**, Technical University Darmstadt, Germany; **Yuji Iwamoto**, Nagoya Institute of Technology, Japan; **Samuel Bernard**, IRCER - University of Limoges, France; **Raj Bordia**, Clemson University, USA; **Dong-Pyo Kim**, Pohang University of Science and Technology, Korea; **Peter Kroll**, The University of Texas Arlington, USA; **Xingang Luan**, Northwestern Polytechnical University, China; **Philippe Miele**, University of Montpellier, France; **Gurpreet Singh**, Kansas State University, USA; **Gian Domenico Sorarù**, University of Trento, Italy; **Zhaoju Yu**, Xiamen University, China; **Yiguang Wang**, Beijing Institute of Technology, China; **Yingde Wang**, National University of Defense Technology, China

S6: Advanced Powder Process ing and Manufacturing Technologies

Makio Naito, Joining and Welding Research Institute, Osaka University; **Junichi Tatami**, Yokohama National University, Japan; **Dechang Jia**, Harbin Institute of Technology, China; **Masayoshi Fuji**, Nagoya Institute of Technology, Japan; **Fiqiri Hodaj**, Grenoble Institute of Technology, France; **Yuji Hotta**, National Institute of Advanced Industrial Science and Technology, Japan; **C.C.Huang**, Hosokawa Micron Powder Systems, USA; **Toshihiro Ishikawa**, Tokyo University of Science, Yamaguchi, Japan; **Jian Luo**, University of California San Diego, USA; **Taeseup Song**, Hanyang University, Korea; **Tohru S. Suzuki**, National Institute for Materials Science, Japan; **Satoshi Tanaka**, Nagaoka University of Technology, Japan; **Chiharu Tokoro**, Waseda University, Japan; **Wei-Hsing Tuan**, National Taiwan University, Taiwan; **Jingxian Zhang**, Shanghai Institute of Ceramics, China

S7: Synthesis, Process ing, and Micro-structural Control of Materials using Electric Currents, Magnetic Fields and/or Press ures

Javier E. Garay, University of California San Diego, USA; **Yasuhiro Kodera**, University of California San Diego, USA; **Takashi Goto**, Institute for Materials Research, Tohoku University, Japan; **Manshi Ohyanagi**, Ryukoku University, Japan

S8: Porous Ceramics : Innovative Process ing and Advanced Applications

Manabu Fukushima, National Institute of Advanced Industrial Science and Technology, Japan; **Paolo Colombo**, Università di Padova, Italy; **Yu-ping Zeng**, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China; **Samuel Bernard**, IRCER – CNRS-University of Limoges, France; **Tobias Fey**, Universität Erlangen-Nürnberg, Germany; **Miki Inada**, Kyushu University, Japan; **Young-Wook Kim**, University of Seoul, Republic of Korea; **Alberto Ortona**, University of Applied Sciences and Arts of Southern Switzerland, Switzerland; **Akihiro Shimamura**, National Institute of Advanced Industrial Science and Technology, Japan

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S9: Additive Manufacturing and 3D Printing Technologies
Soshu Kirihara, Osaka University, Japan; **Mrityunjay Singh,** Ohio Aerospace Institute, USA; **Michael Halbig**, NASA Glenn Research Center, USA; **Hui-Suk Yun**, KIMS, Korea; **Martin Schwentenwein**, Lithoz GmbH, Austria; **Alberto Ortona**, SUPSI, Switzerland; **Giorgia Franchin**, Università di Padova, Italy; **Tyrone Jones**, Army Research Laboratory, USA; **Arnaldo Moreno Berto**, ITC, Spain; Zhangwei Chen, Shenzhen University, China

S11: Layered Double Hydroxides: Science and Design of Binding Field with Charged Layers
Kiyoharu Tadanaga, Hokkaido University, Japan; **Chikako Moriyoshi**, Hiroshima University, Japan; **Kentaro Teramura**, Kyoto University, Japan; **Jae-Min Oh**, Dongguk University, Korea; **Andrei Jitianu**, City University of New York, USA

S12: Specific Reaction Field and Material Fabrication Design
Yamato Hayashi, Tohoku University, Japan; **Shu Yin**, Tohoku University, Japan; **Takahiro Nakamura**, Tohoku University, Japan; T**akashi Shirai**, Nagoya Institute of Technology, Japan; **Masaru Watanabe**, Tohoku University, Japan; **Naoya Enomoto**, National Institute of Technology, Ariake College, Japan; **Yunzi Xin**, Nagoya Institute of Technology, Japan; **Wenbin Cao**, University of Science and Technology Beijing, China; **Soo Wohn Lee**, Sunmoon University, Korea; **Stephan Barcikowski**, University of Duisburg-Essen, Germany; **Sébastien Vaucher**, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; **Maria-Magdalena Titirici**, University of London, England; **Sivakumar Manickam**, The University of Nottingham Malaysia Campus, Malaysia; **Masaki Kubo**, Tohoku University, Japan

NANOTECHNOLOGY AND STRUCTURAL CERAMICS

S13: Novel Nanocrystal Technologies for Advanced Ceramic Materials & Devices
Bryan D. Huey, University of Connecticut, USA; **Ken-ichi Mimura**, AIST, Japan; **Shintaro Ueno**, University of Yamanashi, Japan; **Takaaki Taniguchi**, National Institute for Material Science, Japan; **Feng Dang**, Shandong University, China; **Dewei Chu**, University of South Wales, Australia; **Shao-Sian Li**, National Taipei University of Technology, Taiwan

S14: Functional Nanomaterials for Energy Harvesting and Solar Fuels
Sanjay Mathur, University of Cologne; Tohru Sekino, Osaka University, Japan; **Soo-Wohn Lee**, Sun Moon University, Korea; **Flavio de Souza**, Universidade Federal do ABC, Brazil; **Yasuhiro Tachibana**, RMIT University, Australia; **Gunnar Westin**, Uppsala University, Stockholm, Sweden; **Yoshitake Masuda**, AIST, Japan; **N. V. Ravi Kumar**, IIT Madras, India; **Daniel Chua**, National University of Singapore, Singapore; **Emanuel Ionescu**, TU Darmstadt, Germany; **Shashank Mishra**, University of Lyon, France

S15: Engineering Ceramics and Ceramic Matrix Composites: Design, Development, and Applications
Young-Wook Kim, University of Seoul, Korea; **Shaoming Dong**, Shanghai Institute of Ceramics, China; **Ji Yeon Park**, Korea Atomic Energy Research Institute, Korea; **Amjad Almansour**, NASA Glenn Research Center, USA; **Junichi Tatami**, Yokohama National University, Japan; **Walter Krenkel**, University of Bayreuth, Germany; **Hagen Klemm**, Fraunhofer Institute for Ceramic Technologies and Systems, IKTS, Germany; **Hua-Tay Lin**, Guangdong University of Technology, China; **Gerard L. Vignoles**, University of Bordeaux, France; **Laifei Cheng**, Northwestern Polytechnical University, China

S16: Advanced Structural Ceramics for Extreme Environments
Yanchun Zhou, Aerospace Research Institute of Material & Processing Technology, China; **William G. Fahrenholtz**, Missouri University of Science and Technology, USA; **Mitchell Sesso**, La Trobe University, Australia; **Guo-Jun Zhang**, Donghua University, China; **Hailong Wang**, Zhengzhou University, China; **Yoshio Sakka**, National Institute for Materials Science, Japan; **Theresa Davey**, Tohoku University, Japan; **Sea-Hoon Lee**, Korea Institute of Materials Science, Korea; **Bai Cui**, University of Nebraska–Lincoln, USA; **Carolina Tallon**, Virginia Polytechnic Institute and State University, USA; **Diletta Sciti**, Institute of Science and Technology of Ceramics-

S17: Multifunctional Coatings for Structural, Energy, and Environmental Applications
Douglas E. Wolfe, Pennsylvania State University, USA; **Jun Akedo**, National Institute of Advanced Industrial Science and Technology, AIST, Japan; **Satoshi Kitaoka**, Japan Fine Ceramic Center, JFCC, Japan; **Kentaro Shinoda**, National Institute of Advanced Industrial Science and Technology, Japan

S18: Advanced Wear Resistant Materials: Tribology and Reliability
Surojit Gupta, University of North Dakota, USA; **Kyoung Il Moon**, Siheung Center for Industrial Root Technology, KITECH, Korea; **Junichi Tatami**, Yokohama National University, Japan; **Andy Nieto**, Naval Postgraduate School, USA; **Akira Miura**, Hokkaido University, Japan; **Enrico Bernardo**, University of Padova, Italy; **Stephen Berkebile**, Army Research Lab, USA; **Yongsheng Zhang**, Lanzhou Institute of Chemical Physics, CAS, China; **Yuelei Bai**, Harbin Industrial University, China; **Zhenying Huang**, Beijing Jiaotong University, China

S19: Geopolymers: Low Energy and Environmentally Friendly Ceramics
Waltraud M. Kriven, University of Illinois at Urbana-Champaign, USA; **Ghassan Al Chaar**, U.S. Army Corps of Engineers, ERDC, CERL, USA; **Don Seo**, Arizona State University, USA; **Henry A. Colorado**, Universidad de Antioquia, Medellin, Colombia; **Ruy sa Ribeiro**, INPA-National Institute for Amazonian Research/Structural Engineering Laboratory, Brazil

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Program Chair:

Michael C. Halbig, NASA Glenn Research Center

MULTIFUNCTIONAL MATERIALS AND SYSTEMS

S20: Multiferroic Materials, Devices, and Applications

Xiang Ming Chen, Zhejiang University, China; **Tsuyoshi Kimura**, The University of Tokyo, Japan; **Laurent Bellaiche**, University of Arkansas, USA; **Jun-Ming Liu**, Nanjing University, China; **Ramamoorthy Ramesh**, University of California Berkeley, USA

S21: Crystalline Materials for Electrical, Optical, and Medical Applications

Kiyoshi Shimamura, National Institute for Materials Science; **Noboru Ichinose**, Waseda University, Japan; **Luisa E. Bausá**, Autonomous University of Madrid, Spain; **Victoria Blair**, U.S. Army Research Laboratory, USA; **Yoshihiko Imanaka**, Fujitsu Laboratories Ltd., USA; **Taylor Shoulders**, U.S. Army Research Laboratory, USA; **Kenji Toda**, Niigata University, Japan; **Tetsuo Tsuchiya**, National Institute of Advanced Industrial Science and Technology, Japan; **Yiquan Wu**, Alfred University, USA; **James Wollmershauser**, Naval Research Laboratory, USA; **Takayuki Yanagida**, Nara Institute of Science and Technology, Japan; **Mariya Zhuravleva**, University of Tennessee, USA

S22: Microwave Dielectric Materials and Their Applications

Rick Ubic, Boise State University, USA; **Xiang Ming Chen**, Zhejiang University, China; **Michael Lanagan**, Pennsylvania State University, USA; **Heli Jantunen**, University of Oulu, Finland; **Eung Soo Kim**, Kyonggi University, Korea; **Nate Orloff**, National Institute of Standards and Technology, USA

S23: Transparent Ceramic Materials and Devices

Yiquan Wu, Alfred University, USA; **Jasbinder Sanghera**, Naval Research Lab, USA; **Akio Ikesue**, World-lab Corp, Japan; **Do Kyung Kim**, Korea Advanced Institute of Science and Technology, Korea; **Ying Shi**, Shanghai University, China; **Takunori Taira**, Institute for Molecular Science, Japan; **Jian Zhang**, Shanghai Institute of Ceramics, China; **Dariusz Hreniak**, Polish Academy of Sciences, Wroclaw, Poland

CERAMICS FOR ENERGY SYSTEMS

S24: Solid Oxide Fuel Cells and Hydrogen Technologies

Fatih Dogan, Missouri University of Science and Technology, USA; **Hiroyuki Shimada**, National Institute of Advanced Industrial Science and Technology, Japan; **Federico Smeacetto**, Politecnico Di Torino, Italy; **Tae Ho Shin**, Korea Institute of Ceramic Engineering and Technology, South Korea; **Sebastian Molin**, Gdansk University of Technology, Poland; **Yasunobu Mizutani**, National Institute of Advanced Industrial Science and Technology, Japan; **Guntae Kim**, Ulsan National

S25: Direct Thermal to Electrical Energy Conversion Materials, Applications, and Thermal Energy Harnessing Challenges

Michitaka Ohtaki, Kyushu University, Japan; **Lidong Chen**, Shanghai Institute of Ceramics, China; **Jin-Sang Kim**, Korea Institute of Science and Technology, Korea; **Holger Kleinke**, Waterloo University, Canada; **Takao Mori**, National Institute for Materials Science, Japan; **Min-Wook Oh**, Hanbat National University, Korea; **Junichiro Shiomi**, The University of Tokyo, Japan; **Kuei-Hsien Chen**, National Taiwan University, Taiwan; **Xiaolin Wang**, University of Wollongong, Australia; **H.-T. Lin**, Guangdong University of Technology, China; **Gang Chen**, Massachusetts Institute of Technology, USA; **Emmanuel Guilmeau**, CNRS-CRISMAT, France; **Koji Miyazaki**, Kyushu Institute of Technology, Japan; **Chunlei Wan**, Tsinghua University, China; **Anke Weidenkaff**, University of Stuttgart, Germany; **Yuri Grin**, MPI-CPfS, Germany; **Mona Zebarjadi**, University of Virginia, USA

S26: Materials for Solar Thermal Energy Conversion and Storage

Martin Schmücker, German Aerospace Center, Germany; **Dileep Singh**, Argonne National Laboratory, USA; **Martin Roeb**, German Aerospace Center (DLR), Institute of Solar Research, Germany; **Gözde Alkan**, German Aerospace Center (DLR), Institute of Materials Research, Germany; **Tatsuya Kodama**, Niigata University, Japan; Wojciech Lipinski, Australian National University, Australia

S27: Advanced Materials and Technologies for Electrochemical Energy Storage Systems

Palani Balaya, National University of Singapore, Singapore; **Mickael Dollé**, Université de Montréal, Canada; **Dany Carlier-Larregaray**, ICMCB-CNRS, Bordeaux, France; **Robert Dominko**, National Institute of Chemistry, Slovenia; **XiangXin Guo**, Qingdao University, China; **Kisuk Kang**, Seoul National University, Korea; **Shirley Meng**, University of California San Diego, USA; **Neeraj Sharma**, University of New South Wales, Australia; **Naoaki Yabuuchi**, Yokohama National University, Japan

S28: Atomic Structure and Electrochemical Property Diagnosis Toward Full Crystal Rechargeable Batteries

Ryo Ishikawa, University of Tokyo, Japan; **Nobuyuki Zettsu**, Shinshu University, Japan; **Yumi H. Ikuhara**, Japan Fine Ceramics Center, Japan; **Miaofang Chi**, Oak Ridge National Laboratory, USA; **Sung-Yoon Chung**, Korea Advanced Institute of Science and Technology, Korea; **Rong Huang**, East China Normal University, China

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S29: Ceramics and Ceramic Matrix Composites for Next Generation Nuclear Energy

Tatsuya Hinoki, Kyoto University, Japan; **Ming Tang**, Clemson University, USA; **Yutai Katoh**, Oak Ridge National Laboratory, USA; **Takaaki Koyanagi**, Oak Ridge National Laboratory, USA; **Weon-Ju Kim**, Korea Atomic Energy Research Institute, Korea; **Tieshan Wang**, Lanzhou University, China; **Xianming Bai**, Virginia Polytechnic Institute and State University, USA; **Peng Xu**, Idaho National Laboratory, USA; **Erofili Kardoulaki**, Los Alamos National Laboratory, USA; **Shaoming Dong**, Shanghai Institute of Ceramics, China; **Sosuke Kondo**, Tohoku University, Japan

S30: High Temperature Superconductors: Materials, Technologies, and Systems

John Wei, University of Toronto, Canada; **Davor Pavuna**, Ecole Polytechnique Federale de Lausanne, Switzerland; **Riccardo Comin**, Massachusetts Institute of Technology, USA; **Qijin Chen**, University of Science and Technology of China, China; **Takasada Shibauchi**, University of Tokyo, Japan

CERAMICS FOR ENVIRONMENTAL SYSTEMS

S31: Advanced Functional Materials, Devices, and Systems for Environmental Conservation, Pollution Control, and Critical Materials

Nobuhito Imanaka, Osaka University, Japan; **Taek-Soo Kim**, Korea Institute of Industrial Technology, Korea; **Kazuyoshi Ogasawara**, Kwansei Gakuin University, Japan; **Satoshi Wada**, University of Yamanashi, Japan; **Hiroshi Masumoto**, Tohoku University, Japan; **Shu Yin**, Tohoku University, Japan

S32: Ceramics for Enabling Environmental Protection: Clean Air and Water

Toshihiro Ishikawa, Tokyo University of Science, Yamaguchi (Sanyo-Onoda City University), Japan; **Qi Li**, Southwest Jiaotong University, China; **Dionysios D. Dionysiou**, University of Cincinnati, USA; **Yongfa Zhu**, Tsinghua University, China; **Weichang Hao**, Beihang University, China; **Fan Dong**, University of Electronic Science and Technology of China; **Chun-Hong Kuo**, Institute of Chemistry, Academia Sinica, Taiwan, China; **Hiromi Yamashita**, Osaka University, Japan; **Richard L. Valentine**, University of Iowa, USA; **Edward S. Zhang**, Griffith University, Australia

S33: Photocatalysts for Energy and Environmental Applications

Gang Liu, Institute of Metal Research, Chinese Academy of Sciences, China; **Lianzhou Wang**, The University of Queensland, Australia; **Ho Won Jang**, Soule University, Korea; **Kazuhiko Maeda**, Tokyo Institute of Technology, Japan; **Francesca Toma**, Lawrence Berkeley National Laboratory, USA; **Roland Marschall**, University of Bayreuth, Germany; **Dongling Ma**, INRS, Canada

S34: Glass and Ceramics for Nuclear Waste Treatment and Sequestration

Hans-Conrad zur Loye, University of South Carolina, USA; **Krista Carlson**, University of Utah, USA; **John McCloy**, Washington State University, USA; **Kazuyoshi Uruga**, Central Research Institute of Electric Power Industry, Japan; **Wooyong Um**, Pohang University of Science and Technology, Republic of Korea; **Kai Xu**, Wuhan University of Technology, China; **Brendan Kennedy**, The University of Sydney, Australia; **Dan Gregg**, Australian Nuclear Science and Technology Organisation, Australia

BIOMATERIALS, BIOTECHNOLOGIES, AND BIOINSPIRED MATERIALS

S35: Advanced Additive Manufacturing Technologies for Bio-applications; Materials, Processes, and Systems

Hui-suk Yun, Korea Institute of Materials Science (KIMS), Korea; **Paolo Colombo**, University of Padova, Italy; **Julian R. Jones**, Imperial College London, UK; **Martin Schwentenwein**, Lithoz GmbH, Austria; **Cho-Pei Jiang**, National Taipei University of Technology, Taiwan; **Xiaoyong Tian**, Xi'an Jiaotong University, China

S36: Advanced Multifunctional Bioceramics and Clinical Applications

Bikramjit Basu, Indian Institute of Science, Bangalore, India; **Marc Bohner**, RMS Foundation, Switzerland; **Jiang Chang**, Shanghai Institute of Ceramics, China; **Christophe Drouet**, Centre Inter-universitaire de Recherche et d'Ingénierie des Matériaux, Toulouse, France; **Ashutosh K. Dubey**, Indian Institute of Technology (BHU), Varanasi, India; **Ashutosh Goel**, Rutgers University, USA; **Miho Nakamura**, University of Turku, Finland

S37: Material and Technology Needs for Medical Devices, Sensors, and Tissue Regeneration

Roger J. Narayan, UNC/NCSU Joint Department of Biomedical Engineering, USA; **Chikara Ohtsuki**, Nagoya University, Japan; **Markus Reiterer**, Medtronic, USA; Yuki Shirosaki, Kyushu Institute of Technology, Japan; **Min Wang**, University of Hong Kong, Hong Kong; **Tim Woodfield**, University of Otago, New Zealand; **Hui-suk Yun**, Korea Institute of Materials Science, Korea; **Rizhi Wang**, University of British Columbia, Canada; **Igor Zhitomirsky**, McMaster University, Canada

S38: Nanotechnology in Medicine

Thomas J. Webster, Northeastern University, USA; **Sudipta Seal**, University of Central Florida, USA; **Lei Yang**, Hebei University of Technology, PR China; **Dongwoo Khang**, Gachon University, South Korea; **Nhiem Tran**, Royal Melbourne Institute of Technology, Australia

S39: Biomimetics and Bioinspired Processing of Advanced Materials

Ziqi Sun, Queensland University of Technology, Australia; **Zhengyi Fu**, Wuhan University of Technology, China; **Joaquin Ramirez-Rico**, Universidad de Sevilla, Spain; **Jiang Chang**, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China; **Wolfgang Wagermaier**, Max-Planck-Institute of Colloids and Interfaces, Germany; **Di Zhang**, Shanghai Jiaotong University, China; **Zhaoyong Zou**, Wuhan University of Technology, China

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Program Chair:

Michael C. Halbig, NASA Glenn Research Center

SPECIAL TOPICS

S40: 6th International Richard M. Fulrath Symposium, "Frontiers of Ceramics for a Sustainable Society"

Michael C. Halbig, NASA Glenn Research Center, USA; **Kiyoshi Shimamura**, National Institute of Materials Science, Japan; **M. Singh**, Ohio Aerospace Institute, USA; **M. Naito**, Osaka University, Japan; **Pelagia-Irene (Perena) Gouma**, The Ohio State University, USA; **Y. Imanaka**, Fujitsu Corporation, Japan; **Junichi Tatami**, Yokohama National University, Japan; **Wataru Sakamoto**, Chubu University, Japan

S41: Advancing the Global Ceramics Community: Fostering Diversity in an Ever-Changing World

Katalin Balázsi, Institute for Technical Physics and Materials Science, Centre for Energy Research, Hungary; **Valerie Wiesner**, NASA Langley Research Center, USA; **Hui-suk Yun**, Korea Institute of Materials Science (KIMS), Korea; **Jie Zhang**, Institute of Metal Research, China; **Rosalia Poyato**, Instituto de Ciencia de Materiales de Sevilla (CSIC-US), Spain; **Kristin Breder**, Saint-Gobain Research North America, USA; **Theresa Davey**, Tohoku University, Japan; **Victoria Blair**, CCDC Army Research Laboratory, USA; **Miki Inada**, Kyushu University, Japan; **Lavina Backman**, University of Virginia, USA; **Giorgia Franchin**, University of Padova, Italy; **Jessica Krogstad**, University of Illinois Urbana-Champaign, USA; **Scott McCormack**, University of California Davis, USA; **Lisa Rueschhoff**, Air Force Research Laboratory, USA

S42: Young Investigator Forum

Next-Generation Materials for Multifunctional Applications and Sustainable Development, and Concurrent Societal Challenges in the New Millennium

Daniele Benetti, INRS, Canada; **Sahar S Mahshid**, University of Toronto, Canada; **Artiom Skripka**, INRS, Canada; **Eva Hemmer**, University of Ottawa, Canada; **Surojit Gupta**, University of North Dakota, USA

ACerS Glass and Optical Materials Division Annual Meeting

GOMD 2021 PROGRAM CHAIRS:

Doris Möncke
Alfred University, Alfred, NY
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Mathieu Hubert
Corning Research and Development Corporation, Corning, NY, USA
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Dear Colleagues and Friends,

On behalf of The American Ceramic Society, welcome to the Glass & Optical Materials Division Meeting (GOMD 2021), organized in parallel to the 14th Pacific Rim Conference on Ceramic and Glass Technology (PACRIM 14). We have over 200 oral and poster presentations that explore the fundamental nature of the glassy state, glass interaction with water, glass manufacturing challenges, nuclear waste immobilization, optical and optoelectronic materials, and many more.

GOMD2021 virtual meeting will feature live, concurrent sessions according to a schedule set to Pacific Standard Time. All content will be recorded and available for all attendees to view through February 28, 2022.

GOMD2021 covers the latest advances in glass science and technology. Technical leaders from industry, national laboratories, and academia will lead five symposia and over 20 technical sessions that provide an open forum for glass scientists and engineers from around the world to present and exchange findings on recent advances in various aspects related to glass science, technology and education. The poster session will highlight the latest advances is research and feature the annual student poster contest.

Several special activities are planned in addition to the technical program:

- Special Award Lectures: The Otto Schott award presentation and lectures (Monday morning), the George W. Morey Award (Tuesday morning), the Norbert J. Kreidl Award for Young Scholars (Wednesday at 12pm PT), the Varshneya Glass Technology lecture (Thursday morning) and the Alfred R. Cooper Award Lecture (Thursday morning)

- Continue your learning experience by attending the on-demand Poster Session and Student Poster Competition, available throughout the conference days.

- Join the "Education and Professional Development" symposium, including a panel discussion, Wednesday 8:30 am to 12:00 pm

Special thanks to our sponsors ***The International Journal of Applied Glass Science (IJAGS), The*** *International Journal of Ceramic Engineering and Science (IJCES)*, **Deltech Furnaces, Schott** and **American Element**s.

The American Ceramic Society thanks you for participating in and being part of this year's meeting.

AWARD LECTURES

MONDAY, DECEMBER 13, 2021

2021 Otto Schott Awards Sponsorted by

10:00 a.m. – 10:30 a.m.

Sabyasachi Sen, Blacutt-Underwood Professor, University of California, Davis, USA

Title: ***Viscoelastic behavior of molecular vs. network glass-formers: Are they Fundamentally different?***

10:30 a.m. – 11:00 a.m.

Josef Zwanziger, Professor, Dalhousie University and Director Dalhousie Nuclear Magnetic Resonance Research Resource, Canada

Title: ***The interaction between stress, light, and chemistry in glass***

11:00 a.m. – 11:30 a.m.

Manoj Choudhary, MKC Innovations, LLC

International Year of Glass presentation

TUESDAY, DECEMBER 14

2020 George W. Morey Award

8:40 a.m. – 9:20 a.m.

Walter Kob, University of Montpellier, France

Title: ***Glass: We love it, but it breaks***

WEDNESDAY, DECEMBER 15

The 2021 Norbert J. Kreidl Award for Young Scholars

12:10 p.m. – 12:50 p.m

Collin Wilkinson, Pennsylvania State University, USA

Title: ***Confirming classical nucleation theory with novel energy landscape methods***

THURSDAY, DECEMBER 16

The 2021 Varshneya Glass Technology Award

8:30 a.m. – 9:20 a.m.

Heike Ebendorff-Heidepriem, University of Adelaide, Australia

Title: ***Nanocrystal doped glass and fibers: Fabrication challenges and opportunities for novel photonics applications***

The 2021 Alfred R. Cooper Award

9:20 a.m. – 10:00 a.m.

Efstratios I. Kamitsos, Director of Research at the Theoretical and Physical Chemistry Institute of the National Hellenic Research Foundation, Athens, Greece

Title: ***Structure and ion dynamics in glass***

SESSIONS by SYMPOSIA

GOMD

SESSION TOPIC	SESSION TITLE	DATE	TIME
GOMD Award Lectures	GOMD Opening Remarks and Otto Schott Award Presentation and Lectures	Monday, December 13, 2021	9:30 AM - 12:00 PM
	George W. Morey Award Lecture (2020)	Tuesday, December 14, 2021	8:30 AM - 9:20 AM
	The Norbert J. Kreidl Award for Young Scholars Lecture (2021)	Wednesday, December 15, 2021	12:00 PM - 12:50 PM
	Varshneya Glass Technology Award Lecture (2021)	Thursday, December 16, 2021	8:30 AM - 9:20 AM
	Alfred R. Cooper Award Lecture	Thursday, December 16, 2021	9:20 AM - 10:00 AM

SESSIONS	DATE	TIME
GOMD S1: Fundamentals of the Glassy State		
Structural Characterization of Glass: Al B Silicate Glasses	Monday, December 13, 2021	3:00 PM - 1:40 PM
Structural Characterization of Glass: Silicate Glass	Monday, December 13, 2021	3:00 PM - 4:00 PM
Structural Characterizations of Glass: Borate and Borosilciate Glasses, Phosphates	Tuesday, December 14, 2021	9:40 AM - 12:10 PM
Atomistic Simulation and Predictive Modeling of Glass I	Monday, December 13, 2021	1:40 PM - 3:20 PM
Atomistic Simulation and Predictive Modeling of Glass II	Monday, December 13, 2021	3:20 PM - 4:50 PM
Atomistic Simulation and Predictive Modeling of Glass III	Tuesday, December 14, 2021	9:40 AM - 11:20 AM
Mechanical Properties of Glass I	Monday, December 13, 2021	1:40 PM - 3:10 PM
Mechanical Properties of Glass II	Monday, December 13, 2021	3:40 PM - 5:30 PM
Mechanical Properties of Glass III	Tuesday, December 14, 2021	9:40 AM - 11:40 AM
Mechanical Properties of Glass IV	Tuesday, December 14, 2021	1:30 PM - 3:10 PM
Data-based Modeling and Machine Learning for Glass Science I	Tuesday, December 14, 2021	1:30 PM - 3:20 PM
Data-based Modeling and Machine Learning for Glass Science II	Tuesday, December 14, 2021	3:50 PM - 5:00 PM
Glass Formation and Structural Relaxation I	Wednesday, December 15, 2021	8:30 AM - 10:00 AM
Glass Formation and Structural Relaxation II	Wednesday, December 15, 2021	10:20 AM - 11:00 AM
Topology and Rigidity I	Thursday, December 16, 2021	10:20 AM - 11:20 AM
Topology and Rigidity II	Thursday, December 16, 2021	1:30 PM - 2:30 PM
Glass under Extreme Conditions I	Thursday, December 16, 2021	10:20 AM - 11:00 AM
Glass under Extreme Conditions II	Thursday, December 16, 2021	1:30 PM - 2:50 PM
Glass under Extreme Conditions III	Thursday, December 16, 2021	3:20 PM - 4:50 PM
Glass Crystallization and Glass-Ceramics I	Thursday, December 16, 2021	1:30 PM - 3:10 PM
Glass Crystallization and Glass-Ceramics II	Thursday, December 16, 2021	3:10 PM - 4:40 PM

ACerS Glass and Optical Materials Division Annual Meeting

SESSIONS by SYMPOSIA

GOMD

SESSIONS	DATE	TIME
GOMD S2: Glass and Interactions with Its Environment - Fundamentals and Applications		
Dissolution and Interfacial Reactions: Alternative Conditions	Monday, December 13, 2021	1:40 PM - 3:00 PM
Dissolution and Interfacial Reactions: Long-Term Degradation	Monday, December 13, 2021	3:00 PM - 3:30 PM
Dissolution and Interfacial Reactions: Residual Rates and Gel Layers	Tuesday, December 14, 2021	9:40 AM - 11:00 AM
Dissolution and Interfacial Reactions: Composition Effects	Tuesday, December 14, 2021	1:30 PM - 3:30 PM
Nuclear Waste Mobilization I	Thursday, December 16, 2021	10:20 AM - 11:20 AM
Nuclear Waste Mobilization II	Thursday, December 16, 2021	1:30 PM - 2:30 PM
Nuclear Waste Mobilization III	Thursday, December 16, 2021	2:50 PM - 4:10 PM
Surfaces and Coatings I	Thursday, December 16, 2021	10:20 AM - 12:00 PM
Surfaces and Coatings II	Thursday, December 16, 2021	1:30 PM - 3:30 PM
Surfaces and Coatings III	Thursday, December 16, 2021	3:30 PM - 5:00 PM
GOMD S3: Optical and Electronic Materials and Devices - Fundamentals and Applications		
Optical and Photonic Glass and Glass-Ceramics I	Monday, December 13, 2021	1:40 PM - 3:40 PM
Optical and Photonic Glass and Glass-Ceramics II	Monday, December 13, 2021	3:40 PM - 5:20 PM
Optical and Photonic Glass and Glass-Ceramics III	Tuesday, December 14, 2021	9:40 AM - 11:10 AM
Laser Interactions with Glass I	Thursday, December 16, 2021	10:20 AM - 11:40 AM
Laser Interactions with Glass II	Thursday, December 16, 2021	1:30 PM - 3:30 PM
Laser Interactions with Glass III	Thursday, December 16, 2021	3:30 PM - 4:50 PM
Optical Fibers and Waveguides I	Tuesday, December 14, 2021	1:30 PM - 3:30 PM
Optical Fibers and Waveguides II	Tuesday, December 14, 2021	3:50 PM - 5:30 PM
Charge and Energy Transport I	Wednesday, December 15, 2021	8:30 AM - 10:20 AM
Charge and Energy Transport II	Wednesday, December 15, 2021	10:20 AM - 11:50 AM
Glass-based Optical Devices I	Wednesday, December 15, 2021	8:30 AM - 10:20 AM
Glass-based Optical Devices II	Wednesday, December 15, 2021	10:20 AM - 12:10 PM

SESSIONS by SYMPOSIA

GOMD

SESSIONS	DATE	TIME
GOMD S4: Glass Technology and Cross-Cutting Topics		
Challenges in Glass Manufacturing I	Monday, December 13, 2021	1:40 PM - 3:40 PM
Challenges in Glass Manufacturing II	Monday, December 13, 2021	3:40 PM - 5:00 PM
Challenges in Glass Manufacturing III	Tuesday, December 14, 2021	9:40 AM - 10:50 AM
3-D Printing of Glass	Tuesday, December 14, 2021	3:50 PM - 4:30 PM
GOMD S5: Glass Education		
Education and Professional Development	Wednesday, December 15, 2021	8:30 AM - 10:30 AM
Education and Professional Development Panel Discussion	Wednesday, December 15, 2021	10:30 AM - 12:00 PM

SYMPOSIA ORGANIZERS

GOMD 2021 Program Chairs:

Doris Möncke, Alfred University, Alfred, NY

Mathieu Hubert, Corning Research and Development Corporation, Corning, NY, USA

S1: FUNDAMENTALS OF THE GLASSY STATE

Glass Formation and Structural Relaxation
Ozgur Gulbiten, Corning Inc. USA; **Sabyaschi Sen,** University of California Davis, USA

Glass Crystallization and Glass-Ceramics
Edgar Zanotto, UFSCar, Brazi; **Matthew Mckenzie,** Corning, USA

Structural Characterizations of Glass
Doris Möncke, Alfred University, USA; **Marcos de Oliveira,** Universidade de São Paulo (IFSC/USP), Brazil

Topology and Rigidity
N.M. Anoop Krishan, Indian Institute of Technology Delhi, India; **Mathieu Bauchy,** University of California Los Angeles USA; **Morten Smedskjaer,** Aalborg University, Denmark

Atomistic Simulation and Predictive Modeling of Glass
Sushmit Goyal, Corning Inc

Data-based Modeling and Machine Learning for Glass Science
Adama Tandia, Corning Inc., USA; **Mathieu Bauchy,** University of California Los Angeles, USA; **N.M. Anoop Krishan,** Indian Institute of Technology Delhi, India

Mechanical Properties of Glass
Satoshi Yoshida, AGC Inc., Japan; **Morten Smedskjær,** Aalborg University, Denmark; **Tim Gross,** Corning Inc., USA; **Gustavo Rosales-Sosa,** Nippon Electric Glass Co. Ltd., Japan

Non-Oxide Glass and Glass-Ceramics
Catherine Boussard-Pledel, Université de Rennes 1, France; **Laurent Calvez,** Université de Rennes 1, France

Glass Under Extreme Conditions
Nadja Lönnroth, Huawei Technologies, Finland; **Akihiro Yamada,** University of Shiga Prefecture, Japan; **Dominique de Ligny,** FAU Erlangen-Nürnberg, Germany

SYMPOSIA ORGANIZERS

S2: GLASS AND INTERACTIONS WITH ITS ENVIRONMENT – FUNDAMENTALS AND APPLICATIONS

Bioglass
Delia Brauer, University of Jena, Germany; **Tim Keenan**, Alfred University, USA

Nuclear Waste Immobilization
John Vienna, Pacific Northwest National Laboratory, USA

Dissolution and Interfacial Reactions
Jessica Rimsza, Sandia National Laboratories, USA; **Louise Criscenti**, Sandia National Laboratories, USA

Surfaces and Coatings
Matthew Linford, Bingham Young University, USA; **Joy Banerjee**, Corning Inc., USA

S3: OPTICAL AND ELECTRONIC MATERIALS AND DEVICES — FUNDAMENTALS AND APPLICATIONS

Laser Interactions with Glass
Kathleen Richardson, University of Central Florida, USA; **Casey Schwarz**, Ursinus College, USA

Charge and Energy Transport in Disordered Materials
Caio Bragatto, Coe College, USA; **Ana C M Rodrigues**, UFSCar, Brazil

Optical Fibers and Waveguides
Younes Messadeq, Université Laval, Canada; **Sylvain Danto**, ICMCB, University of Bordeaux, France

Glass-based Optical Devices and Detector Applications
Juejun Hu, Massachusetts Institute of Technology, USA; **Hongtao Lin**, Zhejiang University, China

Optical and Photonic Glass and Glass-Ceramics
Laeticia Petit, Tampere University, Finland; **Anna Łukowiak**, Polish Academy of Science, Poland

S4: GLASS TECHNOLOGY AND CROSS-CUTTING TOPICS

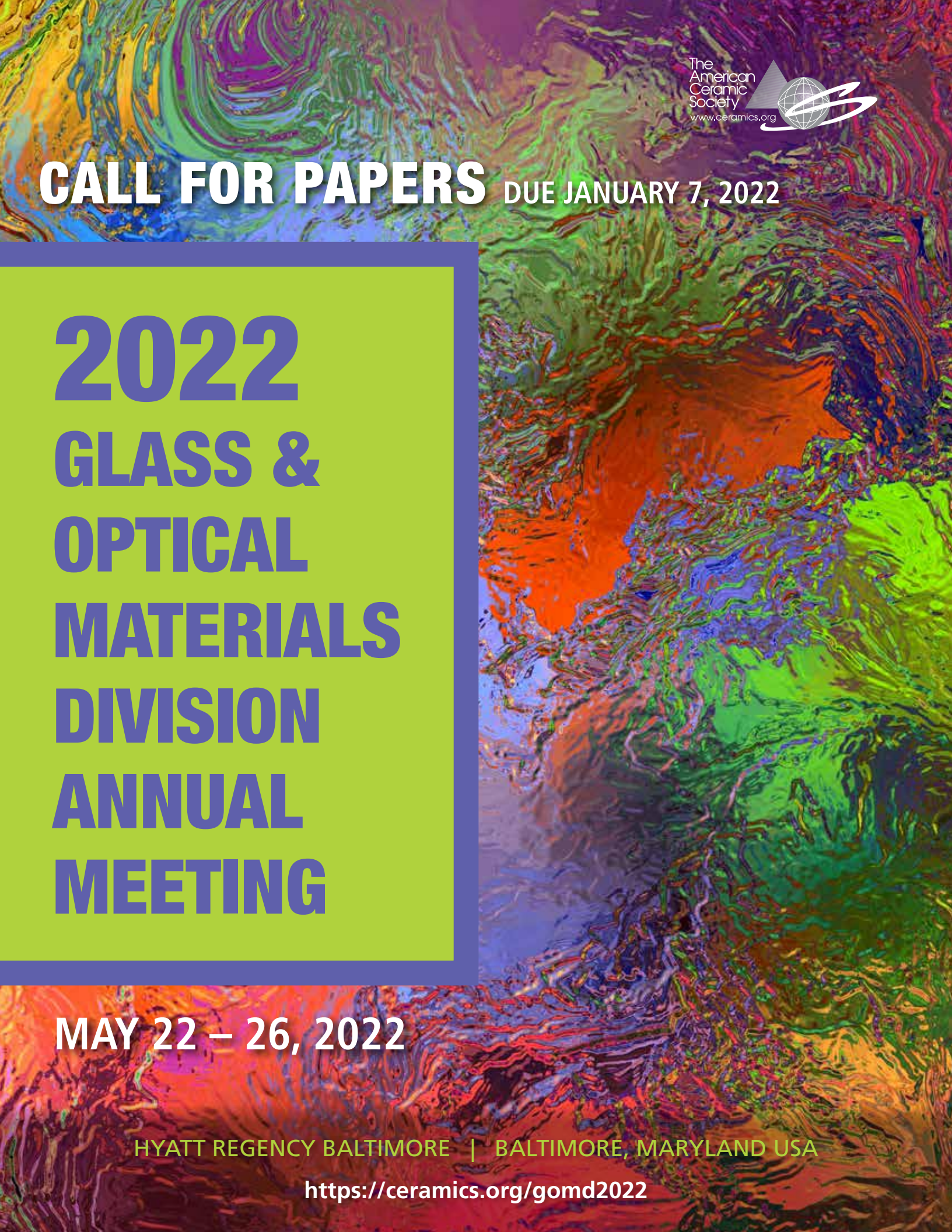
Sol-gel Processing of Glass and Ceramic Materials
Lisa Klein, Rutgers University, USA; **John Kieffer**, University of Michigan, USA

Challenges in Glass Manufacturing
Irene Peterson, Corning Inc., USA

3D Printing of Glass
SK. Sundaram, Alfred University, USA

S5: GLASS EDUCATION

Jessica Rimsza, Sandia National Laboratories, USA; **Aubrey Fry**, Pennsylvania State University, USA,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Oral Presenters

Name	Date	Time	Room	Page Number
		A		
Abbasi, M.	14-Dec	10:50AM	Saltspring Island C	46
Abd Elkodous, M.H.	16-Dec	1:30PM	Stanley	40
Agarwal, A.	16-Dec	8:50AM	Balmoral	35
Agnello, G.	16-Dec	3:30PM	Cortes Island	55
Agrafiotis, C.C.	15-Dec	9:00AM	Plaza C	30
Agrafiotis, C.C.	15-Dec	9:20AM	Plaza C	30
Akbar, S.A.	14-Dec	3:50PM	Plaza B	25
Akedo, J.	15-Dec	8:30AM	Regency A	28
Akrami, S.	14-Dec	11:00AM	Oxford	14
Alhasni, B.M.	14-Dec	11:10AM	Saltspring Island C	46
Almansour, A.S.	14-Dec	10:20AM	Regency D	15
Alvarez, R.	13-Dec	2:30PM	Pender Island	45
Amezawa, K.	14-Dec	3:20PM	Georgia B	22
Antony, A.	16-Dec	4:20PM	Cortes Island	55
Arachi, Y.	14-Dec	3:30PM	Plaza A	23
Arai, Y.	16-Dec	10:30AM	English Bay	33
Araki, T.	14-Dec	4:40PM	Georgia B	22
Arnold, C.B.	16-Dec	9:30AM	Plaza C	32
Ashjari, A.	13-Dec	2:50PM	Pender Island	45
Au-Yeung, C.	16-Dec	1:30PM	Saturna Island	56
		B		
Bailey, D.	14-Dec	9:00AM	Regency F	17
Balazsi, C.	14-Dec	4:20PM	Regency D	21
Ballato, J.	14-Dec	10:00AM	Plaza B	18
Ballato, J.	14-Dec	1:30PM	Cortes Island	49
Ballato, J.	14-Dec	1:50PM	Cortes Island	49
Barker, C.	16-Dec	3:30PM	Saturna Island	56
Barthel, E.	13-Dec	3:40PM	Saltspring Island A/B	44
Bauchy, M.	13-Dec	3:50PM	Cortes Island	43
Bauchy, M.	15-Dec	9:20AM	Regency B	26
Bauchy, M.	16-Dec	9:00AM	Stanley	36
Bauchy, M.	16-Dec	10:20AM	Moresby Island	53
Bausa, L.E.	15-Dec	10:20AM	Regency C	29
Bayle, J.	13-Dec	3:10PM	Regency B	10
Bayya, S.	16-Dec	10:30AM	Oxford	35
Beekman, M.	14-Dec	2:30PM	Oxford	22
Bellaiche, L.	14-Dec	8:30AM	Cypress	15
ben Khemis, S.	16-Dec	4:00PM	Cortes Island	55
Benabed, Y.	14-Dec	11:00AM	Balmoral	17
Berkebile, S.	16-Dec	9:20AM	Balmoral	35
Bernard, S.	14-Dec	1:30PM	Regency D	20
Bernard, S.	15-Dec	9:50AM	Georgia A	26
Bernardo, E.	16-Dec	1:30PM	English Bay	38
Bernardo, E.	16-Dec	2:00PM	Balmoral	38
Bernuy-Lopez, C.	15-Dec	9:10AM	Georgia B	29
Berthebaud, D.	15-Dec	10:00AM	Oxford	30
Berthelot, R.	14-Dec	3:30PM	Balmoral	16
Besmann, T.M.	14-Dec	11:10AM	Regency F	17
Bizot, R.	14-Dec	4:30PM	Cortes Island	49
Blatt, R.L.	14-Dec	2:10PM	Saturna Island	48
Boloré, D.	14-Dec	9:40AM	Moresby Island	47
Boulesteix, R.	16-Dec	2:50PM	Oxford	39
Boyd, D.	15-Dec	10:20AM	Regency B	26
Brandt-Slowik, J.	15-16-Dec	11:20AM	Oxford	35
Brozek, C.K.	15-Dec	10:00AM	Regency E	27
Burov, E.	13-Dec	3:00PM	Moresby Island	45
Butts, D.	14-Dec	9:30AM	Regency E	14
Bychkov, E.	16-Dec	4:10PM	Saturna Island	56
Byeon, P.	16-Dec	4:40PM	Regency B	40
		C		
Calzavara, F.	14-Dec	4:10PM	Cortes Island	49
Canepa, P.	14-Dec	3:00PM	Balmoral	23
Carcreff, J.	14-Dec	2:30PM	Cortes Island	49
Carey, D.	13-Dec	3:50PM	Plaza C	9
Casamenti, E.	14-Dec	9:00AM	Georgia A	13
Castro, R.	15-Dec	9:00AM	Saturna Island	52
Cavillon, M.	16-Dec	10:20AM	Saturna Island	53
Cavillon, M.	16-Dec	11:00AM	Saturna Island	53
Chang, C.	15-Dec	8:50AM	Regency E	27
Chen, C.	16-Dec	9:00AM	Plaza C	32
Chen, X.	13-Dec	2:00PM	Plaza C	8
Chen, Y.	13-Dec	3:20PM	Stanley	11
Chi, W.	13-Dec	3:40PM	English Bay	12
Chikada, T.	13-Dec	1:50PM	Regency B	10
Choi, P.	16-Dec	1:30PM	Georgia A	38
Choi, Y.	13-14-Dec	3:50PM	Regency C	11
Christian, M.	14-Dec	10:00AM	Regency F	17
Chua, D.	16-Dec	9:20AM	Plaza A	34
Colombo, P.	16-Dec	3:10PM	Plaza B	37
Cramer, C.L.	16-Dec	1:30PM	Plaza B	37
Cubuk, E.D.	14-Dec	3:50PM	Moresby Island	48
Cui, B.	16-Dec	9:00AM	Regency E	34
Cui, B.	16-Dec	3:20PM	Prince of Wales	38
		D		
Dai, S.	15-Dec	8:30AM	Pender Island	51
Dailly, J.	14-Dec	1:30PM	Georgia B	22
Davey, T.	16-Dec	10:30AM	Regency E	34
de Ligny, D.	16-Dec	4:30PM	Saltspring Island A/B	54
de Oliveira, M.	13-Dec	3:40PM	Saltspring Island C	43
Dey, M.	16-Dec	10:30AM	Balmoral	35
Dobesh, D.K.	16-Dec	4:20PM	Pender Island	54
Dogan, F.	15-Dec	8:40AM	Georgia B	29
Doumon, N.	13-Dec	2:30PM	Prince of Wales	13
Dressler, A.	15-Dec	11:20AM	Regency F	31
Du, J.	14-Dec	11:00AM	Cortes Island	46
Du, Q.	15-Dec	9:40AM	Pender Island	51
Duan, X.	13-Dec	4:00PM	Oxford	8
Dussauze, M.	13-Dec	3:10PM	Pender Island	45
Dussauze, M.	15-Dec	10:50AM	Saltspring Island A/B	51
		E		
Ebendorff-Heidepriem, H.	14-Dec	3:50PM	Cortes Island	49
Ebendorff-Heidepriem, H.	16-Dec	8:40AM	Saturna Island	42
Edalati, P.	14-Dec	10:40AM	Oxford	14
El-Ghannam, A.	14-Dec	2:30PM	English Bay	24
Elizarova, I.	16-Dec	3:40PM	Prince of Wales	38
Elzbieciak-Piecka, K.	14-Dec	10:30AM	Prince of Wales	19
Enrichi, F.	13-Dec	4:50PM	Prince of Wales	13
Estournes, C.	14-Dec	2:20PM	Georgia A	19
Estournes, C.	15-Dec	9:00AM	Regency D	26
Evrard, M.	14-Dec	4:50PM	Cortes Island	49
		F		
Fahrenholtz, W.	16-Dec	8:30AM	Regency E	34
Fan, W.	14-Dec	10:10AM	English Bay	18
Fang, W.	13-Dec	3:20PM	English Bay	12
Feng, B.	16-Dec	8:30AM	Plaza C	32
Feng, B.	16-Dec	10:20AM	Regency A	31
Feng, W.	14-Dec	10:40AM	Saltspring Island A/B	47
Fenning, D.P.	13-Dec	2:00PM	Prince of Wales	13
Ferkl, P.	16-Dec	3:10PM	Moresby Island	55
Fisher, C.	16-Dec	3:40PM	Regency B	40
Flint, M.N.	14-Dec	2:00PM	Balmoral	23
Franco, A.A.	13-Dec	1:30PM	Balmoral	9
Francois-Saint-Cyr, H.	14-Dec	9:40AM	Pender Island	47
Frankberg, E.J.	13-Dec	1:40PM	Saltspring Island A/B	43
Franks, G.V.	15-Dec	8:30AM	English Bay	27
Fuertes de la Llave, V.	14-Dec	2:50PM	Cortes Island	49
Fujihara, S.	14-Dec	1:30PM	Regency E	20

Presenting Author List

Oral Presenters

Name	Date	Time	Room	Page Number
Fujii, S.	16-Dec	9:00AM	Regency A	31
Fukushima, M.	13-Dec	3:20PM	Plaza B	12
Fukushima, M.	16-Dec	11:00AM	English Bay	33
Futazuka, T.	16-Dec	11:20AM	Regency A	31
G				
Gao, Y.	16-Dec	9:00AM	Plaza B	32
Gao, Y.	16-Dec	10:30AM	Plaza A	34
Garay, J.E.	16-Dec	10:00AM	Oxford	35
Garcia, R.	16-Dec	3:20PM	Regency A	36
Gardner, L.D.	14-Dec	2:10PM	Regency F	24
Garg, N.	15-Dec	9:00AM	Stanley	29
Garg, N.	16-Dec	3:20PM	Plaza C	37
George, J.	14-Dec	9:10AM	Prince of Wales	19
Gessner, I.	14-Dec	4:20PM	Prince of Wales	25
Gholian Avval, T.	16-Dec	2:00PM	Cortes Island	55
Ghosh, S.	13-Dec	4:50PM	Stanley	12
Glaesemann, G.S.	14-Dec	9:40AM	Saltspring Island A/B	46
Gobbo, V.	14-Dec	11:00AM	English Bay	18
Goldsby, J.C.	14-Dec	1:30PM	Oxford	22
Gossard, A.	15-Dec	11:40AM	Regency F	31
Goto, T.	15-Dec	9:20AM	Plaza B	28
Granasy, L.	16-Dec	1:30PM	Pender Island	53
Grehl, T.	16-Dec	1:30PM	Cortes Island	55
Gremillard, L.	13-Dec	1:30PM	Regency C	11
Gremillard, L.	14-Dec	8:30AM	English Bay	18
Groppi, G.	15-Dec	10:10AM	English Bay	27
Grutzik, S.	14-Dec	11:00AM	Saltspring Island A/B	47
Gu, M.	16-Dec	2:00PM	Regency B	39
Guerineau, T.	16-Dec	2:10PM	Saturna Island	56
Guignard, M.	14-Dec	2:20PM	Balmoral	23
Guillen, D.P.	13-Dec	1:40PM	Moresby Island	45
Guillen, D.P.	14-Dec	3:20PM	Regency F	24
Guilmeau, E.	15-Dec	10:50AM	Oxford	30
Guisbiers, G.	13-Dec	2:30PM	Stanley	11
Guo, W.	13-Dec	4:00PM	Georgia A	7
Gupta, S.	16-Dec	2:20PM	Balmoral	39
H				
Hande, A.B.	16-Dec	3:30PM	Plaza B	37
Hansen, E.	13-14-Dec	10:30AM	Regency F	17
Harrison, M.T.	14-Dec	2:30PM	Saturna Island	49
Hasegawa, G.	15-Dec	8:30AM	Regency E	27
Hasegawa, G.	16-Dec	2:00PM	English Bay	38
Hassam, C.	14-Dec	8:50AM	Oxford	14
Hausmann, B.D.	14-Dec	1:50PM	Saturna Island	48
Hayashi, Y.	15-Dec	9:50AM	Plaza B	28
He, Q.	14-Dec	2:00PM	Georgia A	19
Heron, J.	13-Dec	2:30PM	Cypress	8
Hill, M.D.	13-Dec	3:20PM	Plaza C	9
Hongisto, M.	14-Dec	10:50AM	Pender Island	47
Hoover, C.G.	14-Dec	2:30PM	Saltspring Island A/B	48
Hsu, J.W.	16-Dec	2:00PM	Georgia A	38
Hu, L.	14-Dec	4:10PM	Georgia A	20
Hu, S.	15-Dec	8:30AM	Regency F	31
Huang, R.	16-Dec	11:30AM	Plaza C	32
Huang, Y.	13-Dec	2:20PM	English Bay	12
Huang, Y.	14-Dec	4:50PM	Prince of Wales	25
Hubert, M.	15-Dec	9:30AM	Saturna Island	52
Huey, B.	13-Dec	2:00PM	Plaza B	12
Huey, B.	16-Dec	11:20AM	Georgia A	34
I				
Ida, S.	16-Dec	10:30AM	Georgia A	33
Iijima, M.	13-Dec	4:40PM	Oxford	8
Ikuhara, Y.H.	16-Dec	4:00PM	Regency B	40
Imanaka, N.	14-Dec	10:40AM	Plaza A	17
Ingraci, R.	13-Dec	3:30PM	Regency B	10
Iniguez, J.	14-Dec	9:00AM	Cypress	15
Inokawa, H.	15-Dec	9:40AM	English Bay	27
Inoue, R.	16-Dec	10:00AM	English Bay	33
Ionescu, E.	14-Dec	2:00PM	Regency D	20
Ionescu, E.	16-Dec	9:00AM	Plaza A	34
Ishibe, T.	14-Dec	4:10PM	Oxford	22
Ishikawa, T.	13-Dec	3:20PM	Oxford	7
Itasaka, H.	16-Dec	11:00AM	Georgia A	34
Ito, A.	15-Dec	9:40AM	Regency A	28
Ito, T.	16-Dec	11:00AM	Prince of Wales	33
Ivanova, M.E.	14-Dec	2:00PM	Georgia B	22
Iwamoto, Y.	13-Dec	1:30PM	Plaza B	12
Iwazaki, Y.	13-Dec	4:20PM	Plaza B	12
J				
Jacobsohn, L.G.	14-Dec	2:30PM	Regency C	21
Jacquemin, M.	13-Dec	2:00PM	Saltspring Island C	42
Jain, H.	15-Dec	9:50AM	Saturna Island	52
Jain, H.	15-Dec	10:10AM	Saturna Island	52
Jain, S.	15-Dec	8:30AM	Stanley	28
Jan, A.	14-Dec	1:50PM	Regency F	23
Jan, A.	15-Dec	10:00AM	Regency B	26
Javaid, S.	16-Dec	8:30AM	Balmoral	34
Jeong, S.	14-Dec	10:20AM	Regency E	14
Ji, W.	14-Dec	3:50PM	Georgia A	19
Jia, D.	14-Dec	10:00AM	Oxford	14
Jiang, C.D.	13-Dec	5:20PM	Regency C	11
Jiménez, J.A.	16-Dec	3:50PM	Moresby Island	55
Jing, Z.	13-Dec	4:20PM	Cypress	8
Jokar, E.	13-Dec	1:30PM	Prince of Wales	13
Jose, G.	13-Dec	1:40PM	Pender Island	45
K				
Kajihara, K.	14-Dec	9:00AM	Regency E	14
Kakisawa, H.	15-Dec	9:00AM	Regency A	28
Kamba, S.	14-Dec	10:30AM	Cypress	15
Kan, A.	14-Dec	9:00AM	Plaza C	16
Kanezashi, M.	16-Dec	8:30AM	Plaza B	32
Kang, B.	16-Dec	8:30AM	Regency B	35
Kang, M.	15-Dec	11:50AM	Pender Island	52
Kang, M.	16-Dec	10:20AM	Saltspring Island A/B	53
Kardoulaki, E.	13-Dec	4:10PM	Regency B	10
Karnik, T.	15-Dec	9:20AM	Pender Island	51
Kaser, S.	14-Dec	4:10PM	Saltspring Island A/B	50
Katsui, H.	15-Dec	10:50AM	Regency C	29
Kaur, D.	14-Dec	10:40AM	English Bay	18
Kawahara, K.	16-Dec	11:40AM	Regency B	36
Kawamura, G.	14-Dec	3:30PM	Regency E	20
Kawano, N.	14-Dec	1:30PM	Regency C	21
Kaya, H.	14-Dec	10:40AM	Saturna Island	47
Kazembeyki, M.	13-Dec	4:50PM	Saltspring Island A/B	44
Kelton, K.F.	16-Dec	2:20PM	Pender Island	54
Khare, D.	14-Dec	2:00PM	English Bay	24
Kieffer, J.	14-Dec	11:10AM	Regency E	14
Kikuchi, M.	14-Dec	10:00AM	Stanley	18
Kim, H.	13-Dec	2:30PM	Plaza C	8
Kim, H.	16-Dec	4:20PM	Georgia B	39
Kim, M.	14-Dec	2:20PM	Regency E	20
Kim, M.	16-Dec	4:40PM	Georgia B	39
Kim, S.	13-Dec	2:30PM	Regency C	11
Kim, S.H.	16-Dec	10:20AM	Cortes Island	53
Kim, S.H.	16-Dec	2:40PM	Cortes Island	55
Kim, W.	13-Dec	4:30PM	Regency C	11
Kim, W.	16-Dec	11:40AM	Oxford	35
Kim, Y.	14-Dec	5:00PM	Regency D	21
Kimura, T.	13-Dec	3:20PM	Cypress	8
Kindelmann, M.	16-Dec	10:50AM	Regency E	34
Kindelmann, M.	16-Dec	2:20PM	Regency A	36
Kirihara, S.	14-Dec	8:30AM	Plaza C	16
Kirihara, S.	16-Dec	4:00PM	Prince of Wales	38

Oral Presenters

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Oral Presenters

Name	Date	Time	Room	Page Number
Nomura, K.	14-Dec	4:00PM	Georgia B	22
Nuernberg, R.B.	15-Dec	10:20AM	Saltspring Island A/B	51
Nunotani, N.	14-Dec	10:20AM	Plaza A	17
		O		
O'Connell, K.	14-Dec	11:00AM	Stanley	18
O'Connell, K.	14-Dec	3:20PM	Stanley	24
Ogasawara, K.	13-Dec	2:00PM	Plaza A	10
Ohkubo, I.	14-Dec	4:30PM	Oxford	23
Ohtaki, M.	14-Dec	3:50PM	Oxford	22
Okada, K.	16-Dec	10:00AM	Georgia A	33
Okuyama, Y.	13-Dec	3:20PM	Georgia B	9
Olivetti, E.	14-Dec	1:30PM	Moresby Island	48
Olson, M.	15-Dec	9:20AM	Saltspring Island A/B	51
Ono, M.	13-Dec	4:10PM	Saltspring Island A/B	44
Ono, M.	16-Dec	2:30PM	Saltspring Island A/B	54
Orgiu, E.	13-Dec	3:50PM	Prince of Wales	13
Orme, M.	13-Dec	10:40AM	Regency A/B/C	7
Otomo, J.	14-Dec	4:20PM	Georgia B	22
		P		
Pang, W.	13-Dec	2:00PM	Balmoral	10
Park, J.	14-Dec	9:30AM	Regency D	15
Paulus, D.	15-Dec	10:00AM	Regency A	28
Penkov, O.V.	16-Dec	1:30PM	Balmoral	38
Peterson, I.	13-Dec	4:10PM	Moresby Island	46
Petit, L.	13-Dec	3:40PM	Pender Island	45
Petit, L.	14-Dec	10:10AM	Pender Island	47
Phommakesone, S.	13-Dec	1:30PM	Plaza C	8
Piotrowski, W.	14-Dec	4:00PM	Prince of Wales	25
Poizot, P.	14-Dec	1:30PM	Balmoral	23
Pokorny, R.	13-Dec	2:10PM	Moresby Island	45
Pol, V.	13-Dec	3:50PM	Plaza B	12
Porter, P.	16-Dec	3:10PM	Pender Island	54
Proust, V.	15-Dec	10:30AM	Regency F	31
		Q		
Qin, Q.	14-Dec	9:40AM	Saturna Island	47
Qin, Q.	14-Dec	10:20AM	Saturna Island	47
		R		
Ramesh, R.	13-Dec	1:30PM	Cypress	8
Ramirez, M.	14-Dec	11:00AM	Regency C	16
Ravinder, R.	14-Dec	4:20PM	Moresby Island	48
Rehman, M.	13-Dec	5:20PM	Stanley	12
Ren, X.	16-Dec	10:40AM	Saltspring Island A/B	53
Rheinheimer, W.	16-Dec	1:30PM	Regency A	36
Rimsza, J.M.	14-Dec	10:20AM	Saltspring Island A/B	47
Ríos, C.	15-Dec	11:10AM	Pender Island	52
Rodrigues, A.	15-Dec	9:40AM	Saltspring Island A/B	51
Rongen, M.	13-Dec	4:30PM	Moresby Island	46
Rosales-Sosa, G.A.	13-Dec	1:40PM	Cortes Island	43
Rosei, F.	14-Dec	10:30AM	Stanley	18
Rosei, F.	15-Dec	9:00AM	Plaza A	28
Rösiger, A.	14-Dec	11:20AM	Regency D	15
Rossignol, S.	15-Dec	9:30AM	Stanley	29
Roy, J.	14-Dec	2:10PM	Cortes Island	49
Ryu, Y.	16-Dec	2:00PM	Saltspring Island A/B	54
		S		
S, K.	13-Dec	4:30PM	Saltspring Island A/B	44
Sahoo, S.	16-Dec	2:20PM	Cortes Island	55
Saini, R.	14-Dec	10:50AM	Regency F	17
Saini, R.	14-Dec	1:30PM	Regency F	23
Sakuda, A.	15-Dec	8:40AM	Balmoral	30
Sant, G.	13-Dec 14-	3:00PM	Saturna Island	44
Santarelli, M.	16-Dec	3:50PM	Georgia B	39
Sasaki, S.	14-Dec	10:10AM	Saltspring Island C	46
Sasano, S.	16-Dec	11:00AM	Regency B	36
Sato, K.	15-Dec	10:20AM	Georgia B	29
Scannell, G.	14-Dec	11:20AM	Saltspring Island A/B	47
Schaeperkoetter, J.	16-Dec	4:30PM	Plaza C	37
Scheithauer, U.	13-Dec	2:00PM	Regency C	11
Scheithauer, U.	16-Dec	9:00AM	Prince of Wales	33
Scheithauer, U.	16-Dec	2:20PM	Prince of Wales	38
Schlom, D.	13-Dec	4:20PM	Plaza C	9
Schmidt-Verma, A.K.	14-Dec	3:10PM	Regency E	20
Schmidt-Verma, A.K.	14-Dec	4:40PM	Regency D	21
Schorne-Pinto, J.	14-Dec	4:00PM	Regency F	24
Schwentenwein, M.	16-Dec	10:00AM	Prince of Wales	33
Sekino, T.	15-Dec	8:30AM	Plaza A	28
Sen, S.	13-Dec	10:15AM	Saturna Island	42
Sen, S.	14-Dec	10:30AM	Saltspring Island C	46
Sen, S.	15-Dec	10:20AM	Saltspring Island C	51
Seok, S.	13-Dec	11:20AM	Regency A/B/C	7
Serve, A.	13-Dec 14-Dec	2:00PM	Saturna Island	44
Shahbazian Yassar, R.	13-Dec	2:30PM	Balmoral	10
Shahbazian Yassar, R.	14-Dec	1:50PM	Stanley	24
Shalaginov, M.	15-Dec	10:50AM	Pender Island	52
Shasmal, N.	13-Dec	4:20PM	Pender Island	45
Shen, B.	15-Dec	11:30AM	Pender Island	52
Shimada, H.	13-Dec	3:50PM	Georgia B	9
Shimamura, A.	16-Dec	11:20AM	English Bay	33
Shimamura, K.	14-Dec	4:50PM	Plaza B	25
Shin, T.	16-Dec	10:00AM	Georgia B	35
Shinozaki, K.	15-Dec	9:10AM	Regency C	29
Shirshnev, P.	13-Dec	2:10PM	Pender Island	45
Shirshnev, P.	13-Dec	2:20PM	Saltspring Island C	42
Singh, K.	15-Dec	10:00AM	Regency C	29
Siponkoski, T.	14-Dec	9:00AM	Regency C	16
Smeacetto, F.	16-Dec	3:20PM	Georgia B	39
Smedskjaer, M.M.	13-Dec	2:10PM	Saltspring Island A/B	43
Smedskjaer, M.M.	14-Dec	1:30PM	Saltspring Island A/B	48
Smith-Gray, N.J.	16-Dec	1:30PM	Moresby Island	55
Smith, E.C.	13-Dec	5:00PM	Oxford	8
Smith, N.J.	14-Dec	1:30PM	Saturna Island	48
Soga, K.	14-Dec	4:10PM	Stanley	25
Song, I.	16-Dec	8:30AM	English Bay	32
Song, Y.	15-Dec	10:40AM	Regency B	26
Song, Y.	16-Dec	10:40AM	Moresby Island	53
Song, Y.	16-Dec	2:10PM	Saltspring Island C	54
Sørensen, S.S.	16-Dec	1:50PM	Saltspring Island C	54
Spreitzer, M.	14-Dec	2:00PM	Plaza C	21
Steiner, C.	16-Dec	2:40PM	Plaza C	37
Stoch, P.	14-Dec	11:30AM	Saltspring Island C	46
Stoerzinger, K.A.	13-Dec 13-Dec	3:20PM	Prince of Wales	13
Strong, K.T.	14-Dec	10:00AM	Saltspring Island A/B	46
Sugahara, T.	14-Dec	10:30AM	Regency C	16
Sugahara, Y.	13-Dec	2:30PM	Plaza A	10
Sugahara, Y.	14-Dec	4:00PM	Regency E	20
Suganuma, K.	14-Dec	10:30AM	Plaza B	19
Sukenaga, S.	13-Dec	3:20PM	Saltspring Island C	43
Sun, L.	16-Dec	4:00PM	Plaza C	37
Sun, W.	13-Dec	2:20PM	Cortes Island	43
Sun, Z.	13-Dec	4:20PM	English Bay	12
Sundaram, S.K.	16-Dec	3:20PM	Saltspring Island A/B	54
Suta, M.	14-Dec	1:30PM	Prince of Wales	25
Sutejo, I.A.	13-Dec	5:00PM	Regency C	11
Suzuki, K.	14-Dec	10:00AM	Balmoral	17
Suzuki, T.S.	14-Dec	10:20AM	Georgia A	13
Szczodra, A.	14-Dec	2:20PM	Stanley	24
Szlufarska, I.	16-Dec	10:50AM	Regency A	31
		T		
Tachibana, Y.	15-Dec	9:50AM	Plaza A	28
Tada, S.	16-Dec	2:30PM	Plaza B	37
Takahashi, M.	16-Dec	10:40AM	Prince of Wales	33
Takahashi, Y.	13-Dec	3:50PM	Cypress	8

Oral Presenters

Name	Date	Time	Room	Page Number
Talbayev, D.	14-Dec	1:30PM	Cypress	21
Talimian, A.	14-Dec	2:50PM	Saltspring Island A/B	48
Talimian, A.	16-Dec	11:00AM	Oxford	35
Tanabe, S.	16-Dec	2:00PM	Oxford	39
Tanaka, S.	14-Dec	8:30AM	Oxford	14
Tanaka, S.	14-Dec	10:50AM	Georgia A	13
Tang, L.	13-Dec	2:00PM	Cortes Island	43
Tang, L.	14-Dec	1:50PM	Saltspring Island A/B	48
Tang, M.	13-Dec	1:30PM	Regency B	10
Tang, M.	16-Dec	2:50PM	Moresby Island	55
Tarancón, A.	16-Dec	10:30AM	Georgia B	35
Tarrago, M.	13-Dec	2:20PM	Saturna Island	44
Tatami, J.	13-Dec	4:20PM	Oxford	8
Tatami, J.	14-Dec	11:00AM	Plaza B	19
Tatami, J.	14-Dec	3:40PM	Regency D	21
Tatami, J.	16-Dec	10:10AM	Balmoral	35
Teruya, K.	13-Dec	2:10PM	Oxford	7
Thangadurai, V.	13-Dec	4:20PM	Georgia B	9
Thangadurai, V.	15-Dec	9:40AM	Balmoral	31
Tian, H.	14-Dec	2:00PM	Cypress	21
Tian, T.	13-Dec	4:40PM	Georgia A	7
Tielemann, C.	16-Dec	3:50PM	Regency A	36
Toda, K.	15-Dec	8:40AM	Regency C	29
Tokoro, C.	13-Dec	1:30PM	Oxford	7
Torres, V.M.	15-Dec	11:10AM	Saltspring Island A/B	51
Torun, G.	16-Dec	2:30PM	Saturna Island	56
Tostanoski, N.	16-Dec	3:50PM	Saturna Island	56
Trejgis, K.M.	14-Dec	3:40PM	Prince of Wales	25
Troles, J.	14-Dec	3:50PM	Saltspring Island A/B	49
Trolier-McKinstry, S.	14-Dec	9:10AM	Plaza B	18
Tsai, J.	13-Dec	9:40AM	Regency A/B/C	7
Tsuchida, T.	14-Dec	11:20AM	Oxford	14
Tsuchiya, T.	13-Dec	4:20PM	Plaza A	10
Tsuchiya, T.	14-Dec	10:00AM	Regency C	16
Tsunazawa, Y.	13-Dec	1:50PM	Oxford	7
Tsvetkov, N.	15-Dec	11:00AM	Georgia B	29
Tuheen, M.I.	14-Dec	3:40PM	Regency F	24
U				
Uemura, Y.	16-Dec	11:20AM	Prince of Wales	33
Ueno, S.	14-Dec	2:10PM	Plaza A	23
Ueno, S.	16-Dec	8:50AM	Georgia A	33
Ullah, A.	15-Dec	9:40AM	Plaza C	30
Ulrich, T.L.	13-Dec	3:50PM	Regency B	10
Urata, S.	14-Dec	9:40AM	Cortes Island	46
V				
Vakharia, V.	16-Dec	9:30AM	Regency E	34
Varghese, J.	13-Dec	2:30PM	Oxford	7
Varotto, S.	14-Dec	10:00AM	Cypress	15
Veenhuizen, K.J.	16-Dec	1:50PM	Saturna Island	56
Vetrone, F.	14-Dec	9:00AM	Stanley	18
Vomiero, A.	16-Dec	8:30AM	Plaza A	34
Vornovskikh, A.A.	16-Dec	2:40PM	Regency A	36
W				
Wada, S.	14-Dec	1:40PM	Plaza A	23
Wada, S.	14-Dec	3:20PM	Plaza B	25
Wahl, L.	15-Dec	8:30AM	Georgia A	26
Wakihara, T.	14-Dec	8:30AM	Regency E	14
Wan, F.	13-Dec	2:40PM	English Bay	12
Wang, A.	13-Dec	4:20PM	Georgia A	7
Wang, C.	15-Dec	10:20AM	Georgia A	26
Wang, C.	16-Dec	11:00AM	Plaza C	32
Wang, J.	15-Dec	8:30AM	Regency B	26
Wang, K.	16-Dec	10:10AM	Plaza C	32
Wang, M.	14-Dec	8:30AM	Stanley	18
Wang, M.	14-Dec	1:30PM	Stanley	24
Wang, Q.	13-Dec	2:00PM	English Bay	12
Wang, Q.	14-Dec	9:30AM	English Bay	18
Wang, R.	14-Dec	3:40PM	Stanley	24
Wang, W.	14-Dec	1:30PM	Georgia A	19
Wang, Y.	14-Dec	3:00PM	Cypress	21
Wang, Y.	16-Dec	10:40AM	Saturna Island	53
Webster, T.	13-Dec	1:30PM	Stanley	11
Wei, Y.	13-Dec	4:00PM	Pender Island	45
Weigel, C.	16-Dec	1:30PM	Saltspring Island A/B	54
Wen, Q.	16-Dec	10:00AM	Plaza B	32
Wheaton, J.	15-Dec	11:30AM	Saltspring Island A/B	51
White, J.	13-Dec	2:20PM	Regency B	10
White, M.	13-Dec	9:00AM	Regency A/B/C	7
White, M.	16-Dec	3:20PM	English Bay	38
Wijerathne, B.	13-Dec	4:00PM	English Bay	12
Wilamowska-Zawlocka, M.	16-Dec	11:30AM	Plaza B	32
Wilhelm, M.	16-Dec	2:00PM	Plaza B	37
Wilke, S.K.	13-Dec	1:40PM	Saltspring Island C	42
Wilkinson, C.	14-Dec	8:30AM	Prince of Wales	19
Wilkinson, C.	15-Dec	12:10PM	Saturna Island	42
Wilkinson, C.	16-Dec	3:50PM	Pender Island	54
Wolfe, D.E.	15-Dec	10:20AM	Regency A	28
Wong, C.Y.	13-Dec	4:20PM	Prince of Wales	13
Wong, T.	16-Dec	11:10AM	Cortes Island	53
Woo, S.	16-Dec	11:20AM	Georgia B	35
Wu, Y.	13-Dec	3:00PM	Georgia A	7
X				
Xie, R.	16-Dec	1:30PM	Oxford	39
Xu, H.	14-Dec	10:00AM	Georgia A	13
Y				
Yadav, A.	14-Dec	10:20AM	Cortes Island	46
Yadav, A.	16-Dec	4:10PM	Saltspring Island A/B	54
Yaghtin, M.	14-Dec	11:20AM	Georgia A	13
Yamada, T.	14-Dec	4:20PM	Plaza B	25
Yamada, Y.	14-Dec	8:40AM	Balmoral	16
Yamaguchi, S.	13-Dec	1:30PM	Georgia B	9
Yamaguchi, Y.	13-Dec	5:20PM	Georgia B	9
Yamamoto, T.	14-Dec	11:30AM	Regency C	16
Yan, P.	16-Dec	10:30AM	Plaza C	32
Yang, K.	14-Dec	2:20PM	Moresby Island	48
Yang, K.	16-Dec	1:30PM	Saltspring Island C	54
Yared, W.	13-Dec	5:40PM	Regency C	11
Yazawa, K.	14-Dec	2:00PM	Oxford	22
Yin, J.	14-Dec	9:20AM	Georgia A	13
Yin, J.	14-Dec	10:20AM	Oxford	14
Yin, S.	15-Dec	9:00AM	Plaza B	28
Yokoi, T.	16-Dec	9:30AM	Regency A	31
Yoshimura, M.	14-Dec	8:30AM	Georgia A	13
Yoshimura, M.	14-Dec	8:40AM	Plaza B	18
Yuan, B.	15-Dec	9:00AM	Saltspring Island C	50
Yuan, D.	14-Dec	2:50PM	Regency C	21
Yuan, M.	16-Dec	3:20PM	Oxford	39
Yuk, J.	16-Dec	4:20PM	Regency B	40
Z				
Zaiter, R.	16-Dec	2:50PM	Saturna Island	56
Zaki, M.	13-Dec	5:10PM	Saltspring Island A/B	44
Zaki, M.	14-Dec	2:40PM	Moresby Island	48
Zaki, M.	14-Dec	4:40PM	Moresby Island	48
Zanchi, E.	15-Dec	11:20AM	Georgia B	30
Zella, L.	15-Dec	10:40AM	Saltspring Island C	51
Zettsu, N.	16-Dec	9:00AM	Regency B	36
Zettsu, N.	16-Dec	5:00PM	Regency B	40
Zhang, G.	16-Dec	9:10AM	Georgia A	33
Zhang, J.	13-Dec	3:40PM	Oxford	8
Zhang, J.	14-Dec	11:30AM	Cypress	15
Zhang, J.	16-Dec	1:30PM	Plaza C	37
Zhang, L.	13-Dec	2:00PM	Stanley	11
Zhang, Q.	13-Dec	5:20PM	Prince of Wales	13
Zhang, S.	16-Dec	2:00PM	Plaza C	37
Zhang, Y.	14-Dec	2:10PM	Saltspring Island A/B	48
Zhang, Y.	15-Dec	10:00AM	Regency F	31

Presenting Author List

Oral Presenters

Name	Date	Time	Room	Page Number
Zhao, L.	14-Dec	11:00AM	Cypress	15
Zhao, Y.	16-Dec	1:30PM	Prince of Wales	38
Zhao, Z.	16-Dec	10:40AM	Saltspring Island C	52
Zhou, D.	14-Dec	10:20AM	Plaza C	16
Zhou, Q.	13-Dec	2:40PM	Cortes Island	43
Zhou, Q.	16-Dec	10:20AM	Saltspring Island C	52
Zhou, Y.	13-Dec	3:30PM	Georgia A	7
Zou, Z.	13-Dec	1:30PM	English Bay	12
zur Loye, H.	14-Dec	8:30AM	Regency F	17
Zwanziger, J.	13-Dec	10:45AM	Saturna Island	42
Zych, E.	15-Dec	11:20AM	Regency C	29

Poster Presenters

Name	Date	Time	Room	Page Number
A				
Ariga, S.	14-Dec	5:30PM	Regency A/B	41
Ayling, J.	14-Dec	5:30PM	Regency A/B	41
B				
Boerio, J.	14-Dec	5:30PM	Regency A/B	50
Boulesteix, R.	14-Dec	5:30PM	Regency A/B	41
C				
Christensen, J.	14-Dec	5:30PM	Regency A/B	50
D				
Dey, S.	14-Dec	5:30PM	Regency A/B	40
Dixon, D.	14-Dec	5:30PM	Regency A/B	50
F				
Fan, W.	14-Dec	5:30PM	Regency A/B	40
Franklin, J.	14-Dec	5:30PM	Regency A/B	50
Fujio, Y.	14-Dec	5:30PM	Regency A/B	40
G				
Gao, W.	14-Dec	5:30PM	Regency A/B	41
H				
Hakozaki, Y.	14-Dec	5:30PM	Regency A/B	50
Hunt, J.L.	14-Dec	5:30PM	Regency A/B	50
J				
Jung, S.	14-Dec	5:30PM	Regency A/B	40
K				
Kang, E.	14-Dec	5:30PM	Regency A/B	40, 41
Kato, Y.	14-Dec	5:30PM	Regency A/B	40
Kim, G.	14-Dec	5:30PM	Regency A/B	41
Kim, Y.	14-Dec	5:30PM	Regency A/B	41
Kishimoto, H.	14-Dec	5:30PM	Regency A/B	40
L				
Li, G.	14-Dec	5:30PM	Regency A/B	40
Li, J.	14-Dec	5:30PM	Regency A/B	40
M				
Magneson, O.	14-Dec	5:30PM	Regency A/B	50
Marchewka, J.	14-Dec	5:30PM	Regency A/B	40
Morimura, A.	14-Dec	5:30PM	Regency A/B	40
N				
Nakazato, N.	14-Dec	5:30PM	Regency A/B	41
Niaz, A.K.	14-Dec	5:30PM	Regency A/B	41
Nieves, C.	14-Dec	5:30PM	Regency A/B	50
O				
Ogino, M.	14-Dec	5:30PM	Regency A/B	41
Okazaki, Y.	14-Dec	5:30PM	Regency A/B	40
Oshita, M.	14-Dec	5:30PM	Regency A/B	41
Owen, M.W.	14-Dec	5:30PM	Regency A/B	41
R				
Ren, X.	14-Dec	5:30PM	Regency A/B	50
Rubio, T.I.	14-Dec	5:30PM	Regency A/B	50
S				
S, K.	14-Dec	5:30PM	Regency A/B	50
Sitarz, M.T.	14-Dec	5:30PM	Regency A/B	40
Sójka, M.	14-Dec	5:30PM	Regency A/B	41
Sørensen, S.S.	14-Dec	5:30PM	Regency A/B	50
Suito, F.	14-Dec	5:30PM	Regency A/B	41
T				
Tanabe, Y.	14-Dec	5:30PM	Regency A/B	50
Thomson, K.	14-Dec	5:30PM	Regency A/B	41
Toda, F.	14-Dec	5:30PM	Regency A/B	41
Tuheen, M.I.	14-Dec	5:30PM	Regency A/B	41
W				
Wang, M.	14-Dec	5:30PM	Regency A/B	41
Weiss, S.	14-Dec	5:30PM	Regency A/B	50
Wie-Addo, G.	14-Dec	5:30PM	Regency A/B	41
Wilamowska-Zawlocka, M.	14-Dec	5:30PM	Regency A/B	41
X				
Xu, A.	14-Dec	5:30PM	Regency A/B	40
Y				
Yamagata, C.	14-Dec	5:30PM	Regency A/B	40
Yatskiv, R.	14-Dec	5:30PM	Regency A/B	50
Yuan, M.	14-Dec	5:30PM	Regency A/B	41

Monday, December 13, 2021

PACRIM Plenary Lectures

Plenary Session

Room: Regency A/B/C

Session Chair: Michael Halbig, NASA Glenn Research Center

8:30 AM

Opening Remarks

8:45 AM

Geijsbeek Award Presentation

9:00 AM

(PACRIM-001-2021) Thermal Properties of Advanced Ceramics

M. White*[1]

1. Dalhousie University, Department of Chemistry, Canada

9:40 AM

(PACRIM-002-2021) Superconducting quantum computer and its future issues

J. Tsai*[1]

1. Tokyo University of Science, Department of Physics, Japan

10:20 AM

Break

10:40 AM

(PACRIM-003-2021) Recent Advances in the Disruptive Technology of Additive Manufacturing at Boeing

M. Orme*[1]

1. The Boeing Company, Boeing Additive Manufacturing, USA

11:20 AM

(PACRIM-004-2021) Halide perovskite-based photovoltaics - from materials to devices

S. Seok*[1]

1. Ulsan National Institute of Science and Technology, School of Energy and Chemical Engineering, Republic of Korea

PACRIM Symposium 4: Novel, Green, and Strategic Processing and Manufacturing Technologies

Novel, Green, and Strategic Processing I

Room: Georgia A

Session Chair: Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology (AIST)

3:00 PM

(PACRIM-006-2021) Effects of sintering additive and parameters on the solid-state single-crystal growth (Invited)

I. Milisavljevic*[1]; Y. Wu[1]

1. Alfred University, Kazuo Inamori School of Engineering, New York State College of Ceramics, USA

3:30 PM

(PACRIM-007-2021) Effects of Sintering Additives on Densification and Thermal Conductivity of Sintered Reaction-Bonded Silicon Nitride Ceramics (Invited)

Y. Zhou*[1]; H. Hyuga[1]; K. Hirao[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

4:00 PM

(PACRIM-008-2021) Effect of TiB_2 particle size on the microstructures and mechanical properties of hot-pressed B_4C-TiB_2 composites

W. Guo*[1]; Q. He[1]; A. Wang[1]; T. Tian[1]; L. Hu[1]; W. Wang[1]; Z. Fu[1]

1. Wuhan University of Technology, China

4:20 PM

(PACRIM-009-2021) Enhanced toughness and strength of boron carbide ceramics with reduced graphene oxide fabricated by hot pressing

A. Wang*[1]; Q. He[1]; L. Hu[1]; Z. Zhang[2]; Z. Fu[1]; W. Wang[1]; Y. Xiong[3]

1. Wuhan University of Technology, China
2. Hebei University of Engineering, China
3. Hubei University of Technology, China

4:40 PM

(PACRIM-010-2021) Microstructural characterization and mechanical properties of Hot-Pressed boron-rich boron carbides

T. Tian*[1]; W. Wang[1]; Z. Fu[1]

1. Wuhan University of Technology, China

5:00 PM

(PACRIM-011-2021) Novel, Green, and Strategic Processing of TiO_2 Nanostructures via Cold Crystallization (Invited)

Y. Masuda*[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

PACRIM Symposium 6: Advanced Powder Processing and Manufacturing Technologies

Advanced Recycling Technology and Energy-saving Processes

Room: Oxford

1:30 PM

(PACRIM-012-2021) Advanced powder processing for recycling of silicon-based photovoltaic panel (Invited)

C. Tokoro*[1]

1. Waseda University, Japan

1:50 PM

(PACRIM-013-2021) Numerical investigation of gravity separation mechanism on a shaking table

Y. Tsunazawa*[1]; Y. Kon[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Geological Survey of Japan, Japan

2:10 PM

(PACRIM-014-2021) High-Quality Recovery of Cathode Active Material from Spent Li-ion Battery by Pulsed Power Discharge

K. Teruya*[1]; S. Lim[1]; K. Mochizuki[2]; T. Namihira[3]; T. Koita[1]; C. Tokoro[1]

1. Waseda University, Department of Resources and Environmental Engineering, Faculty of Science and Engineering, Japan
2. Retoca Laboratory LLC, Japan
3. Institute of Industrial Nanomaterials, Kumamoto University, Japan

2:30 PM

(PACRIM-015-2021) Microwave and mmWave Dielectrics for 6th Generation Devices

J. Varghese*[1]

1. Fraunhofer IKTS, Hybrid Microsystems, Germany

2:50 PM

Break

Novel Forming and Sintering Technology

Room: Oxford

3:20 PM

(PACRIM-016-2021) Effect of Al contained in polymer derived SiC crystals on creating stable crystal grain boundaries (Invited)

T. Ishikawa*[1]; H. Oda[2]

1. Tokyo University of Science, Yamaguchi (Sanyo-Onoda City University), Japan
2. Ube Industries, Ltd., Japan

3:40 PM

(PACRIM-017-2021) Properties of Si_3N_4 ceramics from tape casting and gas pressure sintering (Invited)

J. Zhang*[1]

1. Shanghai Institute of Ceramics, Chinese Academy of Sciences, China

4:00 PM

(PACRIM-018-2021) Microstructure evolution and grain growth mechanisms of pure h-BN ceramic and h-BN composite ceramics during hot-pressing (Invited)

X. Duan*[1]; D. Jia[1]; Z. Zhang[1]; B. Qiu[1]; Z. Yang[1]; Y. Zhou[1]

1. Harbin Institute of Technology, China

4:20 PM

(PACRIM-019-2021) Room-temperture densification of MgO bulk ceramics with dispersed nitride phosphor particles

J. Tatami*[1]; E. Takahashi[2]; T. Takahashi[2]

1. Yokohama National University, Japan
2. Kanagawa Institute of Industrial Science and Technology, Japan

4:40 PM

(PACRIM-020-2021) Design of Interparticle Photo-cross-linkable Suspensions for Hybrid Manufacturing of Transparent Silica Glass Components

M. Iijima*[1]; R. Sato[1]; J. Tatami[1]

1. Yokohama National University, Japan

5:00 PM

(PACRIM-021-2021) A Novel Room-Temperature Synthesis Technique for Producing High-Density Electroceramic Composites

E. C. Smith*[1]; R. Ubic[1]

1. Boise State University, Micron School of Materials Science and Engineering, USA

PACRIM Symposium 20: Multiferroic Materials, Devices, and Applications

Multiferroic Materials, Devices, and Applications I

Room: Cypress

Session Chairs: Laurent Bellaiche, University of Arkansas

1:30 PM

(PACRIM-022-2021) Observation of room temperature polar skyrmions (Invited)

R. Ramesh*[1]

1. UCBerkeley, MSE/Physics, USA

2:00 PM

(PACRIM-023-2021) Controlling local conductivity in multiferroic hexagonal manganites (Invited)

D. Meier*[1]

1. Norwegian University of Science and Technology (NTNU), Materials Science and Engineering, Norway

2:30 PM

(PACRIM-024-2021) Enhanced magnetostriction in FeGa epitaxial thin films (Invited)

J. Heron*[1]

1. University of Michigan, USA

3:00 PM

Break

Multiferroic Materials, Devices, and Applications II

Room: Cypress

Session Chairs: Laurent Bellaiche, University of Arkansas

3:20 PM

(PACRIM-025-2021) Visualization of domain structures in a ferroaxial crystal (Invited)

T. Kimura*[1]

1. University of Tokyo, Japan

3:50 PM

(PACRIM-026-2021) Optical magnetoelectric responses in multiferroics (Invited)

Y. Takahashi*[1]

1. University of Tokyo, Quantum-Phase electronics Center, Japan

4:20 PM

(PACRIM-027-2021) Measurement of multiple order parameters and their correlation at the atomic scale (Invited)

Z. Jing*[1]; Y. Zhang[1]; K. Xu[1]

1. Tsinghua University, School of Materials Science and Engineering, China

4:50 PM

(PACRIM-028-2021) Stabilization and properties of ferroelastic charged domain walls in self-assembled $BiFeO_3$ nanoislands (Invited)

M. Chen[1]; J. Wang[2]; J. Ma[3]; J. Ma*[1]; C. Nan[1]

1. Tsinghua University, China
2. Beijing Institute of Technology, China
3. Kunming University of Science and Technology, China

PACRIM Symposium 22: Microwave Dielectric Materials and Their Applications

Millimeter-wave Materials for 5G Applications

Room: Plaza C

Session Chair: Michael Lanagan, Penn State University

1:30 PM

(PACRIM-029-2021) Accurate and Repeatable 5G and Automotive mmWave Materials Measurement with Latest Commercially Available Fixtures (Invited)

S. Phommakesone*[1]

1. Keysight Technologies Inc., USA

2:00 PM

(PACRIM-030-2021) Some Fundamental Issues for Millimeter Wave Dielectric Ceramics (Invited)

X. Chen*[1]

1. Zhejiang University, School of Materials Science and Engineering, China

2:30 PM

(PACRIM-031-2021) Low dielectric constant and low loss LTCCs for microwave and millimeter wave applications (Invited)

H. Kim*[1]; S. Arun[1]; H. Shin[1]

1. Korea Institute of Ceramic Engineering and Technology (KICET), Nanomaterials and nanotechnology center Div, Republic of Korea

3:00 PM

Break

3:20 PM

(PACRIM-032-2021) Ceramic Magnetic and Dielctric Oxide Materials for Sub-6 GHz 5G Telecommunications Applications (Invited)

M. D. Hill*[1]; D. B. Cruickshank[1]; I. MacFarlane[2]

1. Trans-Tech, Inc., Research and Development, USA
2. Skyworks Ireland, Research and Development, Ireland

3:50 PM

(PACRIM-033-2021) Dielectric and Materials Engineering of Graphene for High Frequency Applications (Invited)

D. Carey*[1]

1. University of Surrey, Electrical and Electronic Engineering, United Kingdom

4:20 PM

(PACRIM-034-2021) Targeted Chemical Pressure yields Tunable Millimeter-Wave Dielectric (Invited)

N. Dawley[1]; E. J. Marksz[2]; A. Hagerstrom[3]; G. Olsen[6]; M. Holtz[1]; V. Goian[4]; C. Kadlec[4]; J. Zhang[1]; X. Lu[3]; J. Drisko[3]; R. Uecker[2]; S. Ganschow[5]; C. Long[3]; J. Booth[3]; S. Kamba[4]; C. Fennie[6]; D. Muller[6]; N. Orloff[3]; D. Schlom*[1]

1. Cornell University, Department of Materials Science and Engineering, USA
2. University of Maryland, Department of Materials Science & Engineering, USA
3. NIST, USA
4. Institute of Physics ASCR, Czechia
5. Leibniz-Institut für Kristallzüchtung, Germany
6. Cornell University, School of Applied and Engineering Physics, USA

PACRIM Symposium 24: Solid Oxide Fuel Cells and Hydrogen Technologies

Proton Conducting SOFC I

Room: Georgia B

Session Chairs: Fatih Dogan, Missouri University of Science and Technology; Hiroyuki Shimada, National Institute of Advanced Industrial Science and Technology (AIST)

1:30 PM

(PACRIM-036-2021) Materials Issues for the Next Generation PCFC Systems (Invited)

S. Yamaguchi*[1]

1. University of Tokyo, Materials Engineering, Japan

2:00 PM

(PACRIM-037-2021) Progress and challenges on ultra-high efficiency protonic ceramic fuel cells in NEDO project (Invited)

Y. Mizutani*[1]; K. Amezawa[2]; M. MORI[3]

1. National Institute of Advanced Industrial Science and Technology (AIST), Innovative Functional Materials Research Institute, Japan
2. Tohoku University, IMRAM, Japan
3. CRIEPI, Materials Science Research Laboratory, Japan

2:30 PM

(PACRIM-038-2021) Development of protonic ceramic fuel cell with BZYb electrolyte (Invited)

Y. Mikami*[1]; K. Yamauchi[1]; T. Kuroha[1]

1. Panasonic corporation, Japan

3:00 PM

Break

Proton Conducting SOFC II

Room: Georgia B

Session Chairs: Koji Amezawa, Tohoku University; Yasunobu Mizutani, National Institute of Advanced Industrial Science and Technology (AIST)

3:20 PM

(PACRIM-039-2021) Effect of added transition element on proton transport properties of ytterbium-doped barium zirconate (Invited)

Y. Okuyama*[1]; Y. Sekitani[1]; T. Kuroha[2]; K. Yamauchi[2]; Y. Mikami[2]

1. University of Miyazaki, Japan
2. Panasonic corporation, Japan

3:50 PM

(PACRIM-040-2021) Development of protonic ceramic fuel cells with Yb doped $BaZrO_3$ electrolyte toward higher power density (Invited)

H. Shimada*[1]; Y. Yamaguchi[1]; H. Sumi[1]; K. Nomura[1]; W. Shin[1]; Y. Mizutani[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

4:20 PM

(PACRIM-041-2021) Engineering Ceramics for Advanced Solid Oxide Cells (Invited)

V. Thangadurai*[1]

1. University of Calgary, Chemistry, Canada

4:50 PM

(PACRIM-042-2021) Preparation of BZY and BZY-BCY solid-solutions by Solid-State Reaction Technique (Invited)

T. Moriga*[1]; K. HATAI[1]; Y. OTANI[1]; K. MURAI[1]; R. M. Matsuda[2]; M. MORI[2]

1. Tokushima University, Japan
2. Central Research Institute of Electric Power Industry, Japan

5:20 PM

(PACRIM-043-2021) Low-temperature sintering of the $BaZrO_3$ based electrolyte material using reactive sintering method without sintering aids

Y. Yamaguchi*[1]; H. Shimada[1]; H. Sumi[1]; K. Nomura[1]; W. Shin[1]; Y. Mizutani[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

5:40 PM

(PACRIM-044-2021) Effect of ZnO sintering agent on microstructure of $BaCe_{0.8}Zr_{0.1}Y_{0.1}O_3$ perovskite

R. M. Matsuda*[1]; K. Nakamura[1]; M. MORI[1]; J. Dailly[2]

1. Central Research Institute of Electric Power Industry, Energy Transformation Research Laboratory, Japan
2. European Institute for Energy Research, Germany

PACRIM Symposium 27: Advanced Materials and Technologies for Electrochemical Energy Storage Systems

Materials Design, Screening and Electrode Architecture

Room: Balmoral

Session Chair: Palani Balaya, National University of Singapore; Mickael Dolle, University de Montreal

1:30 PM

(PACRIM-045-2021) Combining machine learning with physical modeling to predict the impact of manufacturing on lithium ion battery electrode properties (Invited)

A. A. Franco*[1]

1. Universite de Picardie Jules Verne, LRCS, France

2:00 PM

(PACRIM-046-2021) Site-selective doping strategy for high-voltage spinel cathode for lithium-ion batteries (Invited)

G. Liang[1]; W. Pang*[1]

1. University of Wollongong, Institute for Superconducting and Electronic Materials, Australia

2:30 PM

(PACRIM-047-2021) 2D Materials for Next Generation Li ion Batteries (Invited)

R. Shahbazian Yassar*[1]

1. University of Illinois at Chicago, USA

3:00 PM

Break

PACRIM Symposium 29: Ceramics and Ceramic Matrix Composites for Next Generation Nuclear Energy

Ceramics and Ceramic Matrix Composites for Next Generation Nuclear Energy

Room: Regency B

Session Chair: Ming Tang, Clemson University

1:30 PM

(PACRIM-048-2021) Iron Phosphate Glass Waste Forms To Immobilize Salt Waste Stream via Composition-Property-Structure Correlations

M. Tang*[1]

1. Clemson University, Department of Materials Science & Engineering, USA

1:50 PM

(PACRIM-049-2021) Science and technology of multifunctional ceramic coating for fusion reactor (Invited)

T. Chikada*[1]

1. Shizuoka University, College of Science, Academic Institute, Japan

2:20 PM

(PACRIM-050-2021) Development of advanced nuclear fuels for current and next generation reactors (Invited)

J. White*[1]

1. Los Alamos National Lab, Materials Science and Technology, USA

2:50 PM

Break

3:10 PM

(PACRIM-051-2021) Mechanical strength of particle agglomerates

J. Bayle*[2]; G. JOUAN[1]; P. Sandral-Lasbordes[1]; R. Ramachandramoorthy[3]

1. CEA, Nuclear fuel fabrication, France
2. CEA Marcoule, DES/ISEC/DMRC/SPTC/LSEM, France
3. Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland

3:30 PM

(PACRIM-052-2021) Flash Sintering of High Uranium Density Fuels: UO_2-UN Composites and the Effect of the Sintering Atmosphere

R. Ingraci*[1]; D. Byler[1]; K. McClellan[1]; E. Kardoulaki[1]

1. Los Alamos National Lab, Materials Science and Technology, USA

3:50 PM

(PACRIM-053-2021) Development of Accident Tolerant Oxide Fuel Grain Growth Kinetic Models

T. L. Ulrich*[1]; D. M. Frazer[2]; J. White[1]

1. Los Alamos National Lab, Materials Science and Technology (MST-8), USA
2. Idaho National Laboratory, Advanced Characterization and PIE, USA

4:10 PM

(PACRIM-054-2021) Flash sintering of uranium dioxide

E. Kardoulaki*[1]

1. Los Alamos National Lab, MST-8, USA

PACRIM Symposium 31: Advanced Functional Materials, Devices, and Systems for Environmental Conservation, Pollution Control, and Critical Materials

Phosphors and Optical Ceramics for LEDs

Room: Plaza A

2:00 PM

(PACRIM-055-2021) Analysis of energy-structure relationship for Eu^{2+} in garnet-type oxides based on first-principles calculations (Invited)

K. Ogasawara*[1]

1. Kwansei Gakuin University, Department of Chemistry, Japan

2:30 PM

(PACRIM-056-2021) Surface-modification of titania nanoparticles and their application to polymer-based optical hybrid materials (Invited)

Y. Sugahara*[1]

1. Waseda University, Department of Applied Chemistry and Kagami Memorial Research Institute for Science and Technology, Japan

3:00 PM

Break

Critical Materials / Recovery and Recycling of Rare Metals

Room: Plaza A

3:20 PM

(PACRIM-057-2021) Processing and evaluation of hydrophobic rare-earth molybdenum complex oxides with antibacterial and antiviral activities (Invited)

A. Nakajima*[1]

1. Tokyo Institute of Technology, Materials Science and Engineering, Japan

3:50 PM

(PACRIM-058-2021) Development of new chemical recycling method of inorganic wastes by using property of glass (Invited)

T. Nanba*[1]; Y. Benino[1]; S. Sakida[2]

1. Okayama University, Material and Energy Science, Japan
2. Okayama University, Environment Management Center, Japan

4:20 PM

(PACRIM-059-2021) Construction of resource-recycling manufacturing process using advanced coating process (Invited)

T. Tsuchiya*[1]; T. Nakajima[1]; N. KIJIMA[1]; Y. Fujishiro[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

4:50 PM

(PACRIM-060-2021) Preparation of crystalline oxide thin films on plastic substrates by sol-gel transfer technique: What allows the transfer (Invited)

H. Kozuka*[1]; M. Kubota[1]; Y. Tanida[1]; K. Niinuma[1]; T. Yamada[1]

1. Kansai University, Dept Chem Mater Eng, Japan

5:20 PM

(PACRIM-061-2021) New multi-functional properties by metal-ceramics nano-composite films (Invited)

H. Masumoto*[1]

1. Tohoku University, Frontier Research Institute for Interdisciplinary Sciences (FRIS), Japan

PACRIM Symposium 35: Advanced Additive Manufacturing Technologies for Bio-applications; Materials, Processes, and Systems

Advanced Additive Manufacturing Technologies for Bio-applications; Materials, Processes, and Systems I

Room: Regency C

Session Chairs: Martin Schwentenwein, Lithoz GmbH; Woo Soo Kim, Simon Fraser University

1:30 PM

(PACRIM-062-2021) Dense ceramics by additive manufacturing : typical defects and their effects on mechanical properties (Invited)

L. Gremillard*[1]; M. Maillard[1]; S. Fournier[1]; H. Reveron[1]; V. Garnier[1]; G. Baeza[1]; J. Chevalier[1]

1. INSA, Materials, Engineering and Science, France

2:00 PM

(PACRIM-063-2021) CerAMfacturing of Silicon nitride for medical applications (Invited)

U. Scheithauer*[1]; E. Schwarzer-Fischer[1]; E. Zschippang[2]; W. Kunz[2]

1. Fraunhofer IKTS, Shaping, Germany
2. Fraunhofer IKTS, Materials, Germany

2:30 PM

(PACRIM-064-2021) 3D Printing of Octacalcium Phosphate for Bone Substitutes (Invited)

S. Kim*[1]

1. Hudens_Bio, R&D, Republic of Korea

3:00 PM

Break

Advanced Additive Manufacturing Technologies for Bio-applications; Materials, Processes, and Systems II

Room: Regency C

3:20 PM

(PACRIM-065-2021) Towards the Development through Additive Manufacturing of Osteoregenerative Hybrid Ceramic/Polymer Scaffolds Suitable for Load-Bearing Applications (Invited)

P. Miranda*[1]; C. Paredes[1]; F. J. Martínez-Vázquez[1]; A. Pajares[1]

1. University of Extremadura, Spain

3:50 PM

(PACRIM-066-2021) 3D printing of complex bioceramic structures in a reversible hydrogel bath

Y. Choi*[1]; A. Sung[1]; N. Raja[1]; H. Park[1]; H. Yun[1]

1. Korea Institute of Materials Science, Republic of Korea

4:10 PM - CANCELLED

(PACRIM-067-2021) Additive Manufacturing of Bioceramic Scaffolds by Combination of FDM and Slip Casting

R. Gadow*[1]; S. Esslinger[1]

1. Institute for Manufacturing Technologies of Ceramic Components and Composites, University of Stuttgart, Germany

4:30 PM

(PACRIM-068-2021) 3D printed architectured solid and architectured sensors (Invited)

W. Kim*[1]

1. Simon Fraser University, School of Mechatronic Systems Engineering, Canada

5:00 PM

(PACRIM-069-2021) Multi-functional bone mimetic structure of calcium phosphate-bioglass ceramic by multi-material additive manufacturing

I. A. Sutejo*[2]; J. Kim[1]; Y. Choi[1]; H. Park[1]; H. Yun[2]

1. Korea Institute of Materials Science, Advanced Biomaterials Research, Republic of Korea
2. Korea University of Science and Technology / Korea Institute of Materials Science, Republic of Korea

5:20 PM

(PACRIM-070-2021) Development of near-field light curing three-dimensional printing technology with solvent-free zirconia slurry to fabricate dental restoration device

C. D. Jiang*[1]

1. National Taipei University of Technology, Mechanical Engineering, Taiwan

5:40 PM

(PACRIM-071-2021) The influence of particle size distribution on the behaviour of ceramic-reinforced photo-curable resins for stereolithography

W. Yared*[1]; R. Gadow[2]

1. Institut for Manufacturing Technologies of Ceramic Components and Composites, Additive Manufacturing, Germany
2. Institut for Manufacturing Technologies of Ceramic Components and Composites, Germany

PACRIM Symposium 38: Nanotechnology in Medicine

Nanotechnology in Medicine I

Room: Stanley

Session Chair: David Medina-Cruz, SynCell Biotechnology

1:30 PM

(PACRIM-072-2021) Nanomaterials for the COVID-19 Pandemic: What Went Wrong and Will We Be Better Prepared Next Time? (Invited)

T. Webster*[1]

1. Northeastern University, USA

2:00 PM

(PACRIM-073-2021) Nanotechnology and Advanced 4D Bioprinting for Complex Tissue Regeneration (Invited)

L. Zhang*[1]

1. The George Washington University, Mechanical and Aerospace Engineering, USA

2:30 PM

(PACRIM-074-2021) Designing Nano-Drugs by Pulsed Laser Ablation in Liquids (Invited)

G. Guisbiers*[1]

1. University of Arkansas at Little Rock, Physics & Astronomy, USA

3:00 PM

Break

Nanotechnology in Medicine II

Room: Stanley

Session Chair: Thomas Webster, Northeastern University

3:20 PM

(PACRIM-075-2021) DNA-Inspired Nanomaterials for Improved Biocompatibility and Electrical Conductivity (Invited)

Y. Chen*[1]

1. University of Connecticut, USA

3:50 PM

(PACRIM-076-2021) Biological nanocoatings for deployment in healthcare settings (Invited)

D. Medina-Cruz*[1]; T. Webster[2]

1. Novaurum Biosciences, USA
2. Northeastern University, Chemical Engineering, USA

4:20 PM

(PACRIM-077-2021) Functionalized Nanocarriers for tumor specific localization and delivery of therapeutic molecules (Invited)

S. Ilyas[1]; A. M. Renner[1]; S. Mathur*[1]

1. Institute of Inorganic Chemistry, Chemistry, Germany

4:50 PM

(PACRIM-078-2021) Tapping Natural Resources to Develop Nanomedicine (Invited)

S. Ghosh*[1]

1. School of Science, RK. University, Department of Microbiology, India

5:20 PM

(PACRIM-079-2021) Exploiting Intrinsic Properties of Lipids in Nanomedicine: Current Trends and Future (Invited)

M. Rehman*[1]

1. Quaid-i-Azam University, Department of Pharmacy, Pakistan

PACRIM Symposium 39: Biomimetics and Bioinspired Processing of Advanced Materials

Biomimetics and Bioinspired Processing

Room: English Bay

1:30 PM

(PACRIM-080-2021) Controlling the stability of amorphous calcium carbonate (Invited)

Z. Zou*[1]; Z. Fu[1]

1. Wuhan University of Technology, China

2:00 PM

(PACRIM-081-2021) Water Controls the Crystallization and Densification of Crystal-Like Amorphous Calcium Carbonate

Q. Wang*[1]; Z. Zou[1]; Z. Fu[1]

1. Wuhan University of Technology, China

2:20 PM

(PACRIM-082-2021) Self-assembly of silk fibroin direct hierarchical calcium phosphate formation

Y. Huang*[1]; Z. Zou[1]; H. Xie[2]; Z. Fu[1]

1. Wuhan University of Technology, Material Science and Engineering, China
2. Wuhan University of Technology, Chemical Engineering and Life Science, China

2:40 PM

(PACRIM-083-2021) Bioinspired preparation of virus-based finely organized nanostructures with specific functions

F. Wan*[1]; Z. Fu[1]

1. Wuhan University of Technology, State Key Laboratory of Advanced Technology For materials synthesis and Processing, China

3:00 PM

Break

3:20 PM

(PACRIM-084-2021) Collagen-Directed Mineralization of Inorganic Materials with Periodically Patterned Nanostructure

W. Fang*[1]; H. Ping[1]; Z. Fu[1]

1. Wuhan University of Technology, China

3:40 PM

(PACRIM-085-2021) Mussel directed synthesis of SnO_2/graphene composite for Lithium-Ion Batteries

W. Chi*[1]; Z. Fu[1]

1. Wuhan University of Technology, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, China

4:00 PM

(PACRIM-086-2021) Bioinspired extraordinary mechanical properties

B. Wijerathne*[1]; Z. Sun[1]

1. Queensland University of Technology, School of Chemistry and Physics, Australia

4:20 PM

(PACRIM-087-2021) Bioinspired metal oxide nanomaterials for sustainable technologies

Z. Sun*[1]

1. Queensland University of Technology, School of Chemistry, Physics and Mechanical Engineering, Australia

PACRIM Symposium 40: 6th International Richard M. Fulrath Symposium, "Frontiers of Ceramics for a Sustainable Society"

Ceramics for Sustainable Energy and Environmental Systems I

Room: Plaza B

1:30 PM

(PACRIM-088-2021) Novel H_2-triggered chemical valve function of Co-doped amorphous SiO_2/γ-Al_2O_3 composite membranes (Invited)

Y. Iwamoto*[1]

1. Nagoya Institute of Technology, Department of Life Science and Applied Chemistry, Japan

2:00 PM

(PACRIM-089-2021) Nano-Volumetrically Resolved Grain Boundary Effects in Thin Film Solar Cells (Invited)

J. Song[1]; Y. Zhou[2]; L. A. Ortiz[1]; B. Huey*[1]

1. University of Connecticut, Materials Science and Engineering, USA
2. Hong Kong Baptist University, Physics, Hong Kong

2:30 PM

Break

Ceramics for Sustainable Energy and Environmental Systems II

Room: Plaza B

3:20 PM

(PACRIM-090-2021) Engineering macro-porous ceramics with modulated pore configurations (Invited)

M. Fukushima*[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

3:50 PM

(PACRIM-091-2021) Multifunctional Ceramic Materials for Rechargeable Li-ion Batteries (Invited)

V. Pol*[1]

1. Purdue University, Chemical Engineering, USA

4:20 PM

(PACRIM-092-2021) Analysis of hydrogen degradation in Ni-MLCCs (Invited)

Y. Iwazaki*[1]

1. TAIYO YUDEN CO., LTD., Japan

Advanced Ceramic Technologies in AI, IoT, and Big Data

Room: Plaza B

5:20 PM

(PACRIM-093-2021) Ultra-Thin Piezoelectric MEMS (Invited)

T. Kobayashi*[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

PACRIM Symposium 42: Young Investigator Forum - Next-Generation Materials for Multifunctional Applications and Sustainable Development, and Concurrent Societal Challenges in the New Millennium

Energy: Advances in Fundamental Science of Emerging Energy Materials I

Room: Prince of Wales

Session Chair: Daniele Benetti, Institut National de la Recherche Scientifique

1:30 PM

(PACRIM-094-2021) Enhanced Performance and Stability of 3D/2D Tin Perovskite Solar Cells Fabricated with a Sequential Solution Deposition (Invited)

E. Jokar*[1]

1. National Chiao Tung University, Applied Chemistry, Taiwan

2:00 PM

(PACRIM-095-2021) Reining in the Compositional Flexibility of Halide Perovskites for Durable Photovoltaics (Invited)

D. P. Fenning*[1]

1. University of California, San Diego, Dept. of Nanoengineering, USA

2:30 PM

(PACRIM-096-2021) The Use of Third Component in Organic Solar Cells (Invited)

N. Doumon*[1]; F. Rosei[1]; L. Yang[2]

1. Institut National de la Recherche Scientifique, Énergie Matériaux Télécommunications Research Centre, Canada
2. Jilin Normal University, Key Laboratory of Functional Materials Physics and Chemistry of the Ministry of Education, China

3:00 PM

Break

Energy: Advances in Fundamental Science of Emerging Energy Materials II

Room: Prince of Wales

Session Chair: Daniele Benetti, Institut National de la Recherche Scientifique

3:20 PM

(PACRIM-097-2021) Tuning the activity of perovskite oxides for oxygen electrocatalysis (Invited)

K. A. Stoerzinger*[1]

1. Oregon State University, School of Chemical, Biological, and Environmental Engineering, USA

3:50 PM

(PACRIM-098-2021) When Molecules Met Graphene: Generation of Novel Hybrid van der Waals Heterostructures (Invited)

E. Orgiu*[1]

1. Institut National de la Recherche Scientifique (INRS), EMT Centre, Canada

4:20 PM

(PACRIM-099-2021) In situ transient absorption spectroscopy of molecular aggregation (Invited)

C. Y. Wong*[1]; Z. S. Walbrun[1]

1. University of Oregon, USA

4:50 PM

(PACRIM-100-2021) Luminescent materials: From synthesis to applications, with a focus on rare-earth doped glass-ceramics for spectral conversion and lighting (Invited)

F. Enrichi*[1]

1. CNR-ISP, Institute of Polar Sciences, National Research Council, Italy

5:20 PM

(PACRIM-101-2021) Construction of broad solar spectrum-responsive nanostructures for environmental and energy applications (Invited)

Q. Zhang*[1]; M. Chaker[1]; D. Ma[1]

1. INRS, Canada

Tuesday, December 14, 2021

PACRIM Symposium 4: Novel, Green, and Strategic Processing and Manufacturing Technologies

Novel, Green, and Strategic Processing II

Room: Georgia A

Session Chair: Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology (AIST)

8:30 AM

(PACRIM-102-2021) Why is Locally Activated Solution Processing Preferable for Continuous Material Production than General Hydrothermal Processing using Autoclaves? (Invited)

M. Yoshimura*[1]

1. National Cheng Kung University, Mater. Sci. & Eng., Taiwan

9:00 AM

(PACRIM-103-2021) On the fabrication of silica-chalcogenide three-dimensional micro-glass composites

E. Casamenti*[1]; G. Torun[1]; L. Borasi[2]; M. Lautenbacher[1]; A. Mortensen[2]; Y. Bellouard[1]

1. EPFL, IEM, Switzerland
2. EPFL, IMX, Switzerland

9:20 AM

(PACRIM-104-2021) Densification, microstructure tailoring and properties of $Ta_{1-x}Hf_xC$ based ceramics

J. Yin*[1]; X. Liu[1]; Z. Huang[1]

1. Shanghai Institute of Ceramics of the Chinese Academy of Sciences, China

9:40 AM

Break

10:00 AM

(PACRIM-105-2021) Densification mechanism and microstructure of alumina by ultra-high pressure and low temperature sintering

H. Xu*[1]; Z. Fu[1]; W. Ji[1]

1. Wuhan University of Technology, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, China

10:20 AM

(PACRIM-106-2021) Alignment of tubal pores in textured ceramics by magnetic-field assisted colloidal processing (Invited)

T. S. Suzuki*[1]; S. Azuma[2]; T. Uchikoshi[2]; K. Yoshida[1]

1. National Institute for Materials Science, Ceramics Processing Group, Japan
2. National Institute for Materials Science (NIMS), Japan

10:50 AM

(PACRIM-107-2021) Crystal oriented $Ba_2NaNb_5O_{15}$ ceramics fabricated by colloidal processing in magnetic field and subsequent sintering (Invited)

S. Tanaka*[1]

1. Nagaoka University of Technology, Materials Science and Technology, Japan

11:20 AM

(PACRIM-005-2021) Advanced functionally graded yttria stabilized zirconia–lanthanum zirconate thermal barrier coatings

M. Yaghtin*[1]; A. Yaghtin[1]; Z. Tang[2]; T. Troczynski[1]

1. University of British Columbia, Materials Engineering, Canada
2. Northwest Mettech Corporation, Canada

PACRIM Symposium 6: Advanced Powder Processing and Manufacturing Technologies

Controlled Composites or Pore Structure

Room: Oxford

8:30 AM

(PACRIM-108-2021) Evolution of coarse defects in zirconia-alumina composite ceramics (Invited)

S. Tanaka*[1]

1. Nagaoka University of Technology, Materials Science and Technology, Japan

8:50 AM

(PACRIM-109-2021) Development of synthetic bone-based nanofilter for particle collection and concentration from water

C. Hassam*[1]; V. Proust[4]; D. Berthebaud[2]; T. Uchikoshi[3]

1. National Institute for Materials Science (NIMS), LINK IRL 3629, Japan
2. CNRS, LINK IRL 3629, Japan
3. National Institute for Materials Science (NIMS), Japan
4. CEA, France

9:10 AM

Break

Particle and Powder Design and Synthesis

Room: Oxford

10:00 AM

(PACRIM-110-2021) Problems Relevant to Microstructural Evolution during Fabrication and Applications about Metastable Si-B-C-N Ceramics and Their Matrix Composites (Invited)

D. Jia*[1]; D. Li[1]; Z. Yang[1]; Y. Zhou[1]

1. Harbin Institute of Technology, China

10:20 AM

(PACRIM-111-2021) Fabrication of core-shell chopped C_f @phenolic resin composite powder for laser additive manufacturing of C_f/SiC composites (Invited)

J. Yin*[1]; X. Chen[1]; X. Liu[1]; Z. Huang[1]

1. Shanghai Institute of Ceramics of the Chinese Academy of Sciences, China

10:40 AM

(PACRIM-112-2021) High-entropy oxynitride $TiZrHfNbTaO_6N_3$ synthesized by high-pressure torsion for photocatalytic hydrogen production

P. Edalati*[1]; X. Shen[2]; M. Watanabe[3]; T. Ishihara[2]; M. Arita[4]; M. Fuji[1]; K. Edalati[3]

1. Nagoya Institute of Technology, Department of Life Science and Applied Chemistry, Japan
2. Kyushu University, Department of Applied Chemistry, Faculty of Engineering, Japan
3. Kyushu University, WPI, International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Japan
4. Kyushu University, Department of Materials Science and Engineering, Faculty of Engineering, Japan

11:00 AM

(PACRIM-113-2021) High-pressure TiO_2-II phase synthesized by high pressure torsion for photocatalytic CO_2 conversion

S. Akrami*[1]; M. Watanabe[2]; T. Ling[3]; T. Ishihara[3]; M. Arita[4]; M. Fuji[1]; K. Edalati[2]

1. Nagoya Institute of Technology, Department of Life Science and Applied Chemistry, Japan
2. Kyushu University, WPI, International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Japan
3. Kyushu University, Department of Applied Chemistry, Faculty of Engineering, Japan
4. Kyushu University, Department of Materials Science and Engineering, Faculty of Engineering, Japan

11:20 AM

(PACRIM-114-2021) Drying Agent for Lowering Hydrogen Reduction Temperature of Iron Oxide Powder

T. Tsuchida*[1]; J. Fukushima[1]; M. Tobise[1]; Y. Hayashi[1]; H. Takizawa[1]

1. Tohoku University, Japan

11:40 AM

(PACRIM-115-2021) Gas-Phase Functionalization of Multi-Kilogram Quantities of ca. 150 nm Silica Particles by a Fluidized Bed Reactor

B. Moeini*[1]; M. D. Argyle[1]; M. R. Linford[1]; M. Al-Bagoury[2]

1. Brigham Young University, USA
2. Elkem ASA, Norway

PACRIM Symposium 10: Sol-Gel Processing and Related Liquid-Phase Synthesis of Ceramics

Liquid-Phase Synthesis/Sol-Gel Process

Room: Regency E

Session Chair: Danielle Butts, UCLA

8:30 AM

(PACRIM-116-2021) Continuous Flow Synthesis of Zeolites: Recent Progresses and Future Perspectives (Invited)

T. Wakihara*[1]

1. The University of Tokyo, Japan

9:00 AM

(PACRIM-117-2021) Acid-catalyzed tetraalkoxysilane-water binary solutions: Liquid-state NMR characterization and silica thin film processing (Invited)

K. Kajihara*[1]; K. Hiruta[1]; K. Kanamura[1]

1. Tokyo Metropolitan University, Department of Applied Chemistry for Environment, Graduate School of Urban Environmental Sciences, Japan

9:30 AM

(PACRIM-118-2021) Engineering optically transparent mesoporous silica for thermal insulation (Invited)

D. Butts*[1]; P. McNeil[1]; B. Dunn[1]

1. University of California, Los Angeles, Materials Science and Engineering, USA

10:00 AM

Break

10:20 AM

(PACRIM-119-2021) Sol-Gel Synthesized Metal Oxide Layers for Printable Thin-Film Transistor Applications (Invited)

S. Jeong*[1]

1. Kyung Hee University, Republic of Korea

10:50 AM

(PACRIM-120-2021) Structural Analysis of Proton Conducting Zirconia-Phosphosilicate Hybrid Membranes

L. Joseph[1]; L. C. Klein*[1]

1. Rutgers University, MS&E, USA

11:10 AM

(PACRIM-121-2021) Pore Structure Conditioning and Characterization in Sol-Gel Derived Hybrid Organic-Inorganic Solid Electrolytes

V. Keshishian[1]; G. Wang[1]; J. Kieffer*[1]

1. University Of Michigan, USA

PACRIM Symposium 15: Engineering Ceramics and Ceramic Matrix Composites: Design, Development, and Applications

Advanced Processing of Ceramic Matrix Composites

Room: Regency D

Session Chair: Amjad Almansour, NASA Glenn Research Center

8:30 AM

(PACRIM-122-2021) SiC_F/SiC ceramic matrix composites fabricated by Fused Filament Fabrication (FFF) (Invited)

H. Klemm*[1]; J. Abel[1]; A. Michaelis[1]; M. Singh[2]

1. FhG IKTS Dresden, Germany
2. Ohio Aerospace Institute, USA

9:00 AM

(PACRIM-123-2021) Versatile processing of different ceramic fibers based on silazanes (Invited)

G. Motz*[1]

1. University of Bayreuth, Ceramic Materials Engineering, Germany

9:30 AM

(PACRIM-124-2021) Development of SiCf/SiC Composite for gas turbine components (Invited)

J. Park*[1]; D. Kim[1]; W. Kim[1]

1. Korea Atomic Energy Research Institute, Nuclear Materials Development Division, Republic of Korea

10:00 AM

Break

Mechanical Properties of Ceramic Matrix Composites

Room: Regency D

Session Chairs: Javier Mena Garcia, Pennsylvania State University; Günter Motz, University of Bayreuth

10:20 AM

(PACRIM-125-2021) Effect of Steam Exposure on the Tensile Behavior of 2700°F EBC-CMC System (Invited)

A. S. Almansour*[1]; J. D. Kiser[1]; D. Gorican[4]; K. K. Lee[2]; J. Setlock[3]

1. NASA Glenn Research Center, Ceramic & Polymer Composites Branch, USA
2. NASA Glenn Research Center, Environmental Effects and Coatings Branch, USA
3. University of Toledo at NASA Glenn Research Center, Environmental Effects and Coatings Branch, USA
4. HX5, LLC at NASA Glenn Research Center, Ceramic & Polymer Composites Branch, USA

10:50 AM

(PACRIM-126-2021) Full-field 3D characterization of crack initiation and propagation in CMCs over a range of temperatures (Invited)

D. Liu*[1]

1. University of Bristol, United Kingdom

11:20 AM

(PACRIM-127-2021) Development of mechanical machining processes for fabric reinfoced C/C-SiC through material removal mechanisms

A. Rösiger*[1]; R. Goller[1]

1. University of Applied Sciences, Mechanical Engineering, Germany

PACRIM Symposium 20: Multiferroic Materials, Devices, and Applications

Multiferroic Materials, Devices, and Applications III

Room: Cypress

8:30 AM

(PACRIM-128-2021) Domain-wall-induced electromagnons in multiferroics (Invited)

L. Bellaiche*[1]

1. University of Arkansas, Physics, USA

9:00 AM

(PACRIM-129-2021) Understanding and optimizing ferroelectric switching in $BiFeO_3$ (Invited)

J. Iniguez*[1]

1. Luxembourg Institute of Science and Technology and University of Luxembourg, Luxembourg

9:30 AM

Break

Multiferroic Materials, Devices, and Applications IV

Room: Cypress

Session Chair: Liuyan Zhao, University of Michigan

10:00 AM

(PACRIM-130-2021) Ferroelectric control of spin-charge interconversion: A new approach for magnetoelectric coupling (Invited)

M. Bibes[1]; S. Varotto*[1]

1. Unité Mixte de Physique CNRS/Thales, France

10:30 AM

(PACRIM-131-2021) Making EuO multiferroic by epitaxial strain engineering (Invited)

S. Kamba*[1]; V. Goian[1]; R. Held[2]; E. Bousquet[3]; A. Melville[2]; P. Ghosez[3]; N. A. Spaldin[4]; D. Schlom[2]

1. Institute of Physics, Czech Academy of Sciences, Department of Dielectrics, Czechia
2. Cornell University, Department of Materials Science and Engineering, USA
3. Physique Théorique des Matériaux, Q-MAT, CESAM, Université de Liège, Belgium
4. Materials Theory, ETH Zurich, Switzerland

11:00 AM

(PACRIM-132-2021) Real-time observation of dynamic modulations over a ferro-rotational order (Invited)

L. Zhao*[1]

1. University of Michigan, USA

11:30 AM

(PACRIM-133-2021) Revisit Aurivillius Ferroelectrics: From Structures to Functionalities (Invited)

J. Zhang*[1]

1. Beijing Normal University, China

PACRIM Symposium 21: Crystalline Materials for Electrical, Optical, and Medical Applications

Piezo/Ferro-electric Materials

Room: Regency C

Session Chair: Tetsuo Tsuchiya, National Institute of Advanced Industrial Science and Technology (AIST)

9:00 AM

(PACRIM-134-2021) Piezoelectric properties of printable ceramic-polymer unimorphs on metal substrates

T. Siponkoski*[1]; H. M. Jantunen[1]; J. Juuti[1]

1. University of Oulu, Microelectronics Research Unit, Finland

9:20 AM

Break

Semiconductors

Room: Regency C

10:00 AM

(PACRIM-135-2021) Advanced flexible thin films prepared by ultraviolet laser-assisted chemical solution processing for IoT society (Invited)

T. Tsuchiya*[1]; Y. Uzawa[1]; T. Nakajima[1]; J. Nomoto[1]; I. Yamaguchi[1]; Y. Kitanaka[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

10:30 AM

(PACRIM-136-2021) Fabrication and Characterization of Nanomaterial-based Sensor Devices by Metal Organic Decomposition with Printed Solution Method (Invited)

T. Sugahara*[1]

1. Osaka University, Japan

11:00 AM

(PACRIM-137-2021) Carrier modulation in monolayer MoS_2 through ferroelectric domain patterns (Invited)

J. Fernandez-Tejedor[1]; D. Gallego[1]; P. Molina[1]; P. Ares[1]; J. Gomez-Herrero[1]; L. E. Bausa[1]; M. Ramirez*[1]

1. Universidad Autonoma de Madrid, Spain

11:30 AM

(PACRIM-138-2021) Solid-phase crystallization of Sn-doped In2O3 films deposited on glass substrates by reactive plasma deposition (Invited)

T. Yamamoto*[1]; H. Makino[1]

1. Kochi University of Technology, Materials Design Center, Research Institute, Japan

PACRIM Symposium 22: Microwave Dielectric Materials and Their Applications

Dielectric Materials and Metamaterials for Microwave Applications

Room: Plaza C

8:30 AM

(PACRIM-139-2021) Direct Laser Lithography of Microwave Structures as Additive Manufacturing (Invited)

S. Kirihara*[1]

1. Osaka University, Joining and Welding Research Institute, Japan

9:00 AM

(PACRIM-140-2021) Microwave dielectric properties of Spinel-structured ceramics (Invited)

A. Kan*[1]; S. Takahashi[2]; H. Ogawa[3]

1. Meijo University, Department of Vehicle and Mechanical Engineering, Japan
2. National Institute of Technology, Fukui College, Department of Mechanical Engineering, Japan
3. Nagoya Industrial Science Research Institute, Department of Research, Japan

9:30 AM

Break

9:50 AM

(PACRIM-141-2021) Temperature-dependent τ_f of microwave dielectric composites (Invited)

L. Li*[1]; S. Yang[1]; X. Chen[1]

1. Zhejiang U., Zijingang Campus, Department of Materials Science and Engineering, China

10:20 AM

(PACRIM-142-2021) Anomalous dielectric behaviour at the monoclinic to tetragonal phase transition in Fergusonite structured microwave dielectric ceramics (Invited)

D. Zhou*[1]

1. Xi'an Jiaotong University, School of Electronic Science and Engineering, China

PACRIM Symposium 24: Solid Oxide Fuel Cells and Hydrogen Technologies

Electrode Materials and Degradation/Oxygen Ion and Mixed Conductors

Room: Georgia B

Session Chair: Konrad Swierczek, AGH University of Science and Technology

8:40 AM

(PACRIM-143-2021) A highly efficient and stable bifunctional oxygen electrode for SOFC and SOEC at reduced temperatures (Invited)

K. Lee*[1]

1. Korea Advanced Institute of Science and Engineering (KAIST), Mechanical Engineering, Republic of Korea

9:10 AM

(PACRIM-144-2021) The impact of catalyst infiltration on the electrochemical performance of the cobalt free $SrTi_{1-x}Fe_xO_{3-\delta}$ (STF) oxygen electrode for Solid Oxide Cells

A. Mrozinski*[1]; S. Molin[1]; J. Karczewski[2]; B. Kamecki[2]; P. Jasinski[1]

1. Gdansk University of Technology, Laboratory of Functional Materials, Faculty of Electronics, Telecommunications and Informatics, Poland
2. Gdansk University of Technology, Faculty of Applied Physics and Mathematics, Poland

9:30 AM

(PACRIM-145-2021) Theoretical Analysis of Oxygen Ion Transport in Doped Ceria: Effect of Vacancy Trapping

M. Kilic[1]; J. Lee[1]; K. Lee*[1]

1. Korea Institute of Science and Technology, Republic of Korea

PACRIM Symposium 27: Advanced Materials and Technologies for Electrochemical Energy Storage Systems

Electrode/Electrolyte Interphase

Room: Balmoral

Session Chair: Mickael Dolle, Université de Montreal

8:40 AM

(PACRIM-146-2021) Designing electrolyte and interphase for high-voltage and safe batteries (Invited)

Y. Yamada*[1]; A. Yamada[1]

1. The University of Tokyo, Department of Chemical System Engineering, Japan

9:10 AM

(PACRIM-238-2021) Alloys in Mg-ion systems: From bulky active materials to coating agents (Invited)

R. Berthelot*[1], C. Pechberty[1], L. Stievano[1]

1. CNRS/ICGM, France

Solid Electrolytes

Room: Balmoral

Session Chair: Mickael Dollé, Université de Montreal

10:00 AM

(PACRIM-147-2021) A material search of lithium ionic conductors based on crystal structures and compositions (Invited)

K. Suzuki*[1]; R. Kanno[2]

1. Tokyo Institute of Technology, Department of Chemical Science and Engineering, Japan
2. Tokyo Institute of Technology, All-Solid-State Battery Unit, Japan

10:30 AM

(PACRIM-148-2021) Enabling solid-state batteries at ambient temperature by hybrid composite electrolytes based on UV cross-linked polymer matrixes (Invited)

M. Falco[1]; S. Saffirio[1]; F. Smeacetto[1]; C. Gerbaldi*[1]

1. Politecnico di Torino, Department of Applied Science and Technology - DISAT, Italy

11:00 AM

(PACRIM-149-2021) Assessing Electrochemical Stability Windows of $Li_{1+x}Al_xM_{2-x}(PO_4)_3$ (M=Ge,Ti) NASICON-type Solid Electrolytes for All Solid-State Lithium Batteries

Y. Benabed*[1]; M. Rioux[1]; S. Rousselot[1]; G. Hautier[2]; M. Dollé[1]

1. Université de Montréal, Chemistry, Canada
2. Université catholique de Louvain, Chemistry, Belgium

11:20 AM

(PACRIM-150-2021) Effects of process parameters on lithium-ion conductivity of garnet-type solid-state electrolyte films deposited by suspension plasma spray

I. Koresh*[1]; Z. Tang[2]; T. Troczynski[1]

1. University of British Columbia, Materials Engineering, Canada
2. Northwest Mettech Corp., Canada

11:40 AM

(PACRIM-151-2021) Powder Aerosol Deposition Method: A pathway for the large-scale production of solid oxide electrolyte films for lithium metal batteries?

T. Nazarenus*[1]; J. Exner[1]; Y. Sun[1]; J. Kita[1]; R. Moos[1]

1. University of Bayreuth, Depertment for Functional Materials, Germany

PACRIM Symposium 31: Advanced Functional Materials, Devices, and Systems for Environmental Conservation, Pollution Control, and Critical Materials

VOCs / Ion-conducting Ceramics I

Room: Plaza A

10:00 AM

(PACRIM-152-2021) Noble-metal-free Catalysts for Toluene Combustion Based on Apatite-type Lanthanum Silicate

K. Matsuo*[1]; N. Nunotani[1]; N. Imanaka[1]

1. Osaka University, Japan

10:20 AM

(PACRIM-153-2021) Catalytic Liquid-phase Oxidation of p-Cresol by Using Pt/CeO_2-ZrO_2-SnO_2/SBA-16

N. Nunotani*[1]; A. Supandi[1]; N. Imanaka[1]

1. Osaka University, Japan

10:40 AM

(PACRIM-154-2021) Novel Catalytic Combustion-type Carbon Monoxide Gas Sensor Having High Selectivity Operating at Moderate Temperature (Invited)

N. Imanaka*[1]

1. Osaka University, Applied Chesistry, Japan

11:10 AM

(PACRIM-155-2021) Temporary reinforcement of ion conductive ceramics (Invited)

A. Kishimoto*[1]

1. Okayama University, Graduate School of Natural Science and Technology, Japan

PACRIM Symposium 34: Glass and Ceramics for Nuclear Waste Treatment and Sequestration

Waste Form Matrices-Synthesis and Characterization I

Room: Regency F

Session Chair: Hans-Conrad zur Loye, University of South Carolina

8:30 AM

(PACRIM-156-2021) Directed Synthesis of New Actinide Containing Oxides and Fluorides as Potential Waste Forms (Invited)

H. zur Loye*[1]

1. University of South Carolina, Chemistry and Biochemistry, USA

9:00 AM

(PACRIM-157-2021) Defect chemistry and radiation behaviour of Gd-doped UO_2

R. Mohun[1]; D. Bailey*[1]; S. Sun[1]; C. Gausse[1]; M. R. Cole[1]; H. Smith[1]; J. McCloy[2]; M. Weber[2]; M. C. Stennett[1]; N. C. Hyatt[1]; C. L. Corkhill[1]

1. The University of Sheffield, Department of Materials Science and Engineering, United Kingdom
2. Washington State University, USA

9:20 AM

Break

Waste Form Matrices-Synthesis and Characterization II

Room: Regency F

Session Chair: Hans-Conrad zur Loye, University of South Carolina

10:00 AM

(PACRIM-158-2021) A Computational Database Approach to Discovering Hierarchical Nuclear Waste Forms (Invited)

M. Christian*[1]; V. Klepov[1]; K. Pace[1]; G. Morrison[1]; T. M. Besmann[1]; H. zur Loye[1]

1. University of South Carolina, USA

10:30 AM

(PACRIM-159-2021) Structural and rheological analysis of Nickel enriched peraluminous glasses

E. Hansen*[1]; D. Perret[1]; I. Giboire[1]; S. Mure[1]; C. Rapin[2]

1. CEA, DE2D, France
2. University de Lorraine, France

10:50 AM

(PACRIM-160-2021) Impact of V_2O_5 on the structure and sulfur solubility in borosilicate glasses

R. Saini*[1]; R. Youngman[2]; A. Goel[1]

1. Rutgers University, Materials Sci. & Engg., USA
2. Science and Technology Division, Corning Incorporated, USA

11:10 AM

(PACRIM-161-2021) Thermochemical Modeling in Development and Assessment of Ceramic Nuclear Waste Forms (Invited)

T. M. Besmann*[1]; M. Christian[1]; J. Schorne-Pinto[1]; A. Mofrad[1]

1. University of South Carolina, Nuclear Engineering, USA

PACRIM Symposium 36: Advanced Multifunctional Bioceramics and Clinical Applications

Bioceramic Coatings / Bioglass

Room: English Bay

Session Chair: Qiong Wang, University of British Columbia

8:30 AM

(PACRIM-162-2021) Bioinspired hydroxyapatite coatings by Electrostatic Spray Deposition (Invited)

V. Muller[2]; L. Gremillard*[1]; S. Tadier[1]; C. Gaillard[1]; E. Djurado[2]

1. INSA, Materials, Engineering and Science, France
2. Université Grenoble Alpes, LEPMI, France

9:00 AM

(PACRIM-163-2021) Hydroxyapatite Coatings Deposited by Axial Suspension Plasma Spraying (Invited)

N. Markocsan*[1]

1. University West, Dept. of Engineering Science, Sweden

9:30 AM

(PACRIM-164-2021) Antimicrobial Cu-TiO2 and Ag-TiO2 coatings processed by plasma spray

Q. Wang*[1]; Z. Tang[1]; K. Yu[1]; T. Troczynski[1]; J. Kizhakkedathu[1]; R. Wang[1]

1. University of British Columbia, Canada

9:50 AM

Break

10:10 AM

(PACRIM-165-2021) Hybrid Organic-Inorganic Biomaterials with Self-Healing Properties (Invited)

W. Fan*[1]; M. M. Smedskjaer[1]; D. Yu[1]; R. Youngman[2]

1. Aalborg University, Department of Chemistry and Bioscience, Denmark
2. Corning Incorporated, USA

10:40 AM

(PACRIM-166-2021) In-vitro reactivity and antibacterial studies of agro-waste derived biocompatible SiO_2-P_2O_5-MgO-CaO glasses

D. Kaur*[1]; M. Reddy[2]; O. pandey[1]

1. Thapar Institute of Engineering & Technology, School of Physics and Materials Science, India
2. Thapar Institute of Engineering & Technology, Department of Biotechnology, India

11:00 AM

(PACRIM-167-2021) Surface modification of bioactive glasses to improve protein adsorption (Invited)

V. Gobbo*[1]; S. Spriano[2]; E. Verné[2]; v. Hytönen[1]; J. Massera[1]

1. Tampere University, Finland
2. Politecnico di Torino, Italy

PACRIM Symposium 37: Material and Technology Needs for Medical Devices, Sensors, and Tissue Regeneration

Device, Sensor, and Tissue Regeneration I

Room: Stanley

Session Chair: Masanori Kikuchi, National Institute for Materials Science (NIMS)

8:30 AM

(PACRIM-168-2021) 3D Printing of Graded Tissue Engineering Scaffolds (Invited)

M. Wang*[1]

1. The University of Hong Kong, Department of Mechanical Engineering, Hong Kong

9:00 AM

(PACRIM-169-2021) Theranostics Based on Rare Earth Doped Nanoparticles (Invited)

F. Vetrone*[1]

1. Institut National de la Recherche Scientifique, Université du Québec, Centre Énergie, Matériaux et Télécommunications, Canada

9:30 AM

Break

Device, Sensor, and Tissue Regeneration II

Room: Stanley

Session Chairs: Min Wang, The University of Hong Kong; Fiorenzo Vetrone, Institut National de la Recherche Scientifique, Université du Québec

10:00 AM

(PACRIM-170-2021) Hydroxyapatite/Collagen Bone-Like Nanocomposite: Applications of Its Extreme Bioactivity (Invited)

M. Kikuchi*[1]

1. National Institute for Materials Science (NIMS), Bioceramics Group, Japan

10:30 AM

(PACRIM-171-2021) Structure / property relationships in Biomaterials at the nanoscale (Invited)

F. Rosei*[1]

1. INRS, Canada

11:00 AM

(PACRIM-172-2021) Biological safety of glass microspheres for in- & post-procedure x-ray-based visualization and targeting in malignant hyper-vascular hepatic neoplasia (Invited)

K. O'Connell*[1]; S. Mitchell[1]; J. Henley[1]; A. Headley[1]; D. Dobrowski[1]; D. Boyd[2]; S. Kehoe[1]

1. ABK Biomedical Inc., Canada
2. Dalhousie University, Applied Oral Sciences and School of Biomedical Engineering, Canada

PACRIM Symposium 40: 6th International Richard M. Fulrath Symposium, "Frontiers of Ceramics for a Sustainable Society"

Emerging Ceramic Materials and Technologies I

Room: Plaza B

Session Chair: John Ballato, Clemson University

8:40 AM

(PACRIM-173-2021) Stability and Meta-Stability of Zirconia Phases Would Result in Zirconia Mystery (Invited)

M. Yoshimura*[1]

1. National Cheng Kung University, Mater. Sci. & Eng., Taiwan

9:10 AM

(PACRIM-174-2021) Reliability of Lead Zirconate Titanate Piezoelectric Films (Invited)

S. Trolier-McKinstry*[1]

1. Pennsylvania State University, Materials Science and Engineering, USA

9:40 AM

Break

Emerging Ceramic Materials and Technologies II

Room: Plaza B

10:00 AM

(PACRIM-175-2021) Advances in optical fiber glasses for reduced heat generation (Invited)

J. Ballato*[1]; P. Dragic[2]

1. Clemson University, USA
2. University of Illinois at Urbana-Champaign, USA

10:30 AM

(PACRIM-176-2021) Reliable packaging technology for heat-resistant SiC power modules (Invited)

K. Suganuma*[1]; C. Chen[1]; Z. Zhang[1]; A. Suetake[1]

1. Osaka University, F3D, Japan

11:00 AM

(PACRIM-177-2021) Mechanical response of $BaTiO_3$ single crystal in mesoscale by bending test using microcantilever beam specimens (Invited)

J. Tatami*[1]; H. Yamaguchi[1]; M. Iijima[1]

1. Yokohama National University, Japan

PACRIM Symposium 42: Young Investigator Forum - Next-Generation Materials for Multifunctional Applications and Sustainable Development, and Concurrent Societal Challenges in the New Millennium

Computational Materials Prediction and Design Toward New Functional Materials

Room: Prince of Wales

Session Chair: Sahar Mahshid, Sunnybrook Research Institute

8:30 AM

(PACRIM-178-2021) Designing High Proton Conductive Phosphate Glasses with Topological Constraint Theory and Data-Driven Techniques

C. Wilkinson*[1]; M. Ono[2]; J. C. Mauro[1]

1. Pennsylvania State University, USA
2. Hokkaido University, Japan

8:50 AM

(PACRIM-179-2021) Python for Glass Genomics (PyGGi): Accelerating Glass Innovation with Artificial Intelligence and Machine learning

H. Singh Grover[1]; R. Ravinder[1]; M. Zaki[1]; S. Bishnoi[1]; M. Agarwal[1]; N. Krishnan*[1]

1. Indian Institute of Technology Delhi, Civil Engineering, India

9:10 AM

(PACRIM-180-2021) Accelerated Materials Discovery Based on Data Analysis and Machine Learning (Invited)

J. George*[1]

1. Université catholique de Louvain, Belgium

9:40 AM

Break

Health: Diagnostics and Therapy Towards Multifunctional Theranostics I

Room: Prince of Wales

Session Chair: Sahar Mahshid, Sunnybrook Research Institute

10:00 AM

(PACRIM-182-2021) Cr3+ doped Nanoparticles as a Light-to-Heat Converting Agents

K. Elzbieciak-Piecka*[1]; L. Marciniak[1]

1. Institute of Low Temperature and Structure Research PAS, Poland

10:20 AM

(PACRIM-183-2021) Nanostructured Fluidic Devices for Point of Need Diagnostics (Invited)

S. Mahshid*[1]

1. McGill University, Bioengineering, Canada

10:50 AM

(PACRIM-184-2021) Synthesis and characterization of SiO2 coated YAG:V nanocrystals and their potential applications

K. Kniec*[1]; L. Marciniak[1]

1. Institute of Low Temperature and Structure Research, Polish Academy of Sciences, Poland

PACRIM Symposium 4: Novel, Green, and Strategic Processing and Manufacturing Technologies

Novel, Green, and Strategic Processing III

Room: Georgia A

Session Chair: Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology (AIST)

1:30 PM

(PACRIM-185-2021) Low Temperature Densification of tantalum carbide ceramics without additives (Invited)

W. Wang*[1]; c. liu[1]; Z. Fu[1]; H. Wang[1]

1. Wuhan University of Technology, China

2:00 PM

(PACRIM-186-2021) Boron-Rich Boron Carbide-Titanium Boride Based Composites Fabricated by Reactive Hot Pressing Sintering

Q. He*[1]; A. Wang[1]; T. Tian[1]; L. Hu[1]; W. Guo[1]; W. Wang[1]; Z. Fu[1]

1. Wuhan University of Technology, The State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, China

2:20 PM

(PACRIM-187-2021) Reactive sintering of nanoceramics using low temperature processes: High Pressure Spark Plasma Sintering and Cold Sintering Process

C. Estournes*[1]; T. Herisson de Beauvoir[1]; A. Flaureau[1]; A. Fregeac[1]; A. Weibel[1]; U. Chung[2]; M. Josse[2]; M. Suchomel[2]; J. Majimel[2]; G. Goglio[2]; C. Elissalde[2]

1. CNRS/University Toulouse, CIRIMAT, France
2. CNRS/University of Bordeaux, ICMCB, France

2:40 PM

(PACRIM-188-2021) Drucker-Prager-Cap Modelling of Boron Carbide Powder during Spark Plasma Sintering

W. Liu*[1]; W. BAI[1]; W. Wang[1]; C. Peng[1]

1. Wuhan University of Technology, China

3:00 PM

Break

3:20 PM

(PACRIM-189-2021) Advances in pressureless electric field-assisted sintering ceramic ionic conductors (Invited)

R. Muccillo*[1]

1. IPEN, CCTM, Brazil

3:50 PM

(PACRIM-190-2021) Ultra-fast firing: Effect of heating rate on sintering of 3YSZ, with and without an electric field

W. Ji*[1]; Z. Fu[1]; R. I. Todd[2]

1. Wuhan University of Technology, China
2. University of Oxford, United Kingdom

4:10 PM

(PACRIM-191-2021) Preparation and characterization of rGO/B_4C composites by self-assembly polymerization and spark plasma sintering

L. Hu*[1]; Q. He[1]; A. Wang[1]; T. Tian[1]; W. Wang[1]; Z. Fu[1]

1. Wuhan University of Technology, China

4:30 PM

(PACRIM-192-2021) High-temperature plastic flow of TZP during flexural deformation under a strong electric field

H. Motomura*[1]; Y. Sasaki[2]; H. Masuda[1]; H. Yoshida[1]

1. The University of Tokyo, Materials Science and Engineering, Japan
2. Tokyo University of Science, Materials Science and Engineering, Japan

PACRIM Symposium 10: Sol-Gel Processing and Related Liquid-Phase Synthesis of Ceramics

Powders, Fibers, Films, Monoliths, and Gels

Room: Regency E

Session Chairs: Andrew Lange, Lawrence Livermore National Laboratory; John Kieffer, University Of Michigan

1:30 PM

(PACRIM-193-2021) Biphasic Sol-gel Synthesis and Microstructural Control of Nanocrystalline Phosphor Materials as Potential Fluorescent Sensors (Invited)

S. Fujihara*[1]

1. Keio University, Japan

2:00 PM

(PACRIM-194-2021) Instability of the in-plane residual stress of sol-gel-derived glass and crystalline oxide thin films at room temperature

Y. Nishimura[1]; H. Kozuka*[2]

1. Kansai University, Graduate School of Science and Engineering, Japan
2. Kansai University, Faculty of Chemistry, Materials and Engineering, Japan

2:20 PM

(PACRIM-195-2021) Solution processing of metal chalcogenide and metal halide semiconductor for high performance large area electronics (Invited)

M. Kim*[1]

1. SungKyunKwan University, School of Advanced, Republic of Korea

2:50 PM

Break

Nanoparticles, Nanofibers, Nanorods, and Nanosheets

Room: Regency E

3:10 PM

(PACRIM-196-2021) High-Temperature Superhydrophobic Ceramic Coatings from Surface-Functionalized Nanoparticles

A. K. Schmidt-Verma*[1]; A. Renner[1]; T. Fischer[1]; S. Mathur[1]

1. Universität zu Köln, Inorganic Chemistry, Germany

3:30 PM

(PACRIM-197-2021) Localized surface plasmon resonance enhanced photocatalysis and photovoltaic effect (Invited)

G. Kawamura*[1]

1. Toyohashi University of Technology, Japan

4:00 PM

(PACRIM-198-2021) Preparation of Janus nanosheets via regioselective interlayer surface modification of potassium hexaniobate and subsequent exfoliation

R. Suzuki[2]; M. Sudo[5]; M. Hirano[4]; N. Idota[3]; M. Kunitake[6]; T. Nishimi[7]; Y. Sugahara*[1]

1. Waseda University, Department of Applied Chemistry and Kagami Memorial Research Institute for Science and Technology, Japan
2. Waseda University, Kagami Memorial Research Institute for Materials Science and Technology, Japan
3. Tokyo Institute of Technology, Laboratory for Advanced Nuclear Energy, Institute of Innovative Research, Japan
4. Kumamoto University, Technical Division, Faculty of Engineering, Japan
5. Waseda University, Department of Applied Chemistry, Japan
6. Kumamoto University, Institute of Industrial Nanomaterials, Jersey
7. Japan Technological Research Association of Artificial Photosynthetic Chemical Process (ARPChem), Japan

4:20 PM

(PACRIM-199-2021) Soft Chemical Synthesis, Hetero-assembly and Emergent Properties of 2D Functional Nanosheets (Invited)

R. Ma*[1]

1. National Institute for Materials Science, International Center for Materials Nanoarchitectonics, Japan

4:50 PM

(PACRIM-200-2021) Sol-Gel Coatings for Optical Fiber Preforms

A. Lange*[1]

1. Lawrence Livermore National Laboratory, Materials Science Division, USA

PACRIM Symposium 15: Engineering Ceramics and Ceramic Matrix Composites: Design, Development, and Applications

Polymer-Derived Ceramic Matrix Composites

Room: Regency D

Session Chairs: Dong Liu, University of Bristol; Junichi Tatami, Yokohama National University

1:30 PM

(PACRIM-201-2021) Polymer-Derived Ceramics as an innovative processing route toward TiC/SiC nanocomposites with high potential as solar absorbers (Invited)

M. Balestrat[1]; S. Bernard*[1]

1. CNRS, IRCER, France

2:00 PM

(PACRIM-202-2021) Polymer-Derived (Hf,Ta)C/SiC and (Hf,Ti)C/SiC Ceramic Nanocomposites with Excellent High-Temperature Oxidation Resistance (Invited)

E. Ionescu*[1]

1. Technical University Darmstadt, Materials and Earth Sciences, Germany

2:30 PM

(PACRIM-203-2021) Development SiC fiber and its applications

Y. Lee*[1]; D. Shin[1]; K. Cho[1]

1. Korea Institute of Ceramic Engineering and Technology (KICET), Republic of Korea

2:50 PM

Break

Sintering and Properties of Engineering Ceramics

Room: Regency D

Session Chair: Csaba Balazsi, ELKH Centre for Energy Research

3:40 PM

(PACRIM-204-2021) Dynamic change in the density distribution of alumina ceramics during sintering estimated by in-situ optical coherence tomography

J. Tatami*[1]; M. Tajima[1]; M. Iijima[1]; T. Takahashi[2]

1. Yokohama National University, Japan
2. Kanagawa Institute of Industrial Science and Technology, Japan

4:00 PM

(PACRIM-205-2021) Liquid phase sintering of Y_2O_3 studied by master sintering curve method

A. Najafzadehkhoee*; A. Talimian[1]; P. Hvizdoš[3]; D. Galusek[1]

1. Centre for Functional and Surface Functionalized Glass, Alexander Dubček University of Trenčín, Slovakia
2. (Joint Glass Centre of the IIC SAS, TNUAD, and FChPT STU & FunGlass, Alexander Dubček University of Trenčín, Slovakia
3. Institute of Materials Research, Slovak Academy of Sciences, Slovakia

4:20 PM

(PACRIM-206-2021) Microstructure Design and Mechanical Properties of Ceramic/Graphene Thick Coatings for New Emerging Applications

C. Balazsi*[1]; K. Balazsi[1]

1. ELKH Centre for Energy Research, Hungary

4:40 PM

(PACRIM-207-2021) Heat Resistant and Robust Superhydrophobic Coatings fabricated by functionalized Nanoparticles

A. K. Schmidt-Verma*[1]; R. Weißing[1]; T. Fischer[1]; S. Mathur[1]

1. Universität zu Köln, Inorganic Chemistry, Germany

5:00 PM

(PACRIM-208-2021) Effects of dopant on electrical and thermal properties of porous SiC ceramics

Y. Kim*[1]; S. Kultayeva[1]

1. University of Seoul, Dept. of Materials Science & Engineering, Republic of Korea

PACRIM Symposium 20: Multiferroic Materials, Devices, and Applications

Multiferroic Materials, Devices, and Applications V

Room: Cypress

Session Chair: Liuyan Zhao, University of Michigan

1:30 PM

(PACRIM-209-2021) Terahertz spectroscopic studies of noncentrosymmetric magnets (Invited)

D. Talbayev*[1]

1. Tulane University, Physics and Engineering Physics, USA

2:00 PM

(PACRIM-210-2021) Manipulating topological transformations and charged domain walls in the ferroelectric film (Invited)

K. Du[1]; Z. Liu[1]; H. Tian*[1]

1. Zhejiang University, China

2:30 PM

(PACRIM-211-2021) Hybrid improper ferroelectricity in A-site cation ordered $Li_2La_2Ti_3O_{10}$ ceramic with triple-layer Ruddlesden-Popper structure (Invited)

X. Liu*[1]; B. Zhang[1]; X. Chen[1]

1. Zhejiang University, School of Materials Science and Engineering, China

3:00 PM

(PACRIM-212-2021) Effects of B-site substitution on ferroelectric characteristics of Sr2NaNb5O15 tungsten bronze ceramics

Y. Wang*[1]; T. Sun[2]; X. Zhu[1]; L. Liu[1]; X. Chen[1]

1. Zhejiang University, China
2. Zhejiang University of Technology, China

PACRIM Symposium 21: Crystalline Materials for Electrical, Optical, and Medical Applications

Scintillation Materials

Room: Regency C

Session Chair: Luisa Bausa, Universidad Autonoma de Madrid

1:30 PM

(PACRIM-213-2021) Photoluminescence and radiation response characteristics of gallate glasses with a luminescence center (Invited)

N. Kawano*[1]; K. Shinozaki[2]; H. Kimura[3]; M. Akatsuka[3]; D. Nakauchi[3]; T. Yanagida[3]

1. Akita University, Japan
2. National Institute of Advanced Industrial Science and Technology (AIST), Japan
3. Nara Institute of Science and Technology, Japan

2:00 PM

(PACRIM-214-2021) Analysis of Excited States Dynamics in Fluoride Crystals Using Transient Absorption Spectroscopy (Invited)

M. Koshimizu*[1]; S. Yamashita[2]; Y. Muroya[3]; Y. Fujimoto[1]; K. Asai[1]

1. Tohoku University, Department of Applied Chemistry, Japan
2. University of Tokyo, Japan
3. Osaka University, Japan

2:30 PM

(PACRIM-215-2021) Engineering of $MgAl_2O_4$ Spinel for Optically Stimulated Luminescence Dosimetry

L. Pan[1]; S. Sholom[2]; S. W. McKeever[2]; L. G. Jacobsohn*[1]

1. Clemson University, Department of Materials Science and Engineering, USA
2. Oklahoma State University, Department of Physics, USA

2:50 PM

(PACRIM-216-2021) Comparison between single-crystalline and glassy Ce:LaB_3O_6

D. Yuan*[1]; E. G. Víllora[1]; K. Shimamura[1]

1. National Institute for Materials Science (NIMS), Japan

3:10 PM

Break

PACRIM Symposium 22: Microwave Dielectric Materials and Their Applications

Microwave Dielectric Materials and Applications

Room: Plaza C

Session Chair: Heli Jantunen, University of Oulu

1:30 PM

(PACRIM-217-2021) Computational studies of transitional behavior in dielectrics at mesoscale (Invited)

S. Nakhmanson*[1]

1. University of Connecticut, Materials Science and Engineering, USA

2:00 PM

(PACRIM-218-2021) Epitaxial Oxides on Silicon via Graphene Oxide (Invited)

M. Spreitzer*[1]; Z. Jovanović[2]; U. Trstenjak[1]; D. Suvorov[1]

1. Jozef Stefan Institute, Advanced Materials, Slovenia
2. Laboratory of Physics, Vinča Institute of Nuclear Sciences, Serbia

PACRIM Symposium 24: Solid Oxide Fuel Cells and Hydrogen Technologies

Proton Conducting SOFC III

Room: Georgia B

Session Chairs: Takuto Araki, Yokohama National University; Yuji Okuyama, University of Miyazaki

1:30 PM

(PACRIM-219-2021) Large Protonic Ceramic Cells for H_2-based applications (Invited)

J. Dailly*[1]; C. Notar[1]; D. Schmider[1]

1. European Institue for Energy Research, Germany

2:00 PM

(PACRIM-220-2021) Development activities for realization of large scale proton conducting ceramic cells (Invited)

M. E. Ivanova*[1]; W. Deibert[1]; C. Lenser[1]; N. H. Menzler[1]; O. Guillon[1]

1. Forschungszentrum Juelich GmbH, IEK-1, Germany

2:30 PM

(PACRIM-221-2021) Intermediate Temperature SOEC and SOFC Using Proton-Conducting Perovskites (Invited)

H. Matsumoto*[1]; L. Kwati[1]; Y. Fukahori[1]; P. Wiff[2]; L. Prost[2]

1. Kyushu University, International Institute for Carbon-Neutral Energy Research, Japan
2. K. K. Air Liquide Laboratories, Japan

3:00 PM

Break

Proton Conducting SOFC IV

Room: Georgia B

Session Chairs: Yuki Yamaguchi, National Institute of Advanced Industrial Science and Technology (AIST); Hiroshige Matsumoto, Kyushu University

3:20 PM

(PACRIM-222-2021) Evaluation of PCFC cathodic reaction by using patterned thin film model electrodes (Invited)

K. Amezawa*[1]; K. Nishidate[1]; D. Zhuo[1]; T. Yoshioka[1]; Y. Kimura[1]; T. Nakamura[1]; Y. Mikami[2]; T. Kuroha[2]; F. Iguchi[1]; K. Yashiro[1]; T. Kawada[1]

1. Tohoku University, Japan
2. Panasonic Corporation, Japan

3:40 PM

(PACRIM-223-2021) Layered 50 X 50 mm Cathode-supported Protonic Electrolysis cells for Large Scale Efficient Hydrogen Production

L. Kwati*[1]; M. E. Ivanova[2]; W. Deibert[2]; W. Meulenberg[2]; T. Ishihara[3]; H. Matsumoto[1]

1. International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University, Advanced Energy Conversion Systems Thrust, Japan
2. Institute of Energy and Climate Research, Forschungszentrum Jülich GmbH, Materials Synthesis and Processing (IEK-1), Germany
3. International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University, Applied Chemistry, Japan

4:00 PM

(PACRIM-224-2021) Thermal and chemical expansions of $Ba(Ce,Zr)O_3$-based electrolyte materials for PCFCs

K. Nomura*[1]; H. Shimada[1]; Y. Yamaguchi[1]; Y. Mizutani[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

4:20 PM

(PACRIM-225-2021) Highly Efficient Cell Design and Cost Analysis of Protonic Ceramic Fuel Cells

J. Otomo*[1]; H. Matsuo[1]; O. C. Andres[1]; S. Yamate[1]

1. The University of Tokyo, Department of Environment Systems, Graduate School of Frontier Sciences, Japan

4:40 PM

(PACRIM-226-2021) Effect of air utilization on current efficiency distributions in a protonic ceramic fuel cell (Invited)

T. Araki*[1]; F. Suito[1]; R. Takatera[1]; K. Li[1]; A. Ota[1]; M. MORI[2]; H. Shimada[3]

1. Yokohama National University, Faculty of Engineering, Japan
2. Central Research Institute of Electric Power Industry, Japan
3. National Institute of Advanced Industrial Science and Technology, Japan

PACRIM Symposium 25: Direct Thermal to Electrical Energy Conversion Materials, Applications, and Thermal Energy Harnessing Challenges

Computation and Theories

Room: Oxford

Session Chairs: Michitaka Ohtaki, Kyushu University

1:30 PM

(PACRIM-227-2021) First Principles Assessment of Materials for Direct Energy Conversion (Invited)

J. C. Goldsby*[1]; T. L. Benyo[1]

1. NASA Glenn Research Center, Chemistry and Physics, USA

2:00 PM

(PACRIM-228-2021) Exergetic Efficiency Aspect of Direct Energy Conversion and The Role of Ceramics (Invited)

K. Yazawa*[1]; K. Yazawa[2]

1. Purdue University, Birck Nanotechnology Center, USA
2. Atlas Energy Systems, Inc., USA

2:30 PM

(PACRIM-229-2021) Should we still use ZT as a performance metric?

M. Beekman*[1]

1. California Polytechnic State University, Physics, USA

2:50 PM

Break

Oxides, Nitrides, Sulfides

Room: Oxford

Session Chairs: Jon Goldsby, NASA Glenn Research Center; David Berthebaud, CNRS LINK

3:20 PM

(PACRIM-230-2021) Preparation of Ordered Porous Materials Toward the Development of Thermoelectric Materials (Invited)

K. Kuroda*[1]; T. Matsuno[1]; Y. Shimasaki[1]; A. Shimojima[1]; H. Wada[2]

1. Waseda University, Department of Applied Chemistry, Japan
2. Waseda University, Kagami Memorial Research Institute for Materials Science and Technology, Japan

3:50 PM

(PACRIM-231-2021) Enhanced Thermoelectric Performance of Porous $SrTiO_3$ with Highly Dispersed Exsolved Ni Nanoparticles

M. Ohtaki*[1]; S. Hirata[1]; M. Kimura[1]; K. Suekuni[1]

1. Kyushu University, Interdisciplinary Graduate School of Engineering Sciences, Japan

4:10 PM

(PACRIM-232-2021) Thermoelectric power factor enhancement using ZnO film including nanowires with well-controlled interface

T. Ishibe*[1]; Y. Nakamura[1]

1. Osaka University, Graduate School of Engineering Science, Japan

4:30 PM

(PACRIM-233-2021) An integrated approach of DFT, machine learning, and experiment toward the development of thermoelectric function of layered complex nitrides (Invited)

I. Ohkubo*[1]; T. Mori[1]

1. National Institute for Materials Science (NIMS), International Center for Materials Nanoarchitectioncs (MANA), Japan

PACRIM Symposium 27: Advanced Materials and Technologies for Electrochemical Energy Storage Systems

Advanced Anode and Cathode Materials/ Supercapacitors

Room: Balmoral

Session Chair: Palani Balaya, National University of Singapore

1:30 PM

(PACRIM-234-2021) Raising the redox potential in lithiated organic host materials by tailoring the inductive effects in the solid state (Invited)

P. Poizot*[1]

1. University of Nantes, IMN-CNRS, France

2:00 PM

(PACRIM-235-2021) Chemomechanical strains in MnO_2 nanosheet supercapacitor electrodes during charge/discharge

M. N. Flint*[1]; A. Wallisch[1]; P. Gao[1]; P. Metz[1]; R. Koch[1]; S. T. Misture[1]

1. Alfred University, School of Engineering, USA

2:20 PM

(PACRIM-236-2021) New O2-type lithium-rich layered oxides as positive electrode materials for lihtium-ion batteries (Invited)

M. Guignard*[1]; V. Saïbi[1]; L. Castro[2]; C. Delmas[1]

1. ICMCB-CNRS, France
2. Toyota Motor Europe, Belgium

PACRIM Symposium 31: Advanced Functional Materials, Devices, and Systems for Environmental Conservation, Pollution Control, and Critical Materials

Automotive Ceramic Sensors / Critical Materials

Room: Plaza A

1:40 PM

(PACRIM-239-2021) Assembly of Barium Titanate Nanocubes by Two Liquids Phase Separation Method under Ultrasonic Irradiation and Their Dielectric Properties (Invited)

S. Ueno[1]; S. Hatakeyama[1]; I. Fujii[1]; S. Wada*[1]

1. University of Yamanashi, Material Science and Technology, Japan

2:10 PM

(PACRIM-240-2021) Low-temperature Wet Chemical Processes for Barium-Titanate-related Dielectric Ceramics and Dielectric Composites (Invited)

S. Ueno*[1]; I. Fujii[1]; S. Wada[1]

1. University of Yamanashi, Graduate School Department of Interdisciplinary Research, Japan

2:40 PM

Break

OCs / Ion-conducting Ceramics II

Room: Plaza A

3:00 PM

(PACRIM-241-2021) Room Temperature Detection of Organic Pollutants under UV Irradiation By a Wide Gap p-n Heterojunction Diode (Invited)

Y. Nakamura*[1]; S. Fujitsu[2]

1. The University of Tokyo, Department of Applied Chemistry, School of Engineering, Japan
2. Tokyo Institute of Technology, Institute of Innovation Research, Laboratory for Materials and Structures, Japan

3:30 PM

(PACRIM-242-2021) The electrochemical properties of $LiCoO_2$ formed on oxide-based solid electrolytes by a ceramic process (Invited)

Y. Arachi*[1]; H. Oikawa[1]

1. Kansai University, Chemistry and Materials Engineering, Japan

4:00 PM

(PACRIM-243-2021) Development of Proton Conductive Materials and Application for Next-Generation Medium Temperature Fuel Cells (Invited)

A. Matsuda*[1]

1. Toyohashi University of Technology, Electrical and Electronic Information Engineering, Japan

4:30 PM

(PACRIM-244-2021) Preparation of Li_4SnS_4 Solid Electrolytes by Aqueous Ion-Exchange Method and Fabrication of All-Solid-State Batteries

R. Matsuda*[1]; T. Kokubo[1]; H. Muto[1]; A. Matsuda[1]

1. Toyohashi University of Technology, Japan

PACRIM Symposium 34: Glass and Ceramics for Nuclear Waste Treatment and Sequestration

Waste Form Matrices-Synthesis and Characterization III

Room: Regency F

Session Chair: Theodore Besmann, University of South Carolina

1:30 PM

(PACRIM-245-2021) Structural dependence of sulfur solubility in borosilicate glasses

R. Saini*[1]; D. R. Neuville[2]; R. Youngman[3]; H. Eckert[4]; A. Goel[1]

1. Rutgers University, Materials Sci. & Engg., USA
2. institut de physique du globe de Paris, Université de Paris, France
3. Science and Technology Division, Corning Incorporated, USA
4. São Carlos Institute of Physics, São Paulo University, Brazil

1:50 PM

(PACRIM-246-2021) Impact of irradiation on the properties of gel layer formed after aqueous corrosion of borosilicate glasses

A. Jan*[1]; N. Krishnan[1]

1. Indian Institute of Technology Delhi, India

2:10 PM

(PACRIM-247-2021) Candidate Waste Forms for the Immobilization of Dehalogenated Electrorefiner Salt (Invited)

L. D. Gardner*[1]

1. Argonne National Lab, Chemical and Fuel Cycle Technologies, USA

2:40 PM

Break

Waste Form Matrices-Synthesis and Characterization IV

Room: Regency F

Session Chair: Theodore Besmann, University of South Carolina

3:20 PM

(PACRIM-248-2021) A Predictive Model for Offgas Composition in Waste Glass Melters

A. Barron[1]; D. P. Guillen*[1]; M. Hall[2]; A. Abboud[1]; S. Davidson[2]; A. A. Kruger[3]

1. Idaho National Laboratory, Materials Science and Engineering, USA
2. Pacific Northwest National Lab, USA
3. U.S. Department of Energy, USA

3:40 PM

(PACRIM-249-2021) Redox effect on the structures of iron containing boro-aluminosilicate glasses from Molecular Dynamics Simulations

M. I. Tuheen*[1]; W. Sun[1]; J. Du[1]

1. University of North Texas, Materials Science and Engineering, USA

4:00 PM

(PACRIM-250-2021) Thermodynamic assessment of Zn-containing hollandite as a robust waste form for alkaline-earth metals

J. Schorne-Pinto*[1]; A. Mofrad[1]; K. Brinkman[2]; J. Amoroso[3]; S. T. Misture[4]; T. M. Besmann[1]

1. UofSC, Mechanical engineering, USA
2. Clemson University, Materials Science and Engineering, USA
3. Savannah River National Lab, USA
4. Alfred University, USA

PACRIM Symposium 36: Advanced Multifunctional Bioceramics and Clinical Applications

Biological Cell Response / Clinical Research / Calcium Phosphates

Room: English Bay

Session Chair: Qiong Wang, University of British Columbia

1:30 PM

(PACRIM-252-2021) Improvement of surface wettability and cellular interactions by bioceramic electrets (Invited)

M. Nakamura*[1]; L. Bergara Muguruza[2]; U. Sarwar[2]; K. Yamashita[3]

1. University of Turku/Tokyo Medical and Dental University, Finland
2. University of Turku, Finland
3. Tokyo Medical and Dental University, Finland

2:00 PM

(PACRIM-253-2021) Synergistic effect of Na/K contents, polarization and external electrical stimulation on biocompatibility of $Na_xK_{1-x}NbO_3$ (x = 0.2 - 0.8) piezoceramics (Invited)

D. Khare*[1]; A. K. Dubey[1]

1. Indian Institute of Technology(BHU), Department of Ceramic Engineering, India

2:30 PM

(PACRIM-254-2021) Mechanism of bone regeneration in extraction sockets grafted with SCPC

A. El-Ghannam*[1]; M. Nakamura[2]; U. Sarwar[2]; L. Bergara Muguruza[2]; R. Al Fotawi[3]; M. Hassan[1]; R. Horowitz[4]

1. University of North Carolina at Charlotte, USA
2. University of Turku, Finland
3. King Abdulazeez University, Saudi Arabia
4. The NYU College of Dentistry, USA

PACRIM Symposium 37: Material and Technology Needs for Medical Devices, Sensors, and Tissue Regeneration

Device, Sensor, and Tissue Regeneration III

Room: Stanley

Session Chairs: Rizhi Wang, University of British Columbia; Kohei Soga, Tokyo University of Science

1:30 PM

(PACRIM-255-2021) 3D Printing of Porous Biphasic Calcium Phosphate Scaffolds for Bone Regeneration via Digital Light Processing

Y. Wang[3]; J. Bai[2]; M. Wang*[1]

1. The University of Hong Kong, Department of Mechanical Engineering, Hong Kong
2. Southern University of Science and Technology, Department of Mechanical and Energy Engineering, China
3. Department of Mechanical and Energy Engineering, Southern University of Science and Technology, Department of Mechanical Engineering, The University of Hong Kong, Hong Kong, China

1:50 PM

(PACRIM-256-2021) In-situ TEM Studies of Biomineralization (Invited)

R. Shahbazian Yassar*[1]; T. Shokuhfar[1]

1. University of Illinois at Chicago, USA

2:20 PM

(PACRIM-257-2021) Novel borosilicate bioactive glass material for bone implants

A. Szczodra*[1]

1. Tampere University, Finland

2:40 PM

Break

Device, Sensor, and Tissue Regeneration IV

Room: Stanley

Session Chairs: Min Wang, The University of Hong Kong; Reza Yassar, University of Illinois

3:20 PM

(PACRIM-258-2021) Composition-Property Relationships of Multicomponent Glasses for Transarterial Embolization: Modelling and Optimizing for Imaging and Density

K. O'Connell*[1]; E. Tonkopi[3]; A. Headley[1]; D. Dobrowski[1]; D. Boyd[2]; S. Kehoe[1]

1. ABK Biomedical Inc., Canada
2. Dalhousie University, Applied Oral Sciences and School of Biomedical Engineering, Canada
3. Nova Scotia Health, Diagnostic Imaging, Canada

3:40 PM

(PACRIM-259-2021) Processing of Calcium Phosphate Nanostructure as a Potential Assay for Studying Osteoporosis (Invited)

S. Chen[1]; Q. Wang[1]; F. Eltit[1]; Y. Guo[1]; M. Cox[1]; R. Wang*[1]

1. University of British Columbia, Canada

4:10 PM

(PACRIM-260-2021) Rare-Earth Doped Ceramics for Near Infrared Bio and Medical Photonics (Invited)

K. Soga*[1]; K. OKUBO[1]; M. Umezawa[3]; D. DUNG[2]; M. Kamimura[1]

1. Tokyo University of Science, Dept Mater Sci & Tech, Japan
2. Tokyo University of Science, RIBS, Japan
3. Tokyo University of Science, RIST, Japan

PACRIM Symposium 40: 6th International Richard M. Fulrath Symposium, "Frontiers of Ceramics for a Sustainable Society"

Global Human Health Challenges

Room: Plaza B

Session Chair: Sheikh Akbar, Ohio State University

1:30 PM

(PACRIM-261-2021) Two Photon Polymerization of Microstructured and Nanostructured Surfaces for Medical Applications (Invited)

R. Narayan*[1]

1. NC State University, USA

2:00 PM

(PACRIM-262-2021) Ferroelectrics with a controlled oxygen-vacancy distribution (Invited)

Y. Noguchi*[1]

1. Kumamoto University, Faculty of Advanced Science and Technology, Japan

2:30 PM

Break

Emerging Ceramic Materials and Technologies III

Room: Plaza B

Session Chair: Roger Narayan, North Carolina State University

3:20 PM

(PACRIM-263-2021) AC Poling Treatment in Grain-oriented BT-BNT Piezoceramics (Invited)

S. Kim[1]; I. Fujii[1]; S. Ueno[1]; S. Wada*[1]

1. University of Yamanashi, Material Science and Technology, Japan

3:50 PM

(PACRIM-264-2021) Ceramic Nano-heterostructures by Materials Design: Platforms for Sensing and Biomedical Applications (Invited)

S. A. Akbar*[1]

1. Ohio State University, Materials Science and Engineering, USA

4:20 PM

(PACRIM-265-2021) Advancement of electro-optic effect in ferroelectric thin films: controlling classical ferroelectrics and exploring emerging ferroelectrics (Invited)

T. Yamada*[1]; S. Kondo[2]; H. Funakubo[3]; T. Nagasaki[1]

1. Nagoya University, Japan
2. Okayama University, Japan
3. Tokyo Institute of Technology, Japan

4:50 PM

(PACRIM-266-2021) Growth and characterization novel single crystals for electro-optical applications (Invited)

K. Shimamura*[1]; E. G. Víllora[1]

1. National Institute for Materials Science, Japan

PACRIM Symposium 42: Young Investigator Forum - Next-Generation Materials for Multifunctional Applications and Sustainable Development, and Concurrent Societal Challenges in the New Millennium

Health: Diagnostics and Therapy Towards Multifunctional Theranostics II

Room: Prince of Wales

Session Chair: Artiom Skripka, Institut National de la Recherche Scientifique

1:30 PM

(PACRIM-267-2021) The pathway to optimized lanthanide-based luminescent thermometers (Invited)

M. Suta*[1]; A. Meijerink[1]

1. Universiteit Utrecht, Chemistry, Netherlands

2:00 PM

(PACRIM-268-2021) Nanocrystalline luminescent thermometer based on transition metal ions (Invited)

L. Marciniak*[1]; K. Kniec[1]; K. Elzbieciak-Piecka[1]; K. M. Trejgis[1]; J. Drabik[1]

1. Institute of Low Temperature and Structure Research Polish Academy of Sciences, Poland

2:30 PM

Break

Health: Diagnostics and Therapy Towards Multifunctional Theranostics III

Room: Prince of Wales

Session Chair: Artiom Skripka, Institut National de la Recherche Scientifique

3:20 PM

(PACRIM-269-2021) Towards controlled photothermal therapy - nanoparticles combining the luminescent nanothermometer and nanoheater functionalities

K. R. Maciejewska*[1]; A. Pasciak[1]; L. Marciniak[1]

1. Institute of Low Temperature and Structure Research, Division of Optical Spectroscopy, Poland

3:40 PM

(PACRIM-270-2021) A SBR-based luminescent thermometer exploiting GSA and ESA in Nd^{3+} doped fluorides

K. M. Trejgis*[1]; L. Marciniak[1]

1. Institute of Low Temperatures and Structural Research PAS, Division of Optical Spectroscopy, Poland

4:00 PM

(PACRIM-271-2021) Sensitization of the Ln^{3+}-based thermometers operating in NIR spectral region through Cr^{3+} ions

W. Piotrowski*[1]; L. Marciniak[1]

1. Institute of Low Temperature and Structure Research PAS, Division of Optical Spectroscopy, Poland

4:20 PM

(PACRIM-272-2021) Magnetic nanostructures for biological separation, sensing and imaging applications (Invited)

I. Gessner*[1]; S. Mathur[2]; R. Weissleder[1]

1. Massachusetts General Hospital / Harvard Medical School, Center for Systems Biology, USA
2. University of Cologne, Inorganic Chemistry, Germany

4:50 PM

(PACRIM-273-2021) Exploiting the biofilm microenvironment to prevent an oral disease via nanocatalysts (Invited)

Y. Huang*[1]

1. National Institute of Health, USA

Wednesday, December 15, 2021

PACRIM Symposium 2: Frontier of Modeling and Design of Ceramics and Composites

Modeling and Design of Ceramics and Composites

Room: Regency B

Session Chair: Yu Song, University of California, Los Angeles

8:30 AM

(PACRIM-274-2021) High-entropy rare earth silicates for multifunctional thermal and environmental barrier coating materials (Invited)

J. Wang*[1]

1. Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, Advanced Ceramics and Composites Division, China

9:00 AM

(PACRIM-275-2021) Ceramics and glasses from atomistic simulations: Enhanced understanding of materials for energy technology

P. Kowalski*[1]; M. Sun[2]; S. C. Finkeldei[3]; Z. He[1]; J. Stackhouse[4]; N. Huittinen[5]; K. Kvashnina[6]; T. Wang[2]; G. Murphy[1]; Z. Zhang[7]; B. Kennedy[8]; E. di Napoli[1]

1. Forschungszentrum Juelich, Germany
2. Lanzhou University, China
3. University of California, Irvine, USA
4. University of California, Berkeley, USA
5. HZDR, Germany
6. ESRF, France
7. ANSTO, Australia
8. University of Sydney, Australia

9:20 AM

(PACRIM-276-2021) De Novo Inverse Design of Nanoporous Ceramics by Machine Learning

H. Liu[1]; Y. Liu[1]; M. Bauchy*[1]

1. University of California, Los Angeles, Civil and Environmental Engineering Department, USA

9:40 AM

Break

10:00 AM

(PACRIM-277-2021) Atomistic simulations of tellurite glasses: Effect of quenching rate, system size and ensemble

A. Jan*[1]; N. Krishnan[1]

1. Indian Institute of Technology Delhi, India

10:20 AM

(PACRIM-278-2021) Fluoride releasing borate glasses for oral health applications

K. N. MacDonald-Parsons[1]; G. E. Boudreau[1]; D. Boyd*[1]

1. IR Scientific, Canada

10:40 AM

(PACRIM-279-2021) Deciphering the viscosity of glass materials with symbolic regression

Y. Song*[1]; M. Bauchy[1]

1. University of California, Los Angeles, Civil and Environmental Engineering, USA

PACRIM Symposium 4: Novel, Green, and Strategic Processing and Manufacturing Technologies

Novel, Green, and Strategic Processing IV

Room: Georgia A

Session Chair: Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology (AIST)

8:30 AM

(PACRIM-280-2021) Robocasting (RC) of Ceramic-based Composites (Invited)

L. Wahl*[1]; N. Travitzky[1]

1. University of Erlangen-Nuremberg, Germany

9:00 AM

(PACRIM-281-2021) Low-temperature approach for fabricating α-Al_2O_3 composite coating as tritium permeation barrier (Invited)

H. Li*[1]

1. Huazhong University of Science and Technology, China

9:30 AM

Break

9:50 AM

(PACRIM-282-2021) Coupling precursor chemistry and rapid hot pressing: Toward the design of functional polymer-derived carbide and nitride ceramics (Invited)

M. Balestrat[1]; A. Lale[1]; O. Hanzel[2]; Z. Lences[2]; P. Sajgalik[2]; S. Bernard*[1]

1. CNRS, IRCER, France
2. Slovak Academy of Sciences, Institute of Inorganic Chemistry, Slovakia

10:20 AM

(PACRIM-283-2021) Near Net Size Fabrication of Porous Ceramics Through Controlling Shrinkage during drying and sintering (Invited)

C. Wang*[1]

1. Tsinghua University, School of Materials Science and Engineering, China

PACRIM Symposium 7: Synthesis, Processing, and Micro-structural Control of Materials using Electric Currents, Magnetic fields and/or Pressures

Synthesis, Processing, and Micro-structural Control of Materials using Electric Currents, Magnetic fields and/or Pressures

Room: Regency D

Session Chair: Javier Garay, University of California, San Diego

8:30 AM

(PACRIM-284-2021) Creating anisotropic texture in porous ceramics (Invited)

H. Le Ferrand*[1]

1. Nanyang Technological University, Singapore

9:00 AM

(PACRIM-285-2021) Stabilized zirconia ceramics Spark Plasma Sintered: From the study of mechanisms to the control of their microstructure and mechanical properties (Invited)

C. Estournes*[1]; A. Flaureau[1]; A. Fregeac[1]; M. Rousselle[1]; T. Herisson de Beauvoir[1]; G. Chevallier[1]; A. Weibel[1]; F. Ansart[1]; G. Fradet[2]; S. Selezneff[2]; C. Elissalde[3]; F. Mauvy[3]

1. CNRS/University Toulouse, CIRIMAT, France
2. Safran Aircraft Engines, France
3. CNRS/University Bordeaux, ICMCB, France

9:30 AM

Break

9:50 AM

(PACRIM-286-2021) Crack Healing in Zirconia Ceramics under DC Current (Invited)

K. Morita*[1]

1. National Institute for Materials Science (NIMS), Japan

10:20 AM

(PACRIM-287-2021) Fields Matter: Phase and Morphology Control in Iron Oxides Through Magnetic Field Assisted CVD (Invited)

S. Mathur*[1]

1. University of Cologne, Institute of Inorganic Chemistry, Germany

PACRIM Symposium 8: Porous Ceramics: Innovative Processing and Advanced Applications

Additive Manufacturing for Porous Ceramics

Room: English Bay

8:30 AM

(PACRIM-288-2021) 3D printing hierarchical porous ceramics with pastes containing aqueous suspension-oil formulations (Invited)

G. V. Franks*[1]; S. S. Chan[1]; M. L. Sesso[2]; S. Y. Kim[2]

1. University of Melbourne, Chemical Engineering, Australia
2. LaTrobe University, Engineering, Australia

9:00 AM

(PACRIM-289-2021) Injection Molded Lattice Structures with Variable Poisson Ratio - Influence on Mechanical and Piezoelectric Properties

D. Köllner*[1]; T. Fey[1]

1. University of Erlangen-Nuremberg, Germany

9:20 AM

Break

Catalytic Performances of Porous Ceramics

Room: English Bay

9:40 AM

(PACRIM-290-2021) Porous composites containing non-noble metal clusters for catalytic hydrogen production (Invited)

H. Inokawa*[1]

1. Sojo University, Division of Applied Chemistry, Japan

10:10 AM

(PACRIM-291-2021) Combined CFD and experimental investigations on transport properties of open cellular structures for catalytic applications (Invited)

G. Groppi*[1]

1. Politecnico di Milano, Energy, Italy

10:40 AM

(PACRIM-292-2021) Synthesis and Photocatalytic Properties of Tantalum (Oxy)Nitride with an Inverse Opal Structure (Invited)

T. Moriga*[1]; N. HIRAYAMA[1]; K. YOSHIDA[1]; A. NAKANISHI[1]; K. MURAI[1]; W. CHEN[2]; G. WATERHOUSE[2]

1. Tokushima University, Japan
2. University of Auckland, New Zealand

PACRIM Symposium 10: Sol-Gel Processing and Related Liquid-Phase Synthesis of Ceramics

Hierarchical Structuring Method

Room: Regency E

8:30 AM

(PACRIM-293-2021) Morphological Control of TiO_2-based Materials via Mild Solution Processes

G. Hasegawa*[1]; K. Nakanishi[1]

1. Nagoya University, Japan

8:50 AM

(PACRIM-294-2021) Scalable Fabrication of Nanostructured Metal Oxides (Invited)

C. Chang*[1]

1. Oregon State University, Chemical Engineering, USA

9:20 AM

Break

Porous Low-density Materials (Aerogels)

Room: Regency E

Session Chair: Chih-hung Chang, Oregon State University

9:30 AM

(PACRIM-295-2021) Combining sol-gel-derived thin films with metasurfaces to tailor the optical functionalities (Invited)

S. Murai*[1]

1. Kyoto University, Material Chemistry, Japan

10:00 AM

(PACRIM-296-2021) Dynamic Bonding in Mircroporous Materials (Invited)

C. K. Brozek*[1]; A. Andreeva[1]; J. McKenzie[1]; K. Fabrizio[1]

1. University of Oregon, Chemistry and Biochemistry, USA

10:30 AM

(PACRIM-297-2021) Preparation of Polymethylsilsesquioxane/ TEMPO-Oxidized Cellulose Nanofiber Composite Aerogels

D. Kazaoka[1]; G. Hasegawa[1]; K. Kanamori[2]; K. Nakanishi*[1]

1. Nagoya University, Japan
2. Kyoto University, Graduate School of Science, Japan

PACRIM Symposium 12: Specific Reaction Field and Material Fabrication Design

Specific Reaction Field and Material Fabrication Design

Room: Plaza B

8:30 AM

(PACRIM-298-2021) Development of Nanoparticle-loaded Organic Scintillators (Invited)

M. Koshimizu*[1]; A. Magi[1]; A. Watanabe[1]; Y. Fujimoto[1]; A. Yoko[2]; G. Seong[3]; T. Tomai[4]; T. Adschiri[2]; R. Haruki[5]; F. Nishikido[6]; S. Kishimoto[5]; K. Asai[1]

1. Tohoku University, Department of Applied Chemistry, Japan
2. Tohoku University, WPI-AIMR, Japan
3. Tohoku University, NICHe, Japan
4. Tohoku University, Institute of Multidisciplinary Research for Advanced Materials, Japan
5. High-Energy Accelerator Research Organization, Japan
6. National Institute for Quantum and Radiological Science and Technology, National Institute of Radiological Sciences, Japan

9:00 AM

(PACRIM-299-2021) Hydrothermal Synthesis and Thermochromic Properties of Fluorine Doped Vanadium Oxides for Smart Window Application

S. Yin*[1]

1. IMRAM, Tohoku University, Japan

9:20 AM

(PACRIM-300-2021) Sorption of Co^{2+} on seaweed-like sodium titanate mats synthesized by template-free hydrothermal method (Invited)

T. Goto*[1]; Y. Kondo[2]; T. Sekino[1]

1. Osaka University, ISIR, Japan
2. Osaka University, Graduate School of Engineering, Japan

9:50 AM

(PACRIM-301-2021) Ecomomical and Ecological Nanomaterial Fabrication for Sustainable Development Goals

Y. Hayashi*[1]

1. Tohoku University, School of Engineering, Japan

PACRIM Symposium 14: Functional Nanomaterials for Energy Harvesting and Solar Fuels

Functional Metal Oxide Nano- and Heterostructures for Photocatalysis and Solar Fuels

Room: Plaza A

8:30 AM

(PACRIM-302-2021) Bottom-up chemical synthesis of visible-light responsible peroxo-modified titanate nanotubes and their photochemical properties (Invited)

T. Sekino*[1]; Y. Kondo[2]; H. Park[1]; S. Chou[1]; T. Goto[3]; M. Kakihana[1]

1. Osaka University, SANKEN (The Institute of Scientific and Industrial Research), Japan
2. Osaka University, Graduate School of Engineering, Japan
3. Osaka University, Institute for Advanced Co-Creation Studies, Japan

9:00 AM

(PACRIM-303-2021) Multifunctional Materials for Emerging Technologies (Invited)

F. Rosei*[1]

1. INRS, Canada

9:30 AM

Break

9:50 AM

(PACRIM-304-2021) Transient absorption studies of photocatalytic water oxidation and reduction at TiO_2 and Pt- TiO_2 surface (Invited)

Y. Tachibana*[1]

1. RMIT University, School of Engineering, Australia

10:20 AM

(PACRIM-305-2021) Nanotwins Enable Efficient Photocatalytic Hydrogen Production (Invited)

M. Liu*[1]

1. Xi'an Jiaotong University, International Research Center for Renewable Energy, State Key Laboratory of Multiphase Flow, China

PACRIM Symposium 17: Multifunctional Coatings for Structural, Energy, and Environmental Applications

Multifunctional Coatings

Room: Regency A

8:30 AM

(PACRIM-306-2021) Hexavalent chromium-free functional plating alternative technology using aerosol deposition (AD) method (Invited)

J. Akedo*[1]; I. Ohno[2]

1. AIST, ACT, Japan
2. Hojitsu Seiko Co. Ltd., Japan

9:00 AM

(PACRIM-307-2021) Measurement of in-plane coefficient of thermal expansion for ceramic coatings from room temperature to 1400°C

H. Kakisawa*[1]; T. Nishimura[1]; T. Yokoi[2]; N. Yamaguchi[2]; S. Kitaoka[2]

1. National Institute for Materials Science (NIMS), Japan
2. Japan Fine Ceramics Center, Japan

9:20 AM

(PACRIM-308-2021) Preparation of nanostructured HfO_2–Al_2O_3 coatings using chemical vapor deposition

S. Matsumoto*[1]; A. Ito[1]

1. Yokohama National University, Graduate School of Environment and Information Sciences, Japan

9:40 AM

(PACRIM-309-2021) In-situ formation of nanostructures in chemical vapor deposition of MgO–$MgAl_2O_4$–Al_2O_3 system coatings

A. Ito*[1]; M. Ikai[1]

1. Yokohama National University, Environment and Information Sciences, Japan

10:00 AM

(PACRIM-310-2021) Influence of filler materials on the internal stresses and thermal annealing behavior of ceramic films formed by Powder Aerosol Deposition

D. Paulus*[1]; J. Exner[1]; J. Kita[1]; R. Moos[1]

1. University of Bayreuth, Functional Materials, Germany

10:20 AM

(PACRIM-311-2021) Enhanced CMAS Resistance and Mechanical Durability of a Next-Gen Thermal Barrier Coating

D. E. Wolfe*[1]; M. Schmitt[2]; A. K. Rai[3]; P. Lauer[1]; P. Albert[1]; R. Spangler[1]

1. Pennsylvania State University, USA
2. HAMR, USA
3. UES, Inc., USA

PACRIM Symposium 19: Geopolymers: Low Energy and Environmentally Friendly Ceramics

Geopolymers

Room: Stanley

Session Chair: Nishant Garg, University of Illinois Urbana-Champaign

8:30 AM

(PACRIM-312-2021) Processing and characterization of fly ash geopolymers for encapsulation of nuclear waste containing cesium (Invited)

S. Jain*[1]; T. Troczynski[1]; N. Banthia[2]

1. The University of British Columbia, Materials Engineering, Canada
2. The University of British Columbia, Civil Engineering, Canada

9:00 AM

(PACRIM-313-2021) Municipal Solid Waste Incineration Ashes – A Precursor for Sustainable Ceramics (Invited)

V. Kumar[1]; N. Garg*[1]

1. University of Illinois Urbana-Champaign, Civil and Environmental Engineering, USA

9:30 AM

(PACRIM-314-2021) Porosity control of acid or basic geopolymer foam (Invited)

S. Rossignol*[1]

1. IRCER, France

PACRIM Symposium 21: Crystalline Materials for Electrical, Optical, and Medical Applications

Optical Materials I

Room: Regency C

Session Chair: Mariola Ramirez, Universidad Autonoma de Madrid

8:40 AM

(PACRIM-315-2021) High-Throughput Synthesis of nano-phosphors by novel water-assisted solid-state reaction method (Invited)

K. Toda*[1]

1. Niigata University, Japan

9:10 AM

(PACRIM-316-2021) Impact of glass crystallization method on the strain, defect formation, and thermoluminescence of YAG: Ce (Invited)

K. Shinozaki*[1]; G. Okada[3]; K. Sato[2]; M. Affatigato[4]

1. AIST, Nanomaterials Research Institute, Japan
2. Tokyo Gakugei University, Department of Environmental Sciences, Japan
3. Kanazawa Institute of Technology, Japan
4. Coe College, USA

9:40 AM

Break

Optical Materials II

Room: Regency C

Session Chair: Kenji Toda, Niigata University

10:00 AM

(PACRIM-317-2021) Partial air reduction of $Eu^{3+} \rightarrow Eu^{2+}$ in Ca_2SiO_4:Eu phosphors derived from agro-food wastes

M. Kaur[1]; K. Singh*[1]

1. Thapar Institute of Engineering and Technology, School of Physics and Materials Science, India

10:20 AM

(PACRIM-318-2021) Plasmon induced coherence and directionality in the spontaneous emission of Rare Earth ions in a solid-state platform (Invited)

J. Fernández-Martínez[3]; S. Carretero-Palacios[3]; L. Sanchez-García[3]; j. Bravo-Abad[1]; P. Molina[3]; N. van Hoof[2]; M. Ramirez[3]; J. Gómez Rivas[2]; L. E. Bausa*[3]

1. Universidad Autonoma de Madrid, Física de la Materia Condensada, Spain
2. Eindhoven University of Technology, Netherlands
3. Universidad Autonoma de Madrid, Spain

10:50 AM

(PACRIM-319-2021) Synthesis of boron carbon oxynitride films by laser chemical vapor deposition (Invited)

H. Katsui*[1]; K. Harada[2]; M. Hotta[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Multi-Material Research Institute, Japan
2. Nagoya University, Institute of Materials and System for Sustainability, Japan

11:20 AM

(PACRIM-320-2021) Luminescence Thermometry - Striving a Breakthrough

E. Zych*[1]; P. Bolek[1]; M. Sójka[1]; D. Kulesza[1]; J. Trojan-Piegza[1]

1. University of Wroclaw, Poland

11:40 AM

(PACRIM-321-2021) Loss reduction via annealing and lattice Kerker effect in silicon metasurfaces

L. Liu*[1]; F. Zhang[1]; S. Murai[1]; K. Tanaka[1]

1. Kyoto University, Japan

PACRIM Symposium 24: Solid Oxide Fuel Cells and Hydrogen Technologies

Electrode Materials

Room: Georgia B

Session Chair: Fatih Dogan, Missouri University of Science and Technology

8:40 AM

(PACRIM-322-2021) Nanostructured Composite Electrodes for Redox Stable Solid Oxide Fuel Cells (Invited)

F. Dogan*[1]

1. Missouri University of Science and Technology, Dept. of Materials Science and Engineering, USA

9:10 AM

(PACRIM-323-2021) Sandvik Surface Technology: Nanotechnology in large volumes for the rapid industrialization of Solid Oxide Cells (Invited)

C. Bernuy-Lopez*[1]

1. Sandvik Materials Technology, Sweden

9:40 AM

Break

Electrode Materials and Interconnects

Room: Georgia B

Session Chair: Sebastian Molin, Gdansk University of Technology

10:00 AM

(PACRIM-324-2021) Development of environmentally friendly interconnect coatings - modifications of Mn_2CuO_4

S. Molin*[1]

1. Gdansk University of Technology, Laboratory of Functional Materials, Faculty of Electronics, Telecommunications and Informatics, Poland

10:20 AM

(PACRIM-325-2021) Colloidal processing approach toward high performance ceramic fuel cells

K. Sato*[1]; H. Abe[2]

1. Gunma University, Division of Environmental Engineering Science, Japan
2. Osaka University, Japan

10:40 AM

(PACRIM-326-2021) New approach: The effect of La-doped ceria buffer layers fabricated by ultrasonic spray for electrodes of LSGM electrolyte cells

S. Lee*[1]; T. Shin[1]

1. Korea Institute of Ceramic Engineering and Technology (KICET), Energy & Environmental Division, Republic of Korea

11:00 AM

(PACRIM-327-2021) Surface passivation enables fabrication of $La_{0.6}Sr_{0.4}Co_{0.2}Fe_{0.8}O_3$ nano-structured electrodes

N. Tsvetkov*[1]; H. Seo[1]; W. Jung[1]; J. Kang[1]

1. Korea Advanced Institute of Science and Engineering (KAIST), Republic of Korea

11:20 AM

(PACRIM-328-2021) Optimization of electrophoretic deposition technique to control doping and densification of protective spinel coatings for SOC interconnects

E. Zanchi*[1]; S. Molin[2]; J. Ignaczak[2]; B. Kamecki[2]; G. Cempura[3]; A. R. Boccaccini[4]; F. Smeacetto[1]

1. Politecnico di Torino, Applied Science and Technology, Italy
2. Gdansk University of Technology, Faculty of Electronics, Telecommunications and Informatics, Poland
3. AGH University of Science and Technology, Department of Metallurgy and Powder Metallurgy, Poland
4. University of Erlangen-Nuremberg, Department of Materials Science and Engineering, Germany

PACRIM Symposium 25: Direct Thermal to Electrical Energy Conversion Materials, Applications, and Thermal Energy Harnessing Challenges

Tellurides

Room: Oxford

Session Chairs: Matt Beekman, California Polytechnic State University; Emmanuel Guilmeau, CNRS CRISMAT

8:30 AM

(PACRIM-329-2021) Thermoelectric Properties of Various Barium Copper Chalcogenides (Invited)

H. Kleinke*[1]

1. University of Waterloo, Department of Chemistry and Waterloo Inst for Nanotechnology, Canada

9:00 AM

(PACRIM-330-2021) Defect engineering to enhance thermoelectric performance of GeTe

T. Mori*[1]

1. National Institute for Materials Science (NIMS), Japan

9:20 AM

(PACRIM-331-2021) First principles calculations of electronic and thermoelectric transport properties of $Pb_2Bi_2Te_5$ with different atoms sequences

W. Ma*[1]; P. Boulet[2]; M. Record[1]

1. Aix-Marseille University, IM2NP, France
2. Aix-Marseille University, MADIREL, France

9:40 AM

Break

Emerging Materials

Room: Oxford

Session Chairs: Holger Kleinke, University of Waterloo; Takao Mori, National Institute for Materials Science (NIMS)

10:00 AM

(PACRIM-332-2021) Intermetallic and Chalcogenide Materials for Mid to High Temperature Thermoelectric Applications (Invited)

D. Berthebaud*[1]

1. CNRS LINK, Japan

10:30 AM

(PACRIM-333-2021) Texturization and improved thermoelectric properties using a magnetic slip casting process - the illustrative case of $CrSi_2$

S. M. Le Tonquesse*[1]; W. Zhang[2]; T. Mori[2]; J. Halet[1]; D. Berthebaud[1]; T. S. Suzuki[2]

1. National Institute for Materials Science (NIMS), LINK LAb, France
2. National Institute for Materials Science (NIMS), Japan

10:50 AM

(PACRIM-334-2021) Advances in Thermoelectric Ternary and Quaternary Sulphides (Invited)

E. Guilmeau*[1]

1. CNRS CRISMAT, France

11:20 AM

(PACRIM-335-2021) Realizing high thermoelectric performance in N Type Mg_3Sb_2 Based zintl compounds through multi-element doping strategy (Invited)

L. Miao*[1]; J. Liang[2]; H. Yang[3]

1. Shibaura Institute of Technology, Material Science and Engineering, Japan
2. Guangxi University, China
3. Huaiyin Normal University, China

PACRIM Symposium 26: Materials for Solar Thermal Energy Conversion and Storage

Materials to Produce Synthetic Fuels

Room: Plaza C

8:30 AM

(PACRIM-336-2021) Efficient Photon-harvesting Technologies for Water Splitting Reactions (Invited)

S. Mathur*[1]

1. University of Cologne, Institute of Inorganic Chemistry, Germany

9:00 AM

(PACRIM-337-2021) Redox Materials for Solar Thermochemical Fuel Production

M. Roeb[1]; C. C. Agrafiotis*[1]

1. DLR - German Aerospace Center, Germany

9:20 AM

(PACRIM-338-2021) Materials for Solar Thermal Energy Conversion and Long-term Storage in Solid Sulphur

C. C. Agrafiotis*[1]; V. Thanda[1]; D. Thomey[1]; L. de Oliveira[1]; L. Mevißen[1]; H. Noguchi[2]; M. Roeb[1]; C. Sattler[1]

1. DLR - German Aerospace Center, Institute of Solar Research, Germany
2. Japan Atomic Energy Agency, Japan

9:40 AM

(PACRIM-339-2021) Synthesis of MnO_2 Carbon Nanotubes catalyst with enhanced Oxygen Reduction Reaction

A. Ullah*[1]

1. University of science and technology, Energy, Republic of Korea

PACRIM Symposium 27: Advanced Materials and Technologies for Electrochemical Energy Storage Systems

All Solid State Batteries/Li/Na-Sulfur Batteries

Room: Balmoral

Session Chair: Palani Balaya, National University of Singapore

8:40 AM

(PACRIM-340-2021) Development of All-Solid-State Lithium-Sulfur Batteries Using Interconnected Mesoporous Carbon (Invited)

A. Sakuda*[1]; M. Tatsumisago[1]; A. Hayashi[1]

1. Osaka Prefecture University, Department of Applied Chemistry, Graduate School of Engineering, Japan

9:10 AM

(PACRIM-341-2021) Stack Pressure Effect in Sulfide Electrolyte Based Alkali Metal Solid-State Cells and the Dramatic Implication of Interlayer Growth (Invited)

C. Hänsel[2]; D. Kundu*[1]

1. UNSW Sydney, Chemical Engineering, Australia
2. ETH Zurich, Switzerland

9:40 AM

(PACRIM-342-2021) Advanced sulfur cathode for high performance lithium sulfur battery (Invited)

V. Thangadurai*[1]

1. University of Calgary, Chemistry, Canada

PACRIM Symposium 34: Glass and Ceramics for Nuclear Waste Treatment and Sequestration

Waste Form Matrices-Synthesis and Characterization V

Room: Regency F

8:30 AM

(PACRIM-343-2021) Mesoscale model of radionuclide leaching kinetics in hierarchical nuclear waste materials (invited)

S. Hu*[1]; Y. Li[1]; S. R. Phillpot[2]; N. Shustova[3]; H. zur Loye[3]

1. Pacific Northwest National Lab, USA
2. University of Florida, Department of Material Science & Engineering, USA
3. University of South Carolina, Department of Chemistry and Biochemistry, USA

9:20 AM

Break

Waste Form Matrices-Synthesis and Characterization VI

Room: Regency F

10:00 AM

(PACRIM-345-2021) Development of glass-ceramic waste forms for the immobilization of spent fuel and actinide-rich radioactive wastes (Invited)

Y. Zhang*[1]; K. T. Lu[1]; L. Kong[1]; T. Wei[1]; P. Dayal[1]; R. Farzana[1]; D. J. Gregg[1]

1. Australian Nuclear Science & Technology Organisation, Australia

10:30 AM

(PACRIM-346-2021) Cesium adsorption into zeolite-/geopolymer-based composite and thermal effects on immobilization performance (Invited)

V. Proust*[1]; A. Gossard[1]; J. Schaeperkoetter[2]; S. T. Misture[2]; t. david[5]; J. .Amoroso[3]; A. Grandjean[1]; H. zur Loye[4]

1. CEA, France
2. Kazuo Inamori School of Engineering, Alfred University, USA
3. Savannah River National Laboratory, USA
4. Department of Chemistry and Biochemistry, University of South Carolina, USA
5. Univ. Grenoble Alpes, CEA, LITEN, DTNM, LCAE, France

11:00 AM

(PACRIM-347-2021) Immobilization of Cs^+ on MXene-Hydroxyapatite Composite

S. Lee*[1]; M. ul Hassan[1]; H. Ryu[1]

1. Korea Advanced Institute of Science and Engineering (KAIST), Nuclear and Quantum Engineering, Republic of Korea

11:20 AM

(PACRIM-348-2021) The effects of amidophosphonate ligand immobilization method on the uranium extraction efficiency of functionalized silica

A. Dressler*[1]; T. Le Nedelec[1]; A. Leydier[1]; F. Cuer[1]; A. Grandjean[1]

1. CEA, DES, ISEC, DMRC, Univ. Montpellier, France

11:40 AM

(PACRIM-349-2021) Hierarchically porous geopolymer-zeolite composites for Sr removal from nuclear wastewater

A. Gossard*[1]; N. Fabrègue[1]; L. Henriet[1]; Y. Barré[1]; A. Hertz[1]; A. Grandjean[1]

1. CEA, ISEC, France

Thursday, December 16, 2021

PACRIM Symposium 1: Characterization and Modeling of Ceramic Interfaces: Structure, Bonding, and Grain Growth

Correlation of Interfaces with Macroscopic Properties / Grain Boundary and Interface Structures

Room: Regency A

8:30 AM

(PACRIM-350-2021) Electronic and atomic structures of crystal defect cores determining peculiar materials properties (Invited)

K. Matsunaga*[1]

1. Nagoya University, Materials Physics, Japan

9:00 AM

(PACRIM-351-2021) Correlation between grain boundary structure and thermal conductivity: A computational and machine learning approach (Invited)

S. Fujii*[3]; T. Yokoi[1]; A. Seko[2]; M. Yoshiya[3]

1. Nagoya University, Department of Materials Physics, Japan
2. Kyoto University, Department of Materials Science and Engineering, Japan
3. Osaka University, Division of Materials and Manufacturing Science, Japan

9:30 AM

(PACRIM-352-2021) Artificial-neural-network interatomic potentials for predicting grain boundary structure and its physical properties (Invited)

T. Yokoi*[2]; A. Nakamura[1]; K. Matsunaga[1]

1. Nagoya University, Japan
2. Nagoya University, Department of Materials Physics, Japan

10:00 AM

Break

10:20 AM

(PACRIM-353-2021) Atomic-scale STEM-EDS studies of grain boundary segregation in oxide materials (Invited)

B. Feng*[1]; N. Shibata[1]; Y. Ikuhara[1]

1. The University of Tokyo, Japan

10:50 AM

(PACRIM-354-2021) The effects of grain boundaries and interfaces on defect evolution in ceramics (Invited)

I. Szlufarska*[1]; J. Xi[1]; H. Zhang[1]

1. University of Wisconsin-Madison, Materials Science & Engineering, USA

11:20 AM

(PACRIM-355-2021) Co-segregation mechanism of Ca/Si on Σ13 grain boundary in α-Al_2O_3

T. Futazuka*[1]; R. Ishikawa[1]; N. Shibata[1]; Y. Ikuhara[1]

1. University of Tokyo, Institute of Engineering Innovation, Japan

PACRIM Symposium 3: Advanced Structure Analysis and Characterization of Ceramics

Electron Microscopy and Probe Microscopy

Room: Plaza C

8:30 AM

(PACRIM-356-2021) Structural and dynamical investigation of ceramic grain boundaries using atomic-resolution scanning transmission electron microscopy (Invited)

B. Feng*[1]; J. Wei[1]; N. Shibata[1]; Y. Ikuhara[1]

1. The University of Tokyo, Japan

9:00 AM

(PACRIM-357-2021) Atomic structure and physical properties of boundaries in iron oxides (Invited)

C. Chen*[1]

1. Institute of Metal Research, Chinese Academy of Sciences, China

9:30 AM

(PACRIM-358-2021) Investigating solution-processed ceramics with cryo-electron microscopy

N. S. Dutta[1]; C. B. Arnold*[1]

1. Princeton University, USA

9:50 AM

Break

10:10 AM

(PACRIM-359-2021) Cracking and doping effect in layered cathode for sodium-ion battery

K. Wang*[1]; P. Yan[1]; M. Sui[1]

1. Beijing University of Technology, China

10:30 AM

(PACRIM-360-2021) Microanalysis of cracking failure in layered cathodes for rechargeable battery (Invited)

P. Yan*[1]

1. Beijing University of Technology, China

11:00 AM

(PACRIM-361-2021) Characterization of MAX phases under irradiation (Invited)

C. Wang*[1]

1. Peking University, School of Physics, China

11:30 AM

(PACRIM-362-2021) Effect of Zn Doping on Microstructure Evolution in Cu_2SnS_3 Ceramics (Invited)

R. Huang*[1]

1. East China Normal University, China

PACRIM Symposium 5: Polymer Derived Ceramics (PDCs) and Composites

Precursors and Properties

Room: Plaza B

Session Chair: Peter Kroll, University of Texas, Arlington

8:30 AM

(PACRIM-363-2021) Microstructure engineering of ligand-modified ceramic membranes derived from network-forming precursors (Invited)

M. Kanezashi*[1]

1. Hiroshima University, Chemical Engineering Program, Graduate School of Advanced Science and Engineering, Japan

9:00 AM

(PACRIM-364-2021) Novel Polymer derived b-SiAlON:Eu^{2+} green phosphors

Y. Gao*[1]; J. Iihama[1]; D. Hamana[1]; T. Asaka[1]; Y. Daiko[1]; S. Honda[1]; S. Bernard[2]; Y. Iwamoto[1]

1. Nagoya Institute of Technology, Life Science and Applied Chemistry, Japan
2. University of Limoges, CNRS, IRCER, France

9:20 AM

Break

Processing and Simulations

Room: Plaza B

Session Chair: Corson Cramer, Oak Ridge National Lab

10:00 AM

(PACRIM-365-2021) Insights into the in situ formed carbon in polymer-derived ceramics (Invited)

Q. Wen*[1]; Z. Yu[2]; X. Xiong[1]; R. Riedel[3]

1. Central South University, Powder Metallurgy Research Institute, State Key Laboratory of Powder Metallurgy, China
2. Xiamen University, College of Materials, Key Laboratory of High Performance Ceramic Fibers, China
3. Technische Universität Darmstadt, Institut für Materialwissenschaft, Germany

10:30 AM

(PACRIM-366-2021) Ab-Initio Simulations of Polymer Pyrolysis

P. Kroll*[1]

1. University of Texas, Arlington, USA

10:50 AM

(PACRIM-367-2021) Reactive Force-Field Simulations of Pyrolysis of Polysiloxanes

P. Kroll*[1]

1. University of Texas, Arlington, USA

11:10 AM

(PACRIM-368-2021) A reactive force field (ReaxFF) for simulation of select Si-based polymer-derived ceramics

S. Haseen*[1]; I. Ponomarev[2]; P. Kroll[1]

1. University of Texas, Arlington, Chemistry and Biochemistry, USA
2. Czech Technical University in Prague, Czechia

11:30 AM

(PACRIM-369-2021) Silicon Oxycarbide-Based Composites for Li-Ion Batteries: Correlation of Ceramic Microstructure with Electrochemical Properties (Invited)

M. Wilamowska-Zawlocka*[1]; D. Knozowski[1]; M. Graczyk-Zajac[2]

1. Gdansk University of Technology, Department of Energy Conversion and Storage, Poland
2. Technische Universität Darmstadt, Fachbereich Material und Geowissenschaften, Germany

PACRIM Symposium 8: Porous Ceramics: Innovative Processing and Advanced Applications

Ceramic Membranes

Room: English Bay

8:30 AM

(PACRIM-370-2021) Current Trends and Future Directions of Ceramic Membrane Technology for Water Treatment (Invited)

I. Song*[1]; J. Ha[1]; J. Lee[1]

1. Korea Institute of Materials Science, Republic of Korea

9:00 AM

Break

Properties of Porous Ceramics

Room: English Bay

10:00 AM

(PACRIM-371-2021) Experimental and numerical study on reactive melt infiltration process (Invited)

R. Inoue*[1]; Y. Arai[2]

1. Tokyo University of Science, Mechanical Engineering, Japan
2. Tokyo University of Science, Materials Science and Technology, Japan

10:30 AM

(PACRIM-372-2021) Analysis and evaluation on the relationship between structures and mechanical properties for a porous carbon material using image-based modeling (Invited)

Y. Arai*[1]; R. Inoue[1]; Y. Kogo[1]

1. Tokyo University of Science, Japan

11:00 AM

(PACRIM-373-2021) Characterizations of highly porous mullite derived from gelation and freezing with fumed silica and alumina

M. Fukushima*[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

11:20 AM

(PACRIM-374-2021) Effect of SiC whisker on mechanical strength of porous RB-SiC via direct foaming process

A. Shimamura*[1]; M. Fukushima[1]; N. Kondo[1]; M. Hotta[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

PACRIM Symposium 9: Additive Manufacturing and 3D Printing Technologies

Emerging Technology

Room: Prince of Wales

8:30 AM

(PACRIM-375-2021) Thin-Wall Additive Manufacturing for Multidisciplinary Thermal Technology (Invited)

A. Muley*[1]

1. Boeing Research and Technology, USA

9:00 AM

(PACRIM-376-2021) CerAMfacturing of miniaturized ceramic satellite thrusters

U. Scheithauer*[1]; E. Schwarzer-Fischer[1]; J. Abel[1]; N. Lorenz[1]; C. Bach[2]; M. Probst[2]; J. Sieder-Katzmann[2]

1. Fraunhofer IKTS, Shaping, Germany
2. TU Dresden, Institute for Aerospace Engineering, Germany

9:20 AM

Break

Slurry-Based Technique

Room: Prince of Wales

10:00 AM

(PACRIM-377-2021) Lithography-based additive manufacturing of different non-oxide ceramics

M. Schwentenwein*[1]; A. Altun[1]; T. Prochaska[1]

1. Lithoz GmbH, Austria

10:20 AM

(PACRIM-378-2021) μPAD makes Powder Aerosol Deposition accessible: A modular and inexpensive approach to produce dense ceramic films at room temperature

J. Exner[1]; M. Linz[1]; J. Kita[1]; R. Moos*[1]

1. University of Bayreuth, Dept. of Functional Materials, Germany

10:40 AM

(PACRIM-379-2021) Stereolithographic Additive Manufacturing of Zirconia Dendritic Electrodes for Sustainable Aluminum Refining without Carbon Dioxide Emissions

M. Takahashi*[1]; S. Kirihara[1]

1. Osaka University, engineering, Japan

11:00 AM

(PACRIM-380-2021) Stereolithographic Additive Manufacturing of Thermoacoustic Converters with Ceramic Vascular Bundles

T. Ito*[1]; S. Kirihara[1]

1. Osaka University, Japan

11:20 AM

(PACRIM-381-2021) Additive Manufacturing of Silicon Carbide Component by Thermolithography

T. Shimizu[1]; S. Kirihara[1]; Y. Uemura*[1]

1. Osaka University, Japan

PACRIM Symposium 13: Novel Nanocrystal Technologies for Advanced Ceramic Materials & Devices

Synthesis of Nanocrystals and Nanocomposites

Room: Georgia A

8:30 AM

(PACRIM-382-2021) Hydrothermal synthesis of $BaTiO_3$-based nanocubes for dielectric applications

K. Mimura*[1]; Z. Liu[1]; H. Itasaka[1]; K. Kato[2]

1. Innovative Functional Materials Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Japan
2. National Institute of Advanced Industrial Science and Technology (AIST), Japan

8:50 AM

(PACRIM-383-2021) Solvothermal Synthesis of Dispersible $KNbO_3$ Nanocubes from $K_4Nb_6O_{17}$ Precursor Particles

S. Ueno*[1]; Y. Yamada[1]; I. Fujii[1]; S. Wada[1]

1. University of Yamanashi, Graduate School Department of Interdisciplinary Research, Japan

9:10 AM

(PACRIM-384-2021) Novel $MoSi^2$ catalysts featuring surface activation as highly efficient cathode materials for long-life Li–O_2 batteries

G. Zhang*[1]

1. Shandong University, China

9:30 AM

Break

Fabrication of 1D-, 2D-, and 3D-Assemblies, Coating Films, and Bulk Ceramics by using Nanocrystals

Room: Georgia A

10:00 AM

(PACRIM-385-2021) Oriented assemblies of 1D metal hydroxide nanomaterials toward functional coating (Invited)

K. Okada*[1]; M. Takahashi[1]

1. Osaka Prefecture University, Japan

10:30 AM

(PACRIM-386-2021) Preparation of perfectly oriented free-standing nanosheet film and photocatalytic properties (Invited)

S. Ida*[1]

1. Kumamoto Univerisity, Japan

Applications and Functional Devices using Nanocrystals and Characterizations

Room: Georgia A

11:00 AM

(PACRIM-387-2021) Metal/graphene electrodes for parallel-plate capacitor structures containing $BaTiO_3$ nanocube ordered assemblies

H. Itasaka*[1]; Z. Liu[1]; K. Mimura[1]; K. Kato[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

11:20 AM

(PACRIM-388-2021) Nanoscale Electronic Properties of Ultrathin Functional Films via Tomographic AFM

T. Moran[1]; K. Suzuki[2]; T. Hosokura[2]; J. Kaszas[1]; W. Huey[1]; W. Linthicum[1]; J. Song[1]; B. Huey*[1]

1. University of Connecticut, Materials Science and Engineering, USA
2. Murata Manufacturing Co., Ltd., Japan

PACRIM Symposium 14: Functional Nanomaterials for Energy Harvesting and Solar Fuels

Innovative Processing of Functional Nanomaterials for Optoelectronic Devices / Advanced Materials for Next Generation Photovoltaic Devices

Room: Plaza A

8:30 AM

(PACRIM-389-2021) Interfacial properties in composite nano-systems for energy harvesting (Invited)

A. Vomiero*[1]

1. Lulea University of Technology, Engineering Sciences & Mathematics, Sweden

9:00 AM

(PACRIM-390-2021) Single-source-precursor synthesis and processing of silicide-containing polymer derived ceramic nanocomposites

E. Ionescu*[1]

1. Technical University Darmstadt, Materials Science, Germany

9:20 AM

(PACRIM-391-2021) Copper-based Dichalcogenide Materials for electronics and clean environmental applications (Invited)

D. Chua*[1]

1. National University of Singapore, Materials Science & Engineering, Singapore

9:50 AM

Break

10:10 AM

(PACRIM-392-2021) Morphology Control of Functional Metal Oxide Nanomaterials in Aqueous Solutions

Y. Masuda*[1]; P. Choi[1]; A. Tsuruta[1]; T. Akamatsu[1]; T. Itoh[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

10:30 AM

(PACRIM-393-2021) Plasmonic Enhancement of Luminescence from Er^{3+}/Yb^{3+}/Nd^{3+} Co-doped Upconversion Nanoparticles by Aluminum Lattice Mode

Y. Gao*[1]; S. Murai[1]; K. Shinozaki[2]; K. Tanaka[1]

1. Kyoto University, Japan
2. National Institute of Advanced Industrial Science and Technology (AIST), Japan

PACRIM Symposium 16: Advanced Structural Ceramics for Extreme Environments

Advanced Structural Ceramics for Extreme Environments

Room: Regency E

8:30 AM

(PACRIM-394-2021) High Entropy Ultra-High Temperature Ceramics: Synthesis, Processing, and Properties (Invited)

W. Fahrenholtz*[1]; L. Feng[1]; G. Hilmas[1]

1. Missouri University of Science & Technology, Dept. of Materials Science and Engineering, USA

9:00 AM

(PACRIM-395-2021) Irradiation Damage of High-Entropy Carbide Ceramics in Extreme Environments (Invited)

F. Wang[1]; T. Wang[2]; L. Shao[2]; M. Nastasi[2]; Y. Wu[3]; Y. Lu[1]; B. Cui*[1]

1. University of Nebraska–Lincoln, USA
2. Texas A&M University, USA
3. Boise State University, USA

9:30 AM

(PACRIM-396-2021) Solvothermal Synthesis of High Entropy Metal Carbides: A New Class of Ultrahigh Temperature, Irradiation Resistant Ceramics

V. Vakharia*[1]; L. Zhang[1]; S. Sufy[1]; O. A. Graeve[1]

1. University of California, San Diego, Mechanical and Aerospace Engineeering, USA

9:50 AM

Break

10:10 AM

(PACRIM-398-2021) The effect of oxygen on the vacancy ordering and stability of UHTC transition metal carbides

T. Davey*[1]; Y. Chen[1]

1. Tohoku University, School of Engineering, Japan

10:30 AM

(PACRIM-399-2021) The role of fluorination during the physicochemical erosion of yttria in fluorine-based etching plasmas

M. Kindelmann*[1]; M. L. Weber[2]; M. Stamminger[3]; R. Buschhaus[3]; M. Bram[1]; O. Guillon[1]

1. Forschungszentrum Juelich, IEK-1: Materials Synthesis and Processing, Germany
2. Forschungszentrum Juelich, PGI-7: Electronic materials, Germany
3. Ruhr Universität Bochum, Institute for Experimental Physics II, Germany

PACRIM Symposium 18: Advanced Wear Resistant Materials: Tribology and Reliability

Mechanical and Tribological Behavior of Advanced Materials

Room: Balmoral

Session Chair: Junichi Tatami, Yokohama National University

8:30 AM

(PACRIM-400-2021) Novel sustainable composites for tribological applications

S. Javaid*[1]; M. Dey[1]; C. Matzke[1]; S. Gupta[1]

1. University of North Dakota, Mechanical Engineering, USA

8:50 AM

(PACRIM-401-2021) Multi-scale Tribological Behaviors of Cold Sprayed Ti_2AlC coatings (Invited)

A. Agarwal*[1]; D. John[1]; C. Zhang[1]; T. Paul[1]

1. Florida International University, Mechanical and Materials Engineering, USA

9:20 AM

(PACRIM-402-2021) Wear of Thermally-Sprayed Ceramic Coatings in Fuel Lubrication and the Effect of Ultrasonic Nanocrystal Surface Modification (Invited)

S. Berkebile*[1]; A. Amanov[2]; M. L. Ferrera[1]; R. Karimbaev[3]

1. US Army Research Laboratory, DEVCOM, USA
2. Sun Moon University, Department of Mechanical Engineering, Republic of Korea
3. Sun Moon University, Department of Fusion Science and Technology, Republic of Korea

9:50 AM

Break

10:10 AM

(PACRIM-403-2021) Mechanical properties of Si_3N_4 ceramics in meso-scale measured by bending test using microcantilever beam specimens

J. Tatami*[1]; M. Uda[1]; M. Iijima[1]; T. Takahashi[2]

1. Yokohama National University, Japan
2. Kanagawa Institute of Industrial Science and Technology, Japan

10:30 AM

(PACRIM-404-2021) Design of ternary ceramics from biomass based precursors

M. Dey*[1]; S. Javaid[1]; C. Matzke[1]; S. Gupta[1]

1. University of North Dakota, Mechanical Engineering, USA

PACRIM Symposium 23: Transparent Ceramic Materials and Devices

Transparent Ceramic Materials I

Room: Oxford

Session Chair: Yiquan Wu, Alfred University

10:00 AM

(PACRIM-405-2021) Modeling the effects of crystal structure, dopants and microstructure on the scattering and absorption of light in polycrystalline materials (Invited)

J. E. Garay*[1]

1. University of California, San Diego, Dept. of Mechanical and Aerospace Engrg., USA

10:30 AM

(PACRIM-406-2021) Single crystal fiber lasers (Invited)

S. Bayya*[1]; W. Kim[1]; D. Gibson[1]; D. Rhonehouse[1]; R. Nicol[2]; C. Askins[2]; T. Zhou[3]; B. Shaw[1]; J. Myers[1]; F. Kung[3]; G. Villalobos[1]; J. Kolis[4]; B. Stadleman[4]; J. Sanghera[1]

1. Naval Research Laboratory, USA
2. Jacobs, USA
3. University Research Foundation, USA
4. Clemson University, USA

11:00 AM

(PACRIM-407-2021) Crystal structure and densification of transparent magnesium aluminate spinel doped with LiOH

A. Talimian*[1]; V. Pouchlý[3]; A. Najafzadehkhoee[2]; K. Maca[3]; D. Galusek[1]

1. Centre for Functional and Surface Functionalized Glass (FunGlass), VILA, Slovakia
2. Institute of Inorganic Chemistry, Slovak Academy of Sciences, Joint Glass Centre of the IIC SAS, TnUAD and FChPT STU, Slovakia
3. CEITEC BUT, Brno University of Technology, Czechia

11:20 AM

(PACRIM-408-2021) Multifunctional material borosilicate glass - applications based on chemical, mechanical and thermal properties and enabled by its special structure

J. Brandt-Slowik*[1]

1. SCHOTT Technical Glass Solutions GmbH, Germany

11:40 AM

(PACRIM-409-2021) Beta-SiC for Rugged Window Material

W. Kim*[1]; S. Bayya[1]; G. Villalobos[1]; B. Sadowski[2]; T. Zhou[3]; J. Sanghera[1]

1. Naval Research Laboratory, USA
2. Jacobs, USA
3. URF, USA

PACRIM Symposium 24: Solid Oxide Fuel Cells and Hydrogen Technologies

High Temperature Electrolysis and Electrodes

Room: Georgia B

Session Chair: Tae Ho Shin

10:00 AM

(PACRIM-410-2021) Current Progress in LSGM based SOC as the Advanced Electrochemical Devices at KICET (Invited)

T. Shin*[1]

1. Korea Institute of Ceramic Engineering & Technology, Energy Materials Center, Republic of Korea

10:30 AM

(PACRIM-411-2021) High temperature electrolysis and reversible solid oxide cells: Novel manufacturing of electrodes/electrolytes (Invited)

N. Kostretsova[2]; M. Machado[2]; L. Bernadet[2]; A. Pesce[2]; M. Lira[2]; M. Núñez[2]; F. Baiutti[2]; A. Morata[2]; M. Torrell[2]; A. Tarancón*[1]

1. IREC-ICREA, Spain
2. IREC, Spain

11:00 AM

(PACRIM-412-2021) Characteristics of oxide-based electrodes for CO_2 reduction for high temperature solid oxide electrolysis cells

S. Lee*[1]; M. Kim[1]; T. Shin[1]

1. Korea Institute of Ceramic Engineering and Technology (KICET), Energy & Environmental Division, Republic of Korea

11:20 AM

(PACRIM-413-2021) Investigation of $Sm_{1-x}Ba_{0.5}Sr_{0.5}Co_2O_{5+d}$ Layered Perovskites for IT-SOFCs cathode

S. Woo*[1]; J. Shim[2]; J. Kim[3]; T. Shin[1]

1. Korea Institute of Ceramic Engineering and Technology, Republic of Korea
2. Korea University, Republic of Korea
3. Hanbat National University, Republic of Korea

11:40 AM

(PACRIM-414-2021) Realization of highly durable O_2-electrode for solid oxide fuel cells by isovalent doping

B. Koo*[1]; J. Seo[1]; J. Kim[1]; W. Jung[1]

1. Korea Advanced Institute of Science and Technology, Department of Materials Science and Engineering, Republic of Korea

PACRIM Symposium 28: Atomic Structure and Electrochemical Property Diagnosis Toward Full Crystal Rechargeable Batteries

All Solid-state Battery System

Room: Regency B

8:30 AM

(PACRIM-415-2021) Developing oxide-based solid electrolytes with superior electrochemical/chemical properties for operating all solid-state battery (Invited)

B. Kang*[1]

1. Pohang University of Science and Technology(POSTECH), Republic of Korea

9:00 AM

(PACRIM-416-2021) Mixed-Fluorine Anion Effects on Electrochemical Energy Storage Characteristics of High-Nickel Layered Cathode Materials

N. Zettsu*[1]; T. Kondo[1]; K. Hara[1]; T. Sudare[1]; H. Shiiba[1]; K. Teshima[1]

1. Shinshu University, Japan

9:20 AM

(PACRIM-417-2021) Distribution of Fe/Co in the oxygen evolution reaction catalyst Ca_2FeCoO_5

K. Nakayama*[1]; R. Ishikawa[1]; A. Kuwabara[2]; S. Kobayashi[2]; T. Motohashi[3]; N. Shibata[1]; Y. Ikuhara[1]

1. The University of Tokyo, Japan
2. Japan Fine Ceramics Center, Japan
3. Kanagawa University, Japan

9:40 AM

Break

Solid-state Electrolytes

Room: Regency B

10:00 AM

(PACRIM-418-2021) Fluoride Ion Conducting Ceramics for Battery Application (Invited)

A. Mineshige*[1]

1. University of Hyogo, Japan

10:30 AM

(PACRIM-419-2021) Sinterability and Grain Boundary resistivity of Garnet-type Li ionic conductor (Invited)

D. Mori*[1]; K. Ohmori[1]; K. Sato[1]; R. Katsu[1]; R. Ito[1]; Y. Matsuda[2]; S. Taminato[1]; N. Imanishi[1]

1. Mie University, Department of Chemistry for Materials, Japan
2. Osaka Institute of Technology, Department of Applied Chemistry, Japan

11:00 AM

(PACRIM-420-2021) Li-ion conductivities, atomic and electronic structures of $(Li_{3x}La_{2/3-x})TiO_3$ tilt grain boundaries

S. Sasano*[1]; R. Ishikawa[1]; H. Ohta[2]; N. Shibata[1]; Y. Ikuhara[1]

1. The University of Tokyo, Japan
2. Hokkaido University, Japan

11:20 AM

(PACRIM-421-2021) Anisotropic ionic conductivity and its lithium concentration dependence in $Li_{3x}La_{2/3-x}TiO_3$ single crystal grown by the TSFZ method

Y. Maruyama*[1]; M. Ali[1]; M. Nagao[1]; S. Watauchi[1]; I. Tanaka[1]

1. University of Yamanashi, Japan

11:40 AM

(PACRIM-422-2021) Fluoride ion conductivity of potassium tetrafluoroantimonate ($KSbF_4$)

K. Kawahara*[1]; R. Ishikawa[1]; K. Nakayama[1]; N. Shibata[1]; Y. Ikuhara[1]

1. University of Tokyo, Institute of Engineering Innovation, Japan

PACRIM Symposium 32: Ceramics for Enabling Environmental Protection: Clean Air and Water

Ceramics for Enabling Environmental Protection: Clean Air and Water

Room: Stanley

8:30 AM

(PACRIM-423-2021) Wet mechanochemical synthesis of morphology-controlled functional particles (Invited)

T. Kozawa*[1]; A. Kondo[1]; M. Naito[1]

1. Osaka University, Joining and Welding Research Institute, Japan

9:00 AM

(PACRIM-424-2021) Turning CO_2 Into a Cementitious Binder by Mineralization

M. Bauchy*[1]; G. Sant[1]

1. University of California, Los Angeles, Civil and Environmental Engineering Department, USA

PACRIM Symposium 1: Characterization and Modeling of Ceramic Interfaces: Structure, Bonding, and Grain Growth

Microstructure Evolution and Grain Growth / Advances in Interface Characterization and Modeling

Room: Regency A

1:30 PM

(PACRIM-425-2021) Non-Arrhenius grain growth in Strontium Titanate: The impact of space charge on grain boundary motion (Invited)

W. Rheinheimer*[1]

1. Jülich Research Ceter, Institute of Energy and Climate Research - Materials Synthesis and Processing, Germany

2:00 PM

(PACRIM-426-2021) Pressureless sintering of nano Y_2O_3: Grain growth and densification

A. Najafzadehkhoee*[1]; A. Talimian[4]; J. Sedláček[2]; P. Hvizdoš[3]; D. Galusek[4]

1. Joint Glass Centre of the IIC SAS, TNUAD, and FChPT STU, Slovakia
2. Institute of Inorganic Chemistry, Slovak Academy of Sciences, Slovakia
3. Institute of Materials Research, Slovak Academy of Sciences, Slovakia
4. Centre for Functional and Surface Functionalized Glass, Alexander Dubček University of Trenčín, Slovakia

2:20 PM

(PACRIM-427-2021) Segregation-controlled densification and grain growth in rare earth doped Y_2O_3

M. Kindelmann*[1]; K. Ran[2]; W. Rheinheimer[1]; K. Morita[3]; J. Mayer[2]; M. Bram[1]; O. Guillon[1]

1. Forschungszentrum Juelich, IEK-1: Materials Synthesis and Processing, Germany
2. RWTH Aachen University, Central Facility for Electron Microscopy (GFE), Germany
3. National Institute for Materials Science (NIMS), Japan

2:40 PM

(PACRIM-428-2021) Design of high-performance Al_2O_3–Ce:YAG ceramic converters for white LEDs by optimization of cerium doping

A. A. Vornovskikh*[1]; D. Y. Kosyanov[1]; A. P. Zavjalov[1]; A. A. Leonov[2]; W. Li[3]; X. Liu[3]; J. Li[3]

1. Far Eastern Federal University, Russian Federation
2. Far Eastern Branch, Russian Academy of Sciences, Institute of Automation and Control Processes, Russian Federation
3. Shanghai Institute of Ceramics, Chinese Academy of Sciences, Key Laboratory of Transparent Opto-functional Inorganic Materials, China

3:00 PM

Break

3:20 PM

(PACRIM-429-2021) Charged Interfaces: Equilibrium, Phase Transitions, and Microstructural Evolution (Invited)

R. Garcia*[1]

1. Purdue University, Materials Engineering, USA

3:50 PM

(PACRIM-430-2021) Oriented Surface Nucleation, Volume Nucleation Ability and Interfacial Energy

C. Tielemann*[1]; R. Müller[1]; S. Reinsch[1]

1. BAM Federal Institute for Materials Research and Testing, 5.6 Glass, Germany

PACRIM Symposium 3: Advanced Structure Analysis and Characterization of Ceramics

Spectroscopic and Scattering Methods

Room: Plaza C

Session Chairs: Nishant Garg, University of Illinois Urbana-Champaign; Scott Misture, Alfred University

1:30 PM

(PACRIM-431-2021) Understanding the irradiation damage tolerance of zirconium carbide ceramics by means of multiscale characterizations (Invited)

J. Zhang*[1]; L. Chen[1]; C. Wang[2]; J. Wang[1]

1. Institute of Metal Research, CAS, Advanced Ceramics and Composites, China
2. Center for Applied Physics and Technology, State Key Laboratory of Nuclear Physics and Technology, China

2:00 PM

(PACRIM-432-2021) Effect of silicon dopant on the hexagonal boron nitride interphase for SiC_f/SiC composites

S. Zhang*[1]; J. Wang[1]; J. Wang[1]

1. Insitute of Metal Research, Chinese Academy of Sciences, Advanced Ceramics and Composites Division, China

2:20 PM

(PACRIM-433-2021) The effect of structural phase transition on phase separation in glass

K. Nakazawa*[1]; Y. Tsukada[2]; K. Mitsuishi[1]; S. Amma[3]; K. Shibata[4]; T. Mizoguchi[4]

1. National Institute for Materials Science (NIMS), Japan
2. Nagoya University, Japan
3. AGC Inc., Japan
4. University of Tokyo, Japan

2:40 PM

(PACRIM-434-2021) Investigation of the Defect-Chemistry of Ceria-Zirconia Mixed Oxides (CZO) Using Microwaves

C. Steiner*[1]; I. Kogut[2]; G. Hagen[1]; H. Fritze[2]; R. Moos[1]

1. University of Bayreuth, Department of Functional Materials, Germany
2. Clausthal University of Technology, Institute of Energy Research and Physical Technologies, Germany

3:00 PM

Break

3:20 PM

(PACRIM-435-2021) Novel Raman imaging protocol for high-resolution phase mapping of granite

K. Polavaram[1]; N. Garg*[1]

1. University of Illinois Urbana-Champaign, Civil and Environmental Engineering, USA

3:40 PM

(PACRIM-436-2021) Correlative Raman spectroscopy and EBSD for orientation and strain state analysis in MAX phases

J. Lyons*[1]; F. Giuliani[1]; F. Bouville[1]

1. Imperial College London, Materials, United Kingdom

4:00 PM

(PACRIM-437-2021) On the tunable coefficient of thermal expansion of rare earth di-silicates: A combination of experimental and theoretical investigations (Invited)

L. Sun*[1]; Y. Luo[1]; J. Wang[1]

1. Institute of Metal Research, Chinese Academy of Sciences, Advanced Ceramics and Composites Division, China

4:30 PM

(PACRIM-438-2021) X-ray Total Scattering Study of Cation Clustering in Hollandite Radionuclide Hosts

R. Koch[1]; J. Schaeperkoetter*[2]; J. Amoroso[3]; K. Brinkman[4]; T. M. Besmann[5]; M. Zhao[4]; S. T. Misture[2]

1. Brookhaven National Laboratory, USA
2. Alfred University, USA
3. Savannah River National Laboratory, USA
4. Clemson University, USA
5. University of South Carolina, USA

PACRIM Symposium 5: Polymer Derived Ceramics (PDCs) and Composites

Processing and Applications I

Room: Plaza B

1:30 PM

(PACRIM-439-2021) Processing of polymer-derived ceramics (PDCs) for fibers, monoliths, and ceramics matrix composites (CMCs) (Invited)

C. L. Cramer*[1]; T. G. Aguirre[1]

1. Oak Ridge National Laboratory, Manufacturing Sciences, USA

2:00 PM

(PACRIM-440-2021) Freeze Casting of porous Polymer-derived Ceramics (Invited)

D. Schumacher[1]; P. H. da Rosa Braun[1]; H. Zhang[1]; M. Dreyer[1]; K. Rezwan[1]; M. Wilhelm*[1]

1. University of Bremen, Production Engineering, Germany

2:30 PM

(PACRIM-441-2021) Hydrogen transport properties of polymer-derived cobalt cation-doped amorphous silica

S. Tada*[1]; Y. Daiko[1]; S. Honda[1]; S. Bernard[2]; Y. Iwamoto[1]

1. Nagoya Institute of Technology, Japan
2. CNRS, IRCER, France

2:50 PM

Break

Processing and Applications II

Room: Plaza B

Session Chair: Corson Cramer, Oak Ridge National Lab

3:10 PM

(PACRIM-442-2021) Additive manufacturing of preceramic polymers by vat photopolymerization

H. Elsayed[1]; Y. Feng[2]; K. Huang[1]; G. Franchin[1]; P. Colombo*[1]

1. University of Padova, Industrial engineering, Italy
2. Shandong University of Technology, China

3:30 PM

(PACRIM-443-2021) SiCN Ceramics via Reactive Atmosphere Pyrolysis under Hydrogen

A. B. Hande*[1]; P. Kroll[1]

1. University of Texas, Arlington, Chemistry and Biochemistry, USA

PACRIM Symposium 8: Porous Ceramics: Innovative Processing and Advanced Applications

Innovative Processing Route for Porous Ceramics

Room: English Bay

Session Chair: Mary Anne White, Dalhousie University

1:30 PM

(PACRIM-444-2021) Highly Porous Polymer-derived Biosilicate-Carbon Composites: Phase Design and Thermal Characterization (Invited)

F. Dogrul[2]; H. Elsayed[1]; M. Michalek[2]; D. Galusek[2]; D. Del Col[1]; S. Bortolin[1]; E. Bernardo*[1]

1. University of Padova, Department of Industrial Engineering, Italy
2. University of Trencin, FunGlass - Centre for Functional and Surface Functionalized Glass, Slovakia

2:00 PM

(PACRIM-445-2021) Sol–Gel Synthesis of Preceramic Polymer Gels and Their Conversion to Porous Ceramics (Invited)

G. Hasegawa*[1]

1. Nagoya University, Japan

Porous Ceramics for Thermal Management

Room: English Bay

3:20 PM

(PACRIM-446-2021) Form-Stable Phase Change Materials Using Porous Ceramics (Invited)

M. White*[1]; J. Noel[1]

1. Dalhousie University, Canada

3:50 PM

(PACRIM-447-2021) Preparation of porous diatomite ceramics and hollow silica nanofiber for heat insulating materials (Invited)

Y. Nakashima*[1]; M. Fukushima[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

PACRIM Symposium 9: Additive Manufacturing and 3D Printing Technologies

Multi-Material Process

Room: Prince of Wales

Session Chair: Bai Cui, University of Nebraska–Lincoln

1:30 PM

(PACRIM-448-2021) A Novel Solidification Microstructure Simulation Method for Metal Additive Manufacturing (Invited)

Y. Zhao*[1]

1. McGill University, Mechanical Engineering, Canada

2:00 PM

(PACRIM-449-2021) A novel fully LTCC-based differential scanning calorimeter with high resolution and high heating rates

R. Moos*[1]; J. Kita[1]; R. Werner[1]; M. Gerlach[2]; M. Gollner[2]; F. Linseis[2]

1. University of Bayreuth, Dept. of Functional Materials, Germany
2. Linseis Thermal Analysis, Germany

2:20 PM

(PACRIM-450-2021) CerAMfacturing of single- and multi-material ceramic components

U. Scheithauer*[1]; S. Weingarten[1]; E. Schwarzer-Fischer[1]; J. Abel[1]; C. Berger[1]; W. Kunz[2]; A. Fussel[2]

1. Fraunhofer IKTS, Shaping, Germany
2. Fraunhofer IKTS, Materials, Germany

Laser Processing

Room: Prince of Wales

Session Chair: Yaoyao Fiona Zhao, McGill University

3:20 PM

(PACRIM-451-2021) Selective Laser Sintering of Hexagonal Barium Titanate Ceramics

X. Zhang[1]; F. Wang[1]; Z. Wu[1]; M. Nastasi[2]; Y. Chen[3]; Y. Lu[1]; B. Cui*[1]

1. University of Nebraska–Lincoln, USA
2. Texas A&M University, USA
3. Oak Ridge National Lab, USA

3:40 PM

(PACRIM-452-2021) Enhanced near-infrared absorption for direct laser additive manufacturing using reduced graphene oxide

I. Elizarova*[1]; C. Leung[2]; M. Isaacs[3]; S. Marathe[4]; E. Saiz[1]; P. Lee[2]

1. Imperial College, Materials, United Kingdom
2. University College London, Mechanical Engineering, United Kingdom
3. Research Complex at Harwell, Rutherford Appleton Laboratory, United Kingdom
4. Diamond Light Source Ltd, United Kingdom

4:00 PM

(PACRIM-453-2021) Spatially Filled Polyhedrons with Glass Blocks and Air Cavities for Virus Sterilization Filters Using Deep Ultraviolet Rays

H. Tsuduki[1]; S. Kirihara*[1]

1. Osaka University, Japan

PACRIM Symposium 13: Novel Nanocrystal Technologies for Advanced Ceramic Materials & Devices

Applications and Functional Devices using Nanocrystals

Room: Georgia A

1:30 PM

(PACRIM-454-2021) Tin oxide thin film consisting of nanosheet-type structure for gas sensing (Invited)

P. Choi*[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

2:00 PM

(PACRIM-455-2021) Photonic Curing to Fabricate Oxide Thin Films on Flexible Substrates (Invited)

J. W. Hsu*[1]

1. UT Dallas, USA

PACRIM Symposium 18: Advanced Wear Resistant Materials: Tribology and Reliability

Design of Novel Functional Materials

Room: Balmoral

1:30 PM

(PACRIM-456-2021) Design and Application of Nano-Layered Functional Coatings for Macro-Scale Tribology (Invited)

O. V. Penkov*[1]

1. Zhejiang University, ZJU-UIUC Institute, China

2:00 PM

(PACRIM-457-2021) Novel Functional Glass-ceramic Coatings on Titanium Substrates from Glass Powders and Reactive Silicone Binders

E. Bernardo*[1]; H. Elsayed[1]; J. Kraxner[2]; D. Galusek[2]

1. University of Padova, Department of Industrial Engineering, Italy
2. FunGlass – Centre for Functional and Surface Functionalized Glass, Alexander Dubček University of Trenčín, Trenčín, Slovakia, Slovakia

2:20 PM

(PACRIM-458-2021) On the design of novel composites for tribological applications

S. Gupta*[1]

1. University of North Dakota, Mechanical Engineering, USA

PACRIM Symposium 23: Transparent Ceramic Materials and Devices

Transparent Ceramic Materials II

Room: Oxford

Session Chair: Shyam Bayya, Naval Research Laboratory

1:30 PM

(PACRIM-459-2021) Laser-driven color converters for high-power and high brightness solid state lighting (Invited)

R. Xie*[1]

1. Xiamen University, China

2:00 PM

(PACRIM-460-2021) Long persistent luminescence and blue photochromism in Eu^{2+}-Dy^{3+} co-doped barium silicate glass ceramic phosphor (Invited)

S. Tanabe*[1]

1. Kyoto University, Japan

2:30 PM

Break

2:50 PM

(PACRIM-461-2021) Pressure sintering processes adated to the control of the microstructure and optical properties of transparent ceramics (Invited)

R. Boulesteix*[1]; L. Viers[1]; M. Vandenhende[2]; A. Maitre[1]; R. Belon[3]; P. Munsch[4]; S. Le Floch[5]; T. Gaudisson[5]; Y. Le Godec[6]

1. University of Limoges, IRCER, UMR CNRS 7315, France
2. CNRS, IRCER UMR CNRS 7315, France
3. CILAS, France
4. University de Toulouse, IRAP UMR CNRS 5277, France
5. University Lyon1, ILM, UMR CNRS 5306, France
6. Sorbonne University, IMPMC, UMR CNRS 75090, France

3:20 PM

(PACRIM-462-2021) Ion mobility in silicates and their effect on electrical performance (Invited)

M. Yuan*[1]; C. Nieves[1]; E. Furman[1]; M. Lanagan[1]; P. Clem[2]; E. Schrock[2]

1. Penn State University, Materials Science and Engineering, USA
2. Sandia National Laboratories, USA

PACRIM Symposium 24: Solid Oxide Fuel Cells and Hydrogen Technologies

Reliability and Degradation

Room: Georgia B

1:30 PM

(PACRIM-463-2021) First-principles investigation on the BaM_2NiO_5 precipitates in $Ba(Zr, M)O_3$ solid electrolyte in Proton-Conducting Solid Oxide Fuel Cell (Invited)

K. Nakamura*[1]; M. MORI[1]; Y. Okuyama[2]

1. Central Research Institute of Electric Power Industry, Japan
2. University of Miyazaki, Japan

2:00 PM

(PACRIM-464-2021) Industrial scale SOC stacks manufacturing and lifetime improvement: Achievements and challenges (Invited)

D. Montinaro*[1]

1. SOLIDpower SpA, Italy

2:30 PM

Break

SOFC Prototypes, Electrodes and Sealants

Room: Georgia B

Session Chair: Federico Smeacetto, Politecnico di Torino

3:20 PM

(PACRIM-465-2021) Glass-ceramic sealants for solid oxide cells: Integration and compatibility with metallic interconnects

F. Smeacetto*[1]

1. Politecnico di Torino, Applied Science and Technology, Italy

3:50 PM

(PACRIM-466-2021) Discussion about the operation of the first industrial size biogas-fed SOFC plant in Europe (Invited)

M. Santarelli*[1]

1. Politecnico di Torino, Energy, Italy

4:20 PM

(PACRIM-467-2021) The invesitation of the new materials, $Gd_{0.135}Yb_{0.015}Bi_{0.02}Ce_{0.83}O_{1.915}$ (GYBC), as a buffer layer

H. Kim*[1]; J. Bae[1]; Y. Lee[2]; S. Lee[1]; T. Shin[1]

1. Korea Institute of Ceramic Engineering and Technology (KICET), Republic of Korea
2. Gyeongsang national university, Republic of Korea

4:40 PM

(PACRIM-468-2021) Active Ceramic Anode for Direct Propane Fueled Solid Oxide Fuel Cells

M. Kim*[1]; T. Shin[1]

1. Korea Institute of Ceramic Engineering and Technology (KICET), Energy Efficiency Materials Center, Republic of Korea

PACRIM Symposium 28: Atomic Structure and Electrochemical Property Diagnosis Toward Full Crystal Rechargeable Batteries

Characterization of Battery Materials and Interfaces I

Room: Regency B

1:30 PM

(PACRIM-469-2021) Understanding degradation mechanism via diverse analyses at the interphase of solid-electrolytes (Invited)

H. Lee*[1]

1. UNIST, School of Energy and Chemical Engineering, Republic of Korea

2:00 PM

(PACRIM-470-2021) Cryo-TEM study of sensitive battery materials (Invited)

M. Gu*[1]

1. southern University of Science and Technology, Materials Science and Engineering, China

2:30 PM

Break

Characterization of Battery Materials and Interfaces II

Room: Regency B

3:20 PM

(PACRIM-471-2021) Characterization of Interfaces in Li-ion Secondary Battery Electrodes Using Scanning Transmission Electron Microscopy (Invited)

S. Kobayashi*[1]

1. Japan Fine Ceramics Center, Nanostructures Research Laboratory, Japan

3:40 PM

(PACRIM-472-2021) Structural Disorder in (Li,La)NbO_3 Solid Electrolytes: A Molecular Dynamics Study

C. Fisher*[1]; X. Hu[1]; Y. H. Ikuhara[1]; H. Moriwake[1]; Y. Ikuhara[2]

1. Japan Fine Ceramics Center, Japan
2. The University of Tokyo, Institute of Innovative Engineering, Japan

4:00 PM

(PACRIM-473-2021) Cathodic thin films on solid electrolyte (Li,La) NbO_3 prepared by chemical solution deposition

Y. H. Ikuhara*[1]; S. Kobayashi[1]; X. Hu[1]; C. Fisher[1]; A. Kuwabara[1]; H. Moriwake[1]; Y. Ikuhara[2]

1. Japan Fine Ceramics Center, Japan
2. The University of Tokyo, Japan

4:20 PM

(PACRIM-474-2021) In-situ transmission electron microscopy of battery electrode materials during their charging (Invited)

J. Yuk*[1]

1. KAIST, Republic of Korea

4:40 PM

(PACRIM-475-2021) Direct uncovering of multiphase evolution during hydrated Zn-ion insertion in vanadium oxide

P. Byeon*[1]; S. Chung[1]

1. Korea Advanced Institute of Science and Engineering (KAIST), Republic of Korea

5:00 PM

(PACRIM-476-2021) Investigating the benefits of fluorine anion exchange in O3-type $NaFe_{0.4}Ni_{0.3}Mn_{0.3}O_2$ cathode

Y. Charles-Blin[1]; N. Zettsu*[1]

1. Shinshu University, Japan

PACRIM Symposium 33: Photocatalysts for Energy and Environmental Applications

Photocatalysts for Energy and Environmental Applications

Room: Stanley

1:30 PM

(PACRIM-477-2021) Metal NPs loaded $SrTiO_3$-Al supported with Rh/Cr_2O_3 and CoOOH cocatalysts for overall water splitting

M. H. Abd Elkodous*[1]; G. Kawamura[1]; W. Tan[1]; A. Matsuda[1]

1. Toyohashi University of Technology, Electrical and Electronic Information Engineering, Japan

1:50 PM

(PACRIM-478-2021) Influences of applied magnetic field during deposition process on photoelectrochemical water splitting

H. Lee*[1]; V. Nahrstedt[1]; S. Mathur[1]

1. University of Cologne, Institute of Inorganic Chemistry, Germany

PACRIM Posters On Demand

(PACRIM-P001-2021) New bioactive coatings based on glasses from Si(P)-O-C system on metallic substrates

M. T. Sitarz*[1]; M. Gaweda[1]; P. Jelen[1]; J. Marchewka[1]

1. AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Poland

(PACRIM-P002-2021) Porous alumina for 3D structural catalysts

J. Marchewka*[1]; I. Rutkowska[1]; P. Bezkosty[1]; P. Jelen[1]; A. Gancarczyk[2]; J. Paczkowska[3]; M. T. Sitarz[1]

1. AGH University of Science and Technology, Poland
2. The Institute of Chemical Engineering, Polish Academy of Sciences, Poland
3. Jagiellonian University, Poland

(PACRIM-P003-2021) Transition Metal Dichalcogenides Reinforced SiOC Fibermats for Rechargable Battery Electrodes

S. Dey*[1]; G. Singh[1]

1. Kansas State University, Department of Mechanical and Nuclear Engineering, USA

(PACRIM-P004-2021) High-pressure synthesis of new quadruple perovskite oxides $LaMn_3Ni_2Ru_2O_{12}$ and $LaMn_3Co_2Ru_2O_{12}$

A. Morimura*[1]; I. Yamada[1]

1. Osaka Prefecture University, Japan

(PACRIM-P005-2021) High-pressure synthesis of novel quadruple perovskites oxides containing group 9 elements

Y. Kato*[1]; A. Tanaka[1]; T. Odake[1]; M. Oshita[1]; S. Kawaguchi[2]; I. Yamada[1]

1. Osaka Prefecture University, Japan
2. JASRI, Japan

(PACRIM-P006-2021) Enhancement of mechanoluminescence characteristic by tuning $SrAl_2O_4$ crystallization process assisted with organic acid

Y. Fujio*[1]; C. Xu[1]; N. Terasaki[1]

1. National Institute of Advanced Industrial Science and Technology (AIST), Sensing System Research Center, Japan

(PACRIM-P007-2021) Routes of CaO-MgO-SiO_2 Bioactive Glass Ceramic Synthesis

C. Yamagata*[1]; A. D. Rodas[2]; S. R. Mello-Castanho[1]; O. Z. Higa[1]; S. T. Reis[3]

1. Energy and Nuclear Research Institute, Material Science and Technology, Brazil
2. Federal University of ABC, Brazil
3. Missouri University of Science & Technology, USA

(PACRIM-P008-2021) Tough Double Interpenetrating Network Hydrogel with Dual Reinforcement Mechanism

W. Fan*[1]; L. R. Jensen[2]; D. Yu[1]; M. M. Smedskjaer[1]

1. Aalborg University, Department of Chemistry and Bioscience, Denmark
2. Aalborg University, Department of Materials and Production, Denmark

(PACRIM-P009-2021) Valence Changes of Tin Telluride for Efficient Electrocatalysis in Lithium Oxygen Batteries

A. Xu*[1]

1. Shan Dong University, China

(PACRIM-P010-2021) High efficient Nb_2C MXene cathode catalyst with uniform O-terminated surface for Lithium-Oxygen Batteries

G. Li*[1]

1. Shandong University, China

(PACRIM-P011-2021) High Energy Density Ti_2C MXene as efficient cathode catalysts for Lithium-Oxygen Batteries

J. Li*[1]

1. Shandong University, China

(PACRIM-P012-2021) Multiple thermal resistance induced extremely low thermal conductivity in porous SiC-SiO_2 ceramics

E. Kang*[1]; Y. Kim[1]

1. The University of Seoul, Department of Materials Science and Engineering, Republic of Korea

(PACRIM-P013-2021) Mechanical and Thermal Property Investigation of NITE C/SiC Composites Reinforced by Various Carbon Fibers

S. Jung*[1]; N. Nakazato[2]; H. Kishimoto[2]; A. Kohyama[3]

1. Graduate School of Muroran Institute of Technology, Japan
2. Muroran Institute of Technology, Japan
3. NITE Corporation, Japan

(PACRIM-P014-2021) Fabrication Technique Developments of Complex Shaped NITE SiC/SiC Composites for Aero-space System Components

H. Kishimoto*[1]; N. Nakazato[1]; D. Nakata[1]; S. Jung[1]; H. Jung[2]; M. Onoi[2]

1. Muroran Institute of Technology, Japan
2. Metal Technology Co. Ltd., Japan

(PACRIM-P015-2021) High-throughput syntheses and electrochemical characterizations of complex transition metal oxides

Y. Okazaki*[1]; I. Yamada[1]; S. Yagi[2]

1. Osaka Prefecture University, Japan
2. University of Tokyo, Japan

(PACRIM-P016-2021) Oxygen evolution reaction catalysis of M-type hexaferrites $BaFe_{12-x}Co_xO_{19}$

F. Toda*[1]; I. Yamada[1]; S. Kawaguchi[2]; S. Yagi[3]

1. Osaka Prefecture University, Japan
2. Japan Synchrotron Radiation Research Institute, Japan
3. University of Tokyo, Japan

(PACRIM-P017-2021) NITE SiC/SiC Composites Fabricated with Higher Pressure using Improved HIP Technique

N. Nakazato*[1]; H. Kishimoto[1]; S. Jung[2]; H. Jung[3]; M. Onoi[3]

1. Muroran Institute of Technology, Japan
2. Muroran Institute of Technology, Graduate School, Japan
3. Metal Technology Co. Ltd., Japan

(PACRIM-P018-2021) Mechanical, Thermal, and Electrical Properties of Porous SiC Ceramics Containing Excess C or Si

G. Kim*[1]; Y. Kim[1]; I. Song[2]

1. University of Seoul, Republic of Korea
2. Korea Institute of Material Science, Republic of Korea

(PACRIM-P019-2021) The influence of mineral additives on firing behaviour and properties of clay ceramics

G. Wie-Addo*[1]; A. H. Jones[1]; J. Renshaw[2]; S. Palmer[2]; A. Scrimshire[1]; P. A. Bingham[1]

1. Sheffield Hallam University, Materials and Engineering Research Institute, United Kingdom
2. Wienerberger Ltd, United Kingdom

(PACRIM-P021-2021) Gyrotropic birefringence via electromagnon resonance in multiferroic manganite

M. Ogino*[1]; Y. Kaneko[2]; Y. Tokura[2]; Y. Takahashi[1]

1. University of Tokyo, Applied Physics, Japan
2. RIKEN CEMS, Japan

(PACRIM-P022-2021) Luminescence Thermometry – a Fad or a Challenge?

M. Sójka*[1]; M. Runowski[2]; P. Wozny[2]; L. Carlos[3]; E. Zych[1]

1. University of Wroclaw, Poland
2. Adam Mickiewicz University, Poland
3. University of Aveiro, Portugal

(PACRIM-P023-2021) Effects of co-doping on transition metal oxide pigments with trigonal bipyramidal coordination units

M. Oshita*[1]; I. Yamada[1]

1. Osaka Prefecture University, Japan

(PACRIM-P024-2021) Electromagnetic simulation of microwave and mm-wave transmission lines for 5G applications

M. Yuan*[1]; T. Brown[1]; C. Scalea[1]; E. Schwarz[1]; S. Perini[1]; T. Neuberger[1]; M. Lanagan[1]

1. Penn State University, USA

(PACRIM-P025-2021) Elaboration of tetravalent chromium-doped Yttrium Aluminum Garnet (Cr^{4+}:YAG) transparent ceramics for laser applications: Role of sintering additives

C. Perrière[1]; R. Boulesteix*[1]; A. Maitre[1]; A. Jalocha[2]; B. Forestier[2]; A. Brenier[3]

1. University of Limoges, IRCER, UMR CNRS 7315, France
2. CILAS, France
3. ILM, UMR CNRS 5306, France

(PACRIM-P026-2021) Residential Cogeneration System with Protonic Ceramic Fuel Cell and its societal implementation

F. Suito*[1]; K. Li[1]; R. Takatera[1]; A. Ota[1]; T. Araki[1]; H. Shimada[3]; M. MORI[2]

1. Yokohama National University, Japan
2. Central Research Institute of Electric Power Industry, Japan
3. National Institute of Advanced Industrial Science and Technology (AIST), Japan

(PACRIM-P027-2021) Improving the Stability of Series-connected Solid Oxide Fuel Cells by Modifying YSZ Electrolyte Composition

Y. Kim*[1]; H. Lim[1]

1. Changwon National University, Republic of Korea

(PACRIM-P028-2021) Optimizing Co-ionic Composite Electrolytes Configuration for Durable Solid Oxide Fuel Cell

A. K. Niaz*[1]; H. Lim[1]

1. Changwon National University, Republic of Korea

(PACRIM-P029-2021) Validation of thermomagnetic and galvanomagnetic transport measurements (method of four coefficients) using NIST SRM 3451

A. Buchanan[1]; C. Dutra[1]; A. Jarymowycz[1]; E. Laney[1]; C. Posadas[1]; K. Thomson*[1]; M. Beekman[1]

1. California Polytechnic State University, Physics, USA

(PACRIM-P030-2021) Improved Thermoelectric Performance of GeTe via Efficient Yttrium Doping

W. Gao*[1]; Z. Liu[1]; W. Zhang[1]; n. Sato[1]; Q. Guo[1]; T. Mori[1]

1. National Institute for Materials Science (NIMS), Japan

(PACRIM-P031-2021) Classical Molecular Dynamics Simulations of Lithium Thiophosphate Solid Electrolytes

S. Ariga*[1]; T. Ohkubo[1]; Y. Imamura[2]; S. Urata[2]

1. Chiba University, Graduate School of Science and Engineering, Japan
2. AGC Inc., Innovative Technology Laboratories, Japan

(PACRIM-P032-2021) Nanostructured NVP and NVPF - carbon composites synthesized via Pickering emulsion method as high-performance cathodes for Na-ion batteries

A. Cymann-Sachajdak[1]; M. Wilamowska-Zawlocka*[1]

1. Gdansk University of Technology, Department of Energy Conversion and Storage, Poland

(PACRIM-P033-2021) Strategies for pressureless sintering of crack-free fully ceramic microencapsulated fuels

E. Kang*[1]; Y. Kim[1]; K. Lim[2]; S. Lee[2]

1. The University of Seoul, Department of Materials Science and Engineering, Republic of Korea
2. KEPCO Nuclear Fuel, Materials Development Section, Republic of Korea

(PACRIM-P034-2021) Manufacturing hot-pressed fully ceramic microencapsulated fuels with a small amount of additives

G. Kim*[1]; Y. Kim[1]

1. University of Seoul, Republic of Korea

(PACRIM-P035-2021) Impact of dopants on diffusion in crystalline and amorphous zirconia

M. W. Owen*[3]; M. J. Rushton[3]; L. J. Evitts[3]; A. J. Claisse[1]; M. Puide[1]; W. E. Lee[2]; S. C. Middleburgh[3]

1. Westinghouse Electric Sweden AB, Sweden
2. Imperial College London, United Kingdom
3. Bangor University, United Kingdom

(PACRIM-P037-2021) Effect of groundwater composition on dissolution of simulant nuclear waste glass

J. Ayling*[1]; A. J. Fisher[1]; M. T. Harrison[2]; C. L. Corkhill[1]

1. The University of Sheffield, United Kingdom
2. National Nuclear Laboratory, United Kingdom

(PACRIM-P038-2021) Comparative study of the Effectiveness of Interatomic Potentials for the Molecular Dynamics Simulations of Alumino-borosilicate glasses

M. I. Tuheen*[1]; L. Deng[1]; J. Du[1]

1. University of North Texas, Materials Science and Engineering, USA

(PACRIM-P039-2021) 3D Printing of Nanofiber Reinforced Tissue Engineering Scaffolds

J. Lai[1]; M. Wang*[1]

1. The University of Hong Kong, Department of Mechanical Engineering, Hong Kong

(PACRIM-P040-2021) 3D Printing for Highly Elastic Composite Scaffolds with Shape Morphing Ability for Blood Vessel Regeneration

S. Chen[1]; M. Wang*[1]

1. The University of Hong Kong, Department of Mechanical Engineering, Hong Kong

Monday, December 13, 2021

GOMD Award Lectures

Opening Remarks and Otto Schott Award Presentation and Lectures (2021)

Room: Saturna Island

Session Chairs: Doris Möncke, Alfred University; Mathieu Hubert, Corning Incorporated

9:45 AM

Opening Remarks

10:00 AM

Otto Schott Award Presentations

10:15 AM

(GOMD-191-2021) Viscoelastic Behavior of Molecular vs. Network Glass-Formers: Are They Fundamentally Different?

S. Sen*[1]

1. University of California, Davis, USA

10:45 AM

(GOMD-192-2021) The Interaction between Stress, Light, and Chemistry in Glass

J. Zwanziger*[1]

1. Dalhousie University, Chemistry, Canada

11:15 AM

International Year of Glass Presentation

11:30 AM

Closing remarks

Tuesday, December 14, 2021

GOMD Award Lectures

George W. Morey Award Lecture (2020)

Room: Saturna Island

Session Chair: Gang Chen, Ohio University

8:30 AM

Introduction and Award Presentation

8:40 AM

(GOMD-048-2021) Glass: We love it but it breaks

W. Kob*[1]

1. University of Montpellier, France

Wednesday, December 15, 2021

GOMD Award Lectures

The Norbert J. Kreidl Award for Young Scholars Lecture (2021)

Room: Saturna Island

Session Chair: Mathieu Bauchy, University of California, Los Angeles

12:00 PM

Introduction and Award Presentation

12:10 PM

(GOMD-135-2021) Confirming Classical Nucleation Theory with Novel Energy Landscape Methods

C. Wilkinson*[1]; J. C. Mauro[1]

1. Pennsylvania State University, USA

Thursday, December 16, 2021

GOMD Award Lectures

Varshneya Glass Technology Award Lecture (2021)

Room: Saturna Island

Session Chair: Gang Chen, Ohio University

8:30 AM

Introduction and Award Presentation

8:40 AM

(GOMD-136-2021) Nanocrystal doped glass and fibers: fabrication challenges and opportunities for novel photonics applications

H. Ebendorff-Heidepriem*[1]

1. University of Adelaide, Australia

Alfred R. Cooper Award Lecture

Room: Saturna Island

Session Chair: Doris Möncke, Alfred University

9:20 AM

Efstratios I. Kamitsos: Structure and ion dynamics in glass

Monday, December 13, 2021

GOMD S1: Fundamentals of the Glassy State

Structural Characterization of Glass: Al B Silicate Glasses

Room: Saltspring Island C

Session Chairs: Doris Möncke, Alfred University; Marcos de Oliveira, University of Sao Paulo

1:40 PM

(GOMD-001-2021) Correlation between Phase Separation and Local Atomic Structure in Aluminosilicate Glasses Revealed by Small- and Wide-Angle X-ray Scattering

S. K. Wilke*[1]; C. J. Benmore[2]; V. Menon[1]; R. Weber[1]

1. Materials Development, Inc., USA
2. Argonne National Lab, X-ray Science Division, Advanced Photon Source, USA

2:00 PM

(GOMD-002-2021) Spectroscopic imaging of diffusion profiles in Na_2O-CaO-Al_2O_3-SiO_2 melts

M. Jacquemin*[1]; V. Sarou-Kanian[1]; P. Simon[1]; L. Hennet[1]; C. Bessada[1]; E. Gouillart[2]; E. Burov[2]

1. CEMHTI-CNRS, France
2. Joint unit CNRS/Saint-Gobain, Surface, Glass and Interfaces, France

2:20 PM

(GOMD-003-2021) Structural transformations in PTR glass studied by Raman scattering

L. Glebov[1]; P. Shirshnev*[1]; M. Klimov[2]; R. Alvarez[1]

1. University of Central Florida, CREOL, USA
2. University of Central Florida, Advanced Materials Processing and Analysis Center, USA

2:40 PM

Break

Structural Characterization of Glass: Silicate Glass

Room: Saltspring Island C

Session Chair: John McCloy, Washington State University

3:00 PM

(GOMD-005-2021) Viscosity of sodium silicate melts with a variation of nitrogen and fluorine concentration

S. Sukenaga*[1]; M. Ogawa[2]; Y. Yanaba[3]; M. Ando[4]; H. Shibata[1]

1. Tohoku University, Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Japan
2. AGC Inc., Glass Division, Figured & Plate Glass Department, AGC Yokohama Technical Center, Japan
3. The University of Tokyo, Institute of Industrial Science, Japan
4. Tohoku University, Graduate School of Engineering, Japan

3:20 PM

(GOMD-006-2021) Structural Investigation of Network Former Mixing Effects in Rare-Earth Doped Lead Zinc Phosphotellurite Glasses by NMR and EPR Spectroscopies

M. de Oliveira*[1]; J. Amjad[2]; A. S. de Camargo[1]; H. Eckert[1]

1. University of Sao Paulo, Sao Carlos Institute of Physics, Brazil
2. COMSATS Institute of Information Technology, Pakistan

Atomistic Simulation and Predictive Modeling of Glass I

Room: Cortes Island

Session Chair: Andrew Antony, Corning Incorporated

1:40 PM

(GOMD-007-2021) Indentation-induced photoelastic patterns in oxide glasses: A numerical approach

G. A. Rosales-Sosa*[1]; Y. Kato[1]; E. Barthel[2]; S. Yoshida[3]; A. Yamada[3]; J. Matsuoka[3]; S. Nakane[1]; H. Yamazaki[1]; C. R. Kurkjian[4]

1. Nippon Electric Glass, Fundamental Technology Division, Japan
2. ESPCI, Sciences et Ingénierie de la Matière Molle, France
3. University of Shiga Prefecture, Center for Glass Science and Technology, Japan
4. Rutgers University, Materials Science and Engineering, USA

2:00 PM

(GOMD-008-2021) Understanding brittle to ductile transition of disordered materials using energy landscape approach

L. Tang*[1]; M. Bauchy[1]

1. University of California, Los Angeles, Civil & Environmental Engineering, USA

2:20 PM

(GOMD-009-2021) Effects of surface orientation and termination plane on glass → crystal transformation of lithium disilicate by molecular dynamics simulations

W. Sun*[1]; V. Dierolf[1]; H. Jain[1]

1. Lehigh University, Material Science and Engineering, USA

2:40 PM

(GOMD-010-2021) Revisiting the Atomic Structure of Glassy Silica by Force-Enhanced Atomic Refinement

Q. Zhou*[1]; M. Bauchy[1]; T. Du[1]; Y. Shi[2]

1. University of California, Los Angeles, USA
2. Corning Incorporated, USA

3:00 PM

Break

Atomistic Simulation and Predictive Modeling of Glass II

Room: Cortes Island

Session Chair: Andrew Antony, Corning Incorporated

3:20 PM

(GOMD-011-2021) A high-throughput ab-initio approach to study optical properties of glass materials (Invited)

V. Botu[1]; B. Aitken[1]; S. Lee*[1]

1. Corning Incorporated, USA

3:50 PM

(GOMD-012-2021) Multi-Scale Modeling of Fracture in Phase-Separated Glasses

L. Tang[1]; M. Bauchy*[1]

1. University of California, Los Angeles, Civil and Environmental Engineering Department, USA

4:10 PM

(GOMD-013-2021) Evaluation of local structure reproducibility of lead borate glass model constructed by a reverse Monte Carlo method using bond valence sum constraint

M. Nagao*[1]; S. Sakida[1]; Y. Benino[1]; T. Nanba[1]; A. Mukunoki[2]; T. Chiba[2]; T. Kikuchi[2]; T. Sakuragi[3]; H. Owada[3]

1. Okayama University, Graduate School of Environmental and Life Science, Japan
2. JGC Japan Corporation, Japan
3. Radioactive Waste Management Funding and Research Center, Japan

4:30 PM

(GOMD-014-2021) Comparing the topography of melt formed and fracture formed glass surfaces

W. Kob*[1]; Z. Zhang[1]; S. Ispas[1]

1. University of Montpellier, France

Mechanical Properties of Glass I

Room: Saltspring Island A/B

Session Chair: Morten Smedskjaer, Aalborg University

1:40 PM

(GOMD-015-2021) Highly ductile amorphous oxide at room temperature and high strain rate (Invited)

E. J. Frankberg*[1]; J. Kalikka[4]; F. García Ferré[5]; L. Joly-Pottuz[6]; T. Salminen[9]; J. Hintikka[10]; M. Hokka[1]; S. Koneti[3]; T. Douillard[6]; B. Le Saint[6]; P. Kreiml[2]; M. J. Cordill[2]; T. Epicier[6]; D. Stauffer[12]; M. Vanazzi[11]; L. Roiban[6]; J. Akola[7]; F. Di Fonzo[8]; E. Levänen[1]; K. Masenelli-Varlot[6]

1. Tampere University, Materials science and environmental engineering, Finland
2. Austrian Academy of Sciences, Erich Schmid Institute of Materials Science, Austria
3. aera a/s, Denmark
4. Tampere University, Physics, Finland
5. ABB, Switzerland
6. INSA Lyon, MATEIS, France
7. Norwegian University of Science and Technology, Department of Physics, Norway
8. Italian Institute of Technology, Center for Nano Science and Technology, Italy
9. Tampere University, Microscopy Center, Finland
10. Wärtsilä Corporation, Finland
11. F3nice, Italy
12. Bruker inc., USA

2:10 PM

(GOMD-016-2021) Improving the Fracture Toughness of Oxide Glasses through Bond Switching

M. M. Smedskjaer*[1]; T. To[1]; S. S. Sørensen[1]; J. Christensen[1]; R. Christensen[1]; L. R. Jensen[2]; M. Bockowski[3]; M. Bauchy[4]

1. Aalborg University, Department of Chemistry and Bioscience, Denmark
2. Aalborg University, Department of Materials and Production, Denmark
3. Polish Academy of Sciences, Institute of High-Pressure Physics, Poland
4. University of California, Los Angeles, Department of Civil and Environmental Engineering, USA

2:30 PM

(GOMD-017-2021) Structural and Mechanical properties of ZrO_2-Al_2O_3-SiO_2 glasses prepared by a levitation technique

A. Masuno*[1]; Y. Mikami[1]; Y. Yanaba[2]; S. Sasaki[1]; H. Inoue[2]

1. Hirosaki University, Graduate School of Science and Technology, Japan
2. The University of Tokyo, Institute of Industrial Science, Japan

3:10 PM
Break

Mechanical Properties of Glass II

Room: Saltspring Island A/B
Session Chair: Gustavo Rosales-Sosa, Nippon Electric Glass

3:40 PM
(GOMD-019-2021) Indentation cracking in silicate glasses is directed by shear flow, not by densification (Invited)

E. Barthel*[1]; G. A. Rosales-Sosa[3]; V. Keryvin[2]; G. Kermouche[4]

1. CNRS/ESPCI, SIMM, France
2. Université de Bretagne Sud, France
3. Nipppon Electric Glass, Japan
4. Mines de Saint-Etienne, France

4:10 PM
(GOMD-020-2021) Mechanism of toughening in metal-nanoparticle implanted sodalime glass – investigation by nano-indentation technique

M. Ono*[1]; S. Miyasaka[2]; Y. Takato[2]; S. Urata[2]; Y. Hayashi[2]

1. Hokkaido University, Research Institute for Electronic Science, Japan
2. AGC Inc., Japan

4:30 PM
(GOMD-021-2021) Composition-dependent Indentation Deformation in Borosilicate Glasses

K. S*[1]; N. Krishnan[2]; N. N. Gosvami[1]

1. Indian Institute of Technology Delhi, Department of Materials Science and Engineering, India
2. Indian Institute of Technology Delhi, Department of Civil Engineering, India

4:50 PM
(GOMD-022-2021) Load and Compositional Dependence of Strength in Calcium Aluminosilicate Glasses

M. Kazembeyki*[1]; J. C. Mauro[3]; M. M. Smedskjaer[4]; M. Bauchy[2]; C. G. Hoover[1]

1. Arizona State University, School of Sustainable Engineering and the Built Environment, USA
2. University of California, Los Angeles, Civil and Environmental Engineering, USA
3. Pennsylvania State University, USA
4. Aalborg University, Denmark

5:10 PM
(GOMD-023-2021) Predicting Normal and Anomalous Glasses Directly from the Indent Images using Machine Learning

A. Agrawal[1]; M. Zaki*[1]; N. Krishnan[1]

1. Indian Institute of Technology Delhi, Department of Civil Engineering, India

GOMD S2: Glass and Interactions with Its Environment - Fundamentals and Applications

Dissolution and Interfacial Reactions: Alternative Conditions

Room: Saturna Island
Session Chair: Jessica Rimsza, Sandia National Laboratories

1:40 PM
(GOMD-025-2021) Atmospheric alteration of float glass surface as a function of its composition

A. Serve*[1]; O. Majérus[2]; H. Montigaud[1]; S. Papin[1]; D. Caurant[2]

1. Saint-Gobain, France
2. Chimie Paristech, France

2:00 PM
(GOMD-026-2021) Is the poison in the container? Alteration of industrial glasses at the molecular scale

M. Tarrago*[1]; C. Le Losq[1]; E. van Hullebusch[1]; D. R. Neuville[1]

1. Université de Paris, Institut de physique du globe de Paris, CNRS, France

2:40 PM
Break

Dissolution and Interfacial Reactions: Long-Term Degradation

Room: Saturna Island
Session Chairs: Louise Criscenti, Sandia National Laboratories; Jessica Rimsza, Sandia National Laboratories

3:00 PM
(GOMD-027-2021) Acoustic and electric field-effects on dissolution reactions, and assessing zeolite precipitation in (hyperalkaline) environments (Invited)

G. Sant*[1]; M. Bauchy[1]

1. University of California, Los Angeles, USA

GOMD S3: Optical and Electronic Materials and Devices - Fundamentals and Applications

Optical and Photonic Glass and Glass-Ceramics I

Room: Pender Island

Session Chair: Laeticia Petit, Tampere University

1:40 PM

(GOMD-031-2021) Surface engineering of glass using femtosecond laser induced plasma processing (Invited)

G. Jose*[1]

1. University of Leeds, Applied Photon Science, School of Chemical and Process Engineering, United Kingdom

2:10 PM

(GOMD-032-2021) Hydroxyl and fundamental absorption of PTR glass in IR spectral region

L. Glebov[1]; P. Shirshnev*[1]; R. Alvarez[1]

1. University of Central Florida, CREOL - The College of Optics and Photonics, USA

2:30 PM

(GOMD-033-2021) Intrinsic absorption and luminescence of Photo-Thermo-Refractive glass

R. Alvarez*[1]; P. Shirshnev[1]; L. Glebov[1]

1. University of Central Florida, CREOL - The College of Optics and Photonics, USA

2:50 PM

(GOMD-034-2021) Investigation of linear and non-linear optical properties of Alumino-borosilicate glasses containing Indium Tin Oxide (ITO) nanocrystals

A. Ashjari*[1]; B. Eftekhari Yekta[1]; H. Rezaie[1]

1. University of Science and Technology of Iran, Metallurgy and Materials Science and engineering, Islamic Republic of Iran

3:10 PM

(GOMD-035-2021) Linear and nonlinear optical properties in glasses managed at the micrometer scale by an imprinting thermo-electrical process

M. Dussauze*[1]; L. D. Karam[2]; F. Adamietz[1]; V. Rodriguez[2]; K. A. Richardson[3]; S. Murugan[4]; T. Cardinal[1]; E. Fargin[2]

1. CNRS / Université de Bordeaux, France
2. University Bordeaux, French Southern Territories
3. University of Central Florida, USA
4. ORC, United Kingdom

3:30 PM

Break

Optical and Photonic Glass and Glass-Ceramics II

Room: Pender Island

Session Chairs: Hugues Francois-Saint-Cyr, Thermofisher Scientific; Leonid Glebov, University of Central Florida

3:40 PM

(GOMD-036-2021) Crystallization study of Er^{3+} doped glasses in the $NaPO_3$-CaF_2 system

L. Petit*[1]; n. ojha[1]; i. Dmitrieva[1]

1. Tampere University, Finland

4:00 PM

(GOMD-037-2021) Upconversion modulation by Au NPs in glass: A combined experimental and theoretical study

Y. Wei*[1]; J. Zhao[1]; H. Ebendorff-Heidepriem[1]

1. University of Adelaide, Australia

4:20 PM

(GOMD-038-2021) Enhanced green emission in Er^{3+}/CdS co-doped borosilicate glass by energy transfer from CdS quantum dots

N. Shasmal*[1]; A. Rodrigues[1]; W. G. Faria[2]; A. S. de Camargo[2]

1. Federal University of Sao Carlos, LaMaV, Brazil
2. University of São Paulo, São Carlos Institute of Physics, LEMAF – Laboratório de Espectroscopia de Materiais Funcionais, Brazil

4:40 PM

(GOMD-039-2021) Development of glasses and glass-ceramics for MIR applications

A. Lemiere*[1]; L. Kuusela[1]; M. Guidat[1]; A. Veber[1]; L. Petit[1]

1. Tampere University, Finland

5:00 PM

(GOMD-040-2021) Photoluminescence in bioactive sol–gel-derived nanoglasses

A. Lukowiak*[1]; K. Halubek-Gluchowska[1]; W. Bodylska[1]; M. Fandzloch[1]; B. Borak[2]

1. Institute of Low Temperature and Structure Research, PAS, Poland
2. Wroclaw University of Science and Technology, Department of Mechanics, Materials Science and Engineering, Poland

GOMD S4: Glass Technology and Cross-Cutting Topics

Challenges in Glass Manufacturing I

Room: Moresby Island

Session Chair: Irene Peterson, Corning Incorporated

1:40 PM

(GOMD-041-2021) Integration of Generalized Cold Cap into Glass Melter Representation (Invited)

D. P. Guillen*[1]; A. Abboud[1]; P. Ferkl[2]; M. Hall[2]; S. Lee[2]; P. Hrma[3]; R. Pokorny[4]; W. Eaton[2]; D. Dixon[2]; A. A. Kruger[5]

1. Idaho National Laboratory, Materials Science and Engineering, USA
2. Pacific Northwest National Lab, USA
3. North Wind Solutions, LLC, USA
4. University of Chemistry and Technology Prague, Czechia
5. U.S. Department of Energy, USA

2:10 PM

(GOMD-042-2021) Glass melting rate control in electric melters

R. Pokorny*[1]; S. Lee[2]; P. Ferkl[2]; J. Klouzek[1]; P. Hrma[3]; J. Marcial[2]; A. A. Kruger[4]

1. University of Chemistry and Technology Prague, Czechia
2. Pacific Northwest National Lab, USA
3. AttainX, Support Services Contractor to the Office of River Protection, U.S. Department of Energy, USA
4. U.S. Department of Energy, Office of River Protection, USA

2:30 PM

(GOMD-043-2021) Process Control and Glass Composition Variability for Hanford LAW Vitrification (Invited)

I. S. Muller*[1]; K. Gilbo[1]; K. Matlack[1]; I. Pegg[1]

1. The Catholic University of America, Vitreous State Laboratory, USA

3:00 PM

(GOMD-044-2021) Influence of aluminum content on multicomponent diffusion in Na2O-CaO-Al2O3-SiO2 melts

M. Jacquemin[2]; E. Burov*[1]; P. Simon[2]; L. Hennet[2]; C. Bessada[2]; E. Gouillart[3]

1. Saint-Gobain, Laboartoire Mixte Saint-Gobain/CNRS, France
2. CEMTHI, France
3. Saint-Gobain, France

3:20 PM

Break

Challenges in Glass Manufacturing II

Room: Moresby Island

Session Chair: Irene Peterson, Corning Incorporated

3:40 PM

(GOMD-045-2021) Redox Chemistry and Gas Evolving Reactions in Glass Melting and Vitrification Processes (Invited)

J. Klouzek*[1]; M. Vernerova[1]; S. Lee[2]; J. Marcial[2]; R. Pokorny[1]; P. Hrma[4]; A. A. Kruger[3]

1. University of Chemistry and Technology, Prague, Laboratory of Inorganic Materials, Czechia
2. Pacific Northwest National Lab, USA
3. U.S. Department of Energy, Office of River Protection, USA
4. AttainX, US Department of Energy, USA

4:10 PM

(GOMD-046-2021) Measurements of Batch Expansion and Foaming Using In-situ X-ray Tomography

I. Peterson*[1]; S. A. Luksic[2]; J. Wright[1]; N. LeBlond[1]

1. Corning Research and Development Corporation, Process Research, USA
2. Pacific Northwest National Laboratory, USA

Tuesday, December 14, 2021

GOMD S1: Fundamentals of the Glassy State

Structural Characterizations of Glass: Borate and Borosilcate Glasses, Phosphates

Room: Saltspring Island C

Session Chair: Doris Möncke, Alfred University; Marcos de Oliveira, University of Sao Paulo

9:40 AM

(GOMD-050-2021) Physical and structural properties of rare-earth-rich borate glasses

S. Sasaki*[1]; U. Masuno[1]; Y. Yanabe[2]; K. Ohara[3]; H. Inoue[2]; Y. Watanabe[2]

1. Hirosaki University, Graduate School of Science and Technology, Japan
2. The University of Tokyo, Japan
3. Japan Synchrotron Radiation Research Institute, Japan

10:00 AM

(GOMD-078-2021) Structure and thermophysical properties of Zn-phosphate glasses: Results from multinuclear NMR spectroscopy and calorimetry

Y. Xia[1]; H. Chen[1]; S. Sen*[1]

1. University of California, Davis, USA

10:20 AM

(GOMD-075-2021) Borophosphate Glasses for Potential Tissue Engineering Applications

M. Abbasi*[1]; A. Krishnamurthy[1]; A. lu[1]; S. Kroeker[1]

1. University of Manitoba, Department of Chemistry, Canada

10:40 AM

(GOMD-077-2021) Insight into the structure of Iron-containing glasses: A molecular dynamics study

B. M. Alhasni*[1]

1. University of technology and applied sciences, science, Oman

11:00 AM

(GOMD-076-2021) Influence of aluminum on structure and crystallization of iron-polyphosphate glasses

P. Stoch*[1]; P. Goj[1]; A. Wajda[1]; A. Stoch[2]

1. AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Poland
2. Research Networ Lukasiewicz - Institute of Electron Technology Krakow Division, Poland

11:20 AM

(GOMD-074-2021) Structural investigation of binary aqueous alkali silicates: Properties of solutions, powders and coatings

H. Mohsin*[1]

1. Saint-Gobain Research Paris, France

Atomistic Simulation and Predictive Modeling of Glass III

Room: Cortes Island

Session Chair: Andrew Antony, Corning Incorporated

9:40 AM

(GOMD-051-2021) Theoretical analysis of Rayleigh scattering attenuation of F-doped silica; MD simulations with force-matching potential

S. Urata*[1]; N. Nakamura[2]; K. Aiba[1]; T. Tada[3]; H. Hosono[4]

1. AGC Inc., Innovative Technology Laboratories, Japan
2. AGC Inc., Materials Integration Laboratories, Japan
3. Kyushu University, Japan
4. Tokyo Institute of Technology, Japan

10:00 AM

(GOMD-053-2021) Sodium Silicate Glass Structural Properties under Compression Shockwave

A. Yadav*[1]; V. Bihani[1]; N. Krishnan[1]

1. Indian Institute of Technology Delhi, Department of Civil Engineering, India

10:20 AM

(GOMD-054-2021) Response of Glasses to Sharp Contact Loading Studied via 3-D Nanoindentation Tests in Classical Molecular Dynamics Simulation

H. Liu*[1]; L. Huang[1]; Y. Shi[1]

1. Rensselaer Polytechnic Institute, Materials Science and Engineering, USA

10:40 AM

(GOMD-055-2021) Ion-exchange and interfacial reaction mechanisms of silicate glass corrosion from reactive molecular dynamics simulations

J. Du*[1]; L. Deng[1]

1. University of North Texas, Materials Science and Engineering, USA

Mechanical Properties of Glass III

Room: Saltspring Island A/B

Session Chair: Timothy Gross, Corning Incorporated

9:40 AM

(GOMD-056-2021) A Universal Strength Distribution for Modeling the Lifetime of Optical Fiber Under Stress

G. S. Glaesemann*[1]; Y. Shu[1]

1. Corning Research & Development Corporation, USA

10:00 AM

(GOMD-057-2021) Investigation of Slow Crack Growth of Sodium Silicates with AFM

K. T. Strong*[1]; C. Nakakura[2]; J. Depoy[2]; K. Stephens[2]; T. Diebold[1]; S. Grutzik[2]; J. M. Rimsza[2]

1. Sandia National Laboratories, Material Mechanics and Triboloty, USA
2. Sandia National Laboratories, USA

10:20 AM

(GOMD-058-2021) Atomistic Fracture Mechanisms in Sodium Silicates

J. M. Rimsza*[1]; C. Nakakura[1]; S. Grutzik[1]; K. T. Strong[1]

1. Sandia National Laboratories, USA

10:40 AM

(GOMD-059-2021) Stress Corrosion Cracking of Sodium Borosilicate Amorphous Phase Separated Glasses

W. Feng*[1]; F. Célarié[2]; P. Houizot[2]; T. Charpentier[3]; R. Baniel[2]; D. Bonamy[1]; C. L. Rountree[1]

1. SPEC/CEA-Saclay, Université Paris-Saclay, France
2. Institute of Physics of Rennes, University of Rennes 1, France
3. NIMBE/CEA-Saclay, Université Paris-Saclay, France

11:00 AM

(GOMD-060-2021) Kinetic model for environmentally assisted crack growth threshold

S. Grutzik*[1]

1. Sandia National Laboratories, Materials and Failure Modeling, USA

11:20 AM

(GOMD-061-2021) Change in Fatigue Resistance with Stressing Rate

G. Scannell*[1]; Y. Shu[2]

1. Corning Incorporated, Mechanics and Reliability Sciences, USA
2. Corning Incorporated, Characterization Sciences, USA

GOMD S2: Glass and Interactions with Its Environment - Fundamentals and Applications

Dissolution and Interfacial Reactions: Residual Rates and Gel Layers

Room: Saturna Island

Session Chairs: Louise Criscenti, Sandia National Laboratories; Jessica Rimsza, Sandia National Laboratories

9:40 AM

(GOMD-062-2021) A multi-scale investigation of the mechanisms controlling the corrosion of borosilicate glasses in hyper-alkaline media

F. Wang[1]; N. Balasubramanya[1]; Q. Qin*[1]; R. Youngman[2]; P. Mukherjee[3]; N. Stone-Weiss[1]; A. Goel[1]

1. Rutgers University, Material Science and Engineering, USA
2. Corning Incorporated, Science and Technology Division, USA
3. Michigan Technological University, Materials Science and Engineering, USA

10:00 AM

(GOMD-063-2021) Effect of alkali content on the durability of borosilicate glasses

A. Krishnamurthy*[1]; T. Nguyen[1]; L. Segato[1]; S. Kroeker[1]

1. Univeristy of Manitoba, Chemistry, Canada

10:20 AM

(GOMD-064-2021) Towards a comprehensive understanding of the effect of high field-strength cations on glass durability

Q. Qin*[1]; N. Stone-Weiss[1]; P. Mukherjee[2]; A. Goel[1]

1. Rutgers University, Material Science and Engineering, USA
2. Michigan Technological University, Materials Science and Engineering, USA

10:40 AM

(GOMD-065-2021) Investigation of possible intrinsic stress in the alteration layer of corroded glass

H. Kaya*[1]; D. Ngo[2]; S. Gin[3]; S. H. Kim[1]

1. Pennsylvania State University, USA
2. Avery Dennison, USA
3. CEA Marcoule DE2D/SEVT, France

GOMD S3: Optical and Electronic Materials and Devices - Fundamentals and Applications

Optical and Photonic Glass and Glass-Ceramics III

Room: Pender Island

Session Chair: Luiz Jacobsohn, Clemson University

9:40 AM

(GOMD-066-2021) Enlightening Optical Materials Development via a Correlative 2D-3D Microscopy Workflow (Invited)

H. Francois-Saint-Cyr*[1]; R. Passey[1]; L. Casalena[1]; T. Robine[2]; Z. Lu[2]; P. Le Coustumer[3]; S. Lacomme[3]; F. Pigeonneau[2]; W. Blanc[4]

1. ThermoFisher Scientific, USA
2. CEMEF, France
3. Universite de Bordeaux (BIC), France
4. Université Côte d'Azur, France

10:10 AM

(GOMD-067-2021) Development of a novel optical battery from glass-based materials

N. García Arango[1]; S. Vuori[2]; M. Lastusaari[2]; L. Petit*[1]

1. Tampere University, Faculty of Engineering and Natural Sciences, Finland
2. Turku University, Finland

10:30 AM

(GOMD-068-2021) Highly efficient ytterbium doped aluminosilicates oxyfluoride glasses and glass-ceramics for potential laser-cooling applications

T. Meyneng*[1]; Y. Messaddeq[1]; Y. Ledemi[1]; j. thomas[2]; R. Kashyap[2]

1. Laval University, COPL, Canada
2. Ecole Polytechnque de Montreal, Canada

10:50 AM

(GOMD-069-2021) Transparent Yb^{3+} doped oxyfluorophosphate glass-ceramics

M. Hongisto*[1]; A. Veber[1]; N. Boetti[2]; S. Danto[3]; V. Jubera[3]; L. Petit[1]

1. Tampere University, Photonic glasses, Finland
2. Fondazione LINKS – Leading Innovation & Knowledge for Society, Italy
3. CNRS, Univ. Bordeaux, ICMCB, France

GOMD S4: Glass Technology and Cross-Cutting Topics

Challenges in Glass Manufacturing III

Room: Moresby Island

Session Chair: Irene Peterson, Corning Incorporated

9:40 AM

(GOMD-071-2021) High performance 3D Scan analysis of glass furnace corrosion (Invited)

D. Boloré*[1]; D. Cetin[1]; T. Champion[2]; B. Legin[2]; E. Lopez[2]; D. Rogers[1]; M. Gaubil[2]

1. SEFPRO, Saint-Gobain Research North America, USA
2. SEFPRO, Saint-Gobain Research Provence, France

10:10 AM

(GOMD-047-2021) Accurate energy demand measurement of industrial glass batches (Invited)

M. Rongen*[1]

1. CelSian Glass & Solar, Netherlands

GOMD S1: Fundamentals of the Glassy State

Data-based Modeling and Machine Learning for Glass Science I

Room: Moresby Island

Session Chair: Adama Tandia, Corning Incorporated

1:30 PM

(GOMD-079-2021) Text extraction and Natural Language Processing in Glasses (Invited)

E. Olivetti*[1]

1. Massachusetts Institute of Technology, USA

2:00 PM

(GOMD-080-2021) Knowledge extraction from glass literature using natural language processing

V. Venugopal[1]; M. Zaki[1]; S. Bishnoi[1]; M. Agarwal[1]; N. Krishnan*[1]

1. Indian Institute of Technology Delhi, Civil Engineering, India

2:20 PM

(GOMD-081-2021) Combining Experimental and Simulation Datasets in Machine Learning for Glass Properties Prediction

K. Yang*[1]; Z. Yin[2]; Y. Song[1]; M. Bauchy[1]

1. UCLA, Civil and Environmental Engineering, USA
2. UCLA, Department of Mathematics, USA

2:40 PM

(GOMD-082-2021) Extracting the Synthesis and Processing Protocols from Materials Science Literature for Improved Property Prediction

M. Zaki*[1]; N. Krishnan[1]; J. Jayadeva[2]

1. Indian Institute of Technology Delhi, Department of Civil Engineering, India
2. Indian Institute of Technology Delhi, Department of Electrical Engineering, India

3:00 PM

Break

Data-based Modeling and Machine Learning for Glass Science II

Room: Moresby Island

Session Chair: Adama Tandia, Corning Incorporated

3:50 PM

(GOMD-083-2021) Modeling atomistic disorder using automatic differentiation and machine learning (Invited)

E. D. Cubuk*[1]

1. Google Brain, USA

4:20 PM

(GOMD-084-2021) Decoding the "Genome" of Inorganic Glasses using Interpretable Machine Learning

R. Ravinder*[1]; S. Bishnoi[2]; M. Zaki[1]; N. Krishnan[1]

1. Indian Institute of Technology Delhi, Department of Civil Engineering, India
2. Indian Institute of Technology Delhi, School of Interdisciplinary Research, India

4:40 PM

(GOMD-085-2021) Understanding the optical properties of glasses using interpretable machine learning

N. Krishnan[1]; M. Zaki*[1]

1. Indian Institute of Technology Delhi, Civil Engineering, India

Mechanical Properties of Glass IV

Room: Saltspring Island A/B

Session Chair: Satoshi Yoshida, AGC Inc.

1:30 PM

(GOMD-086-2021) Fracture Toughness of a Metal-Organic Framework Glass

T. To[1]; S. S. Sørensen[1]; M. Stepniewska[1]; A. Qiao[1]; L. R. Jensen[2]; M. Bauchy[3]; Y. Yue[1]; M. M. Smedskjaer*[1]

1. Aalborg University, Department of Chemistry and Bioscience, Denmark
2. Aalborg university, Department of materials and production, Denmark
3. University of California, Department of civil and environmental engineering, USA

1:50 PM

(GOMD-087-2021) Bulk Metallic Glasses' Response to Oscillatory Stress is Governed by the Topography of the Energy Landscape

L. Tang*[1]; M. Bauchy[1]

1. University of California, Los Angeles, Civil & Environmental Engineering, USA

2:10 PM

(GOMD-088-2021) Towards damage resistant glasses by tailoring heterogeneities through consolidation of glassy nanoparticles

Y. Zhang*[1]

1. Rensselaer Polytechnic Institute, Materials Science and Engineering, USA

2:30 PM

(GOMD-089-2021) Compositional Dependency of Inelastic Dissipation Mechanisms During Scratching in CAS Glasses

M. Kazembeyki[1]; S. Soman[1]; J. C. Mauro[4]; M. M. Smedskjaer[3]; M. Bauchy[2]; C. G. Hoover*[1]

1. Arizona State University, School of Sustainable Engineering and the Built Environment, USA
2. University of California Los Angeles, CIVIL AND ENVIRONMENTAL ENGINEERING, USA
3. Aalborg University, Denmark
4. Pennsylvania State University, USA

2:50 PM

(GOMD-090-2021) Scratch behavior of ion-exchange strengthened soda lime silicate and sodium borosilicate glass

A. Talimian*[1]; T. Csanádi[2]; R. Limbach[3]; J. Dusza[2]; L. Wondraczek[3]; D. Galusek[1]

1. Centre for Functional and Surface Functionalized Glass (FunGlass), VILA, Slovakia
2. Institute of Materials Research, Slovak Academy of Sciences, Slovakia
3. University of Jena, Otto Schott Institute of Materials Research, Germany

GOMD S2: Glass and Interactions with Its Environment - Fundamentals and Applications

Dissolution and Interfacial Reactions: Composition Effects

Room: Saturna Island

Session Chairs: Nicholas Smith, Corning Incorporated; Jessica Rimsza, Sandia National Laboratories

1:30 PM

(GOMD-091-2021) Structural Drivers for the Chemical Durability of Alkali Borosilicate Glasses

N. J. Smith*[1]; S. Goyal[1]; A. Tandia[1]; J. P. Icenhower[1]; E. Bakowska[1]

1. Corning Incorporated, USA

1:50 PM

(GOMD-092-2021) Investigating the Origin of Anomalous Water Diffusion in Silica Glass at Low Temperatures

B. D. Hausmann*[1]; M. Tomozawa[1]

1. Rensselaer Polytechnic Institute, Materials Science & Engineering, USA

2:10 PM

(GOMD-093-2021) Characterizing the Dissolution Behavior and Structure of Bioactive Na_2O-CaO-B_2O_3-P_2O_5 Glasses

R. L. Blatt*[1]; R. Brow[1]

1. Missouri University of Science & Technology, Materials Science and Engineering, USA

2:30 PM

(GOMD-094-2021) Early stage dissolution of simulated UK Ca/Zn HLW glass in conditions relevant to disposal

M. T. Harrison*[1]

1. National Nuclear Laboratory, WM&D, United Kingdom

2:50 PM

(GOMD-095-2021) Revisiting the Immobilized Low-Activity Waste Glass Dissolution Model for the Hanford Site Integrated Disposal Facility

J. Neeway*[1]; C. Lonergan[1]; S. Kerisit[1]; B. Parruzot[1]; J. V. Crum[1]; J. V. Ryan[1]; M. Asmussen[1]; G. L. Smith[1]

1. Pacific Northwest National Lab, USA

3:10 PM

Break

GOMD S3: Optical and Electronic Materials and Devices - Fundamentals and Applications

Optical Fibers and Waveguides I

Room: Cortes Island

1:30 PM

(GOMD-096-2021) Advanced glasses and optical fibers for high energy lasers

J. Ballato*[1]; P. Dragic[2]; T. Hawkins[1]

1. Clemson University, USA
2. University of Illinois at Urbana-Champaign, USA

1:50 PM

(GOMD-097-2021) Laser cooling in a silica optical fiber at atmospheric pressure

J. Knall[2]; P. B. Vigneron[2]; M. Engholm[4]; P. Dragic[3]; N. Yu[3]; J. Ballato*[1]; M. Bernier[5]; M. Digonnet[2]

1. Clemson University, USA
2. Stanford University, USA
3. University of Illinois at Urbana-Champaign, USA
4. Mid Sweden University, Sweden
5. Universite Laval, Centre d'optique, photonique et laser, Canada

2:10 PM

(GOMD-098-2021) Development of a solar concentrator coupled with optical fiber bundle for deployment of solar energy

J. Roy*[1]; S. Morency[1]; G. Dugas[1]; Y. Messaddeq[1]

1. Laval University, Center for Optics, Photonics and Lasers, Canada

2:30 PM

(GOMD-099-2021) Elaboration of chalcogenide microstructured optical fibers preforms by 3D additive manufacturing

J. Carcreff*[1]; F. Cheviré[1]; E. Galdo[1]; R. Lebullenger[1]; A. GAUTIER[1]; J. Adam[1]; D. Le Coq[1]; L. Brilland[2]; R. Chahal[2]; G. Renversez[3]; J. Troles[1]

1. University of Rennes 1, France
2. Selen Optics, France
3. Institut Fresnel, France

2:50 PM

(GOMD-100-2021) Tunable Rayleigh scattering in low-loss nanoparticle-doped optical fibers for long-range distributed sensing applications

V. Fuertes de la Llave*[1]; N. Gregoire[1]; P. Labranche[1]; Y. Ledemi[1]; S. LaRochelle[1]; Y. Messaddeq[1]

1. Centre d'optique, photonique et laser (COPL), Canada

3:10 PM

Break

Optical Fibers and Waveguides II

Room: Cortes Island

3:50 PM

(GOMD-101-2021) Low-loss lead-germanate glass fibers for mid-infrared applications: Balancing dehydration efficiency and metallic lead formation

H. Ebendorff-Heidepriem*[1]; P. Wang[2]

1. University of Adelaide, Australia
2. State Key Laboratory of Transient Optics and Photonics, Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences (CAS), China

4:10 PM

(GOMD-102-2021) Rare-earth germano gallate optical fibers for Mid-InfraRed optical applications

F. Calzavara*[1]; C. Strutynski[1]; T. Guerineau[1]; L. Loi[2]; R. Laberdesque[2]; J. Rampnoux[3]; S. Morency[4]; Y. Ledemi[4]; Y. Petit[1]; M. Dussauze[5]; F. Désévédavy[6]; F. Smektala[6]; S. Danto[1]; L. Canioni[2]; V. Jubera[1]; Y. Messaddeq[4]; E. Fargin[1]; T. Cardinal[1]

1. ICMCB-CNRS, France
2. Center for Intense Lasers and Applications (CELIA), France
3. Laboratoire Ondes et Matière d'Aquitaine (LOMA), France
4. International Associated Laboratory (LIA) LuMAQ, Centre d'Optique, Photonique et Laser (COPL), Canada
5. Institute of Molecular Science (ISM), France
6. Laboratoire Interdisciplinaire Carnot de Bourgogne (ICB), France

4:30 PM

(GOMD-103-2021) Chalcogenide step-index fibers for mid-IR supercontinuum generation and application of supercontinuum absorption spectroscopy

R. Bizot*[1]; A. Lemiere[2]; F. Désévédavy[1]; B. Kibler[1]; P. Mathey[1]; G. Gadret[1]; F. Smektala[1]

1. Laboratoire ICB, Photonic, France
2. Tampere University, Finland

4:50 PM

(GOMD-104-2021) TeO_2 – ZnO - La_2O_3 tellurite glass system investigation and purification for robust mid infrared optical fibers

M. Evrard*[1]; A. MALDONADO[1]; F. Désévédavy[1]; C. Strutynski[1]; G. Gadret[1]; J. Jules[1]; C. Brachais[1]; T. Mansuryan[4]; V. Couderc[4]; M. Dutreilh-Colas[3]; S. Danto[2]; T. Cardinal[2]; P. Thomas[3]; F. Smektala[1]

1. Laboratoire ICB, Photonics, France
2. ICMCB-CNRS, France
3. IRCER, France
4. XLIM, France

5:10 PM

(GOMD-105-2021) Hybrid Glass-Metal Optical Fibers: Elaboration, Simulation And Electro-Optical Characterization

A. R. Maldonado*[1]; W. Correr[1]; M. Evrard[2]; R. Bizot[2]; F. Désévédavy[2]; J. Jules[2]; G. Gadret[2]; C. Strutynski[2]; C. Brachais[2]; Y. Messaddeq[1]; F. Smektala[2]

1. Laval University, Centre d'Optique, Photonique et Laser, Canada
2. Université de Bourgogne Franche-Comté, Laboratoire Interdisciplinaire Carnot de Bourgogne, France

GOMD S4: Glass Technology and Cross-Cutting Topics

3-D Printing of Glass

Room: Saltspring Island A/B

3:50 PM

(GOMD-106-2021) 3D-printing of chalcogenide glasses an original way for fabricating mid-infrared optical components

J. Troles*[1]; J. Carcreff[1]; F. Cheviré[1]; R. Lebullenger[1]; A. GAUTIER[1]; R. Chahal[2]; J. Adam[1]; L. Calvez[1]; C. Boussard-Pledel[1]; L. Brilland[2]; F. Charpentier[3]; H. Tariel[3]; G. Renversez[4]

1. University of Rennes 1, France
2. SelenOptics, France
3. Diafir, France
4. Aix Marseille Univ, France

4:10 PM

(GOMD-107-2021) Development of functionalized phosphate materials for extrusion-based 3D-printing

S. Kaser*[1]; R. Zaki[1]; C. Strutynski[1]; S. Danto[1]; S. H. Santagneli[2]; M. Dussauze[3]; D. Bernard[1]; M. Faessel[4]; J. Sabatier[5]; S. H. Messaddeq[6]; Y. Messaddeq[6]; T. Cardinal[1]

1. ICMCB-CNRS, France
2. UNESP, Instituto de Quimica, Brazil
3. ISM-CNRS, France
4. IUT Bordeaux, Technoshop Coh@bit, France
5. IMS-CNRS, France
6. COPL, Canada

GOMD Posters On Demand

(GOMD-SP041-2021) Thermal Conductivity of Zeolitic Imidazolate Framework Glasses

S. S. Sørensen*[1]; M. B. Østergaard[1]; M. Stepniewska[1]; H. Johra[2]; Y. Yue[1]; M. M. Smedskjaer[1]

1. Aalborg University, Department of Chemistry and Bioscience, Denmark
2. Aalborg University, Department of the Built Environment, Denmark

(GOMD-SP043-2021) Comparisons of atomic arrangements in binary borate glasses with oxygen and modifier packing fractions

S. Weiss*[1]; I. Slagle[1]; S. Feller[1]

1. Coe College, Physics, USA

(GOMD-SP044-2021) Spectroscopic study of the structure of alkaline alumino-silicate glasses

J. L. Hunt*[1]; D. Möncke[1]; R. Youngman[2]; A. Herrmann[1]

1. Alfred University, USA
2. Corning Incorporated, USA

(GOMD-SP045-2021) Structures and optical properties of silica glass hot-compressed in solid medium

Y. Tanabe*[1]; M. Jeem[1]; M. Fujioka[1]; K. Akatsuka[2]; S. Kohara[3]; M. Ono[1]; J. Nishii[1]

1. Hokkaido University, Research Institute for Electronic Science, Japan
2. AGC CO.LTD, Japan
3. National Institute for Materials Science (NIMS), Japan

(GOMD-P046-2021) Densification of oxide glasses at different time-temperature-pressure routes

X. Ren*[1]; M. Bockowski[2]; M. M. Smedskjaer[1]; L. R. Jensen[3]; R. Youngman[4]

1. Aalborg University, Denmark, Department of Chemistry and Bioscience, Denmark
2. Institute of High-Pressure Physics, Poland
3. Department of Materials and Production, Denmark
4. Science and Technology Division, USA

(GOMD-SP047-2021) Mechanical testing and void structure analysis of irradiated quartz using molecular dynamics simulation

Y. Hakozaki*[1]; T. Ohkubo[1]; I. Maruyama[2]; K. Murakami[3]; K. Suzuki[4]

1. Chiba University, Japan
2. Nagoya University, Japan
3. Nagaoka University of Technology, Japan
4. Mitsubishi Research Institute, Inc., Japan

(GOMD-P048-2021) Glassy primer induced fracture-toughness enhancement in polymer-metal system

B. Han[1]; T. Hao[1]; J. Boerio*[2]; Z. Hossain[1]

1. University of Delaware, USA
2. University of Cincinnati, USA

(GOMD-P050-2021) Influence of Post-indentation Recovery on the Hardness of Oxide Glasses

K. S*[1]; N. N. Gosvami[1]; N. Krishnan[2]

1. Indian Institute of Technology Delhi, Department of Materials Science and Engineering, India
2. Indian Institute of Technology Delhi, Department of Civil Engineering, India

(GOMD-P051-2021) Assessing Scaled Melters for Nuclear Waste Vitrification

D. Dixon*[1]; M. Hall[1]; T. Jin[1]; C. Stewart[1]; D. Cutforth[1]; J. Lang[1]; W. Eaton[1]

1. Pacific Northwest National Lab, USA

(GOMD-P052-2021) Er doped TeO_2-$PbCl_2$-WO_3 glasses for temperature sensing

R. Yatskiv*[1]; P. Kostka[2]; J. Grym[1]; J. Zavadil[1]

1. Institute of Photonics and Electronics, Czech Academy of Sciences, Czechia
2. Laboratory of Inorganic Materials, Institute of Rock Structure and Mechanics AS CR, Czechia

(GOMD-SP053-2021) Impact of modifier-rich coatings on the ionic transport in silicate glasses

C. Nieves*[1]; M. Yuan[2]; E. Furman[3]; M. Lanagan[3]; P. Clem[1]

1. Sandia National Laboratories, USA
2. Pennsylvania State University, Materials Science and Engineering, USA
3. Materials Research Institute, Pennsylvania State University, USA

(GOMD-SP054-2021) Formation of Continuous Lithium Niobate Single Crystals in Lithium Niobosilicate Glass Via Femtosecond Laser Irradiation

J. Franklin*[1]; C. Barker[2]; S. McAnany[3]; D. Nolan[4]; B. Aitken[4]; V. Dierolf[2]; H. Jain[3]; K. J. Veenhuizen[1]

1. Lebanon Valley College, Physics, USA
2. Lehigh University, Physics, USA
3. Lehigh University, Materials Science and Engineering, USA
4. Corning Incorporated, USA

(GOMD-P055-2021) Phase-selective laser-induced crystallization of lead bismuth gallate glass

O. Magneson*[1]; C. Barker[2]; A. Hearsey[1]; J. Marsh[1]; H. Jain[3]; V. Dierolf[2]; K. J. Veenhuizen[1]

1. Lebanon Valley College, Physics, USA
2. Lehigh University, Physics, USA
3. Lehigh University, Materials Science and Engineering, USA

(GOMD-P056-2021) Synthesis and characterization of phosphate glasses containing luminescent ions: An inorganic chemistry lab practice for undergraduate students

T. I. Rubio*[1]; C. Soterio[1]; D. dos Santos Francisco[1]; G. F. Bigotto[1]; H. Maza e Silva[1]; T. V. Ferracini[1]; R. S. Baltieri[1]; D. Manzani[1]

1. University of Sao Paulo, Chemistry, Brazil

(GOMD-P057-2021) Energy transfer microparameters between Yb^{3+}/Tm^{3+} in highly IR transparent gallate glasses

R. F. Falci*[1]; T. Guerineau[1]; Y. Messaddeq[1]

1. Université Laval, Physics and Engineering, Canada

Wednesday, December 15, 2021

GOMD S1: Fundamentals of the Glassy State

Glass Formation and Structural Relaxation I

Room: Saltspring Island C

Session Chair: Daniel Neuville, IPGP-CNRS-USPC

8:30 AM

(GOMD-108-2021) Influence of iron redox on viscosity of silicate melts (Invited)

D. R. Neuville*[1]

1. IPGP-CNRS-Université de Paris, Géomatériaux, France

9:00 AM

(GOMD-109-2021) Structural Control on the Rheological Behavior of Binary P-Se Supercooled Liquids

B. Yuan*[1]; B. Aitken[2]; S. Sen[1]

1. University of California, Davis, Materials Science and Engineering, USA
2. Corning Incorporated, USA

9:20 AM

(GOMD-110-2021) Glass Transition Temperatures of Sodium Borovanadate Glasses

M. Goeks[2]; N. Leonard*[1]; S. Feller[1]

1. Coe College, Physics, USA
2. Northern Michigan University, Physics, USA

9:40 AM

Break

Glass Formation and Structural Relaxation II

Room: Saltspring Island C

Session Chair: Daniel Neuville, IPGP-CNRS-USPC

10:20 AM

(GOMD-111-2021) Rheological Behavior of Molecular vs. Network Chalcogenide Supercooled Liquids

S. Sen*[1]; W. Zhu[1]; B. Yuan[1]; B. Aitken[2]

1. University of California, Davis, USA
2. Corning Incorporated, USA

10:40 AM

(GOMD-112-2021) Origin of Nearly Constant Loss in Metallic Glass

L. Zella*[1]; J. Moon[2]; D. Keffer[1]; T. Egami[1]

1. University of Tennessee, Materials Science and Engineering, USA
2. Oak Ridge National Laboratory, Materials Science and Technology Division, USA

GOMD S3: Optical and Electronic Materials and Devices - Fundamentals and Applications

Charge and Energy Transport I

Room: Saltspring Island A/B

Session Chair: Ana Candida M Rodrigues, Federal University of Sao Carlos

8:30 AM

(GOMD-113-2021) Thin-Film Glassy Solid Electrolytes: A New Functionality for Glass Enabling High Energy Density Li and Na Batteries (Invited)

S. W. Martin*[1]

1. Iowa State University, Materials Science & Engineering, USA

9:00 AM

(GOMD-115-2021) Structure, strong liquid behavior, and electrochemical characterization of mixed anion glasses in the series $Na_4P_2S_{7-6x}O_{4.62x}N_{0.92x}$; $0 \le x \le 0.5$

M. Olson*[1]

1. Iowa State University, MSE, USA

9:20 AM

(GOMD-116-2021) Glass-forming ability and ionic conductivity of glasses and glass-ceramics from the new $Na_{3.4}Al_xSc_{2-x}Si_{0.4}P_{2.6}O_{12}$ ($1.0 \le x \le 1.7$) Nasicon series

J. Ortiz-Mosquera[2]; A. Nieto-Muñoz[2]; A. Rodrigues*[1]

1. Federal University of Sao Carlos, Materials Engineering, Brazil
2. Federal University of Sao Carlos, Programa de Pós-graduação em Ciência e Engenharia de Materiais, Brazil

10:00 AM

Break

Charge and Energy Transport II

Room: Saltspring Island A/B

Session Chair: Ana Candida M Rodrigues, Federal University of Sao Carlos

10:20 AM

(GOMD-117-2021) On the correlation between atomic-level structure and ionic transport of lithium phosphorous oxynitride amorphous electrolyte (Invited)

R. B. Nuernberg*[1]; A. Landry[1]; R. Bayzou[2]; O. Lafon[2]; F. Le Cras[3]; B. Pecquenard[1]

1. ICMCB-CNRS, France
2. University Lille, CNRS, France
3. University Grenoble, CEA, LITEN, DEHT, France

10:50 AM

(GOMD-118-2021) Patterning of the Surface Electrical Potential on Chalcogenide Glasses by a Thermoelectrical Imprinting Process

M. Dussauze*[1]; L. D. Karam[1]; R. Alvarado Meza[1]; K. A. Richardson[3]; A. Pradel[2]; A. Piarristeguy[2]

1. CNRS / Université de Bordeaux, France
2. University Montpellier, France
3. University of Central Florida, USA

11:10 AM

(GOMD-119-2021) The incorporation of LiPON in the mixed oxy-sulfide-nitride solid electrolyte: 0.58 Li2S + 0.315 SiS2 + 0.105 [(1-y) $Li_{0.67}PO_{2.83}$ + y $LiPO_{2.53}N_{0.31}$]

V. M. Torres*[1]; P. Philipp[1]; S. Kmiec[1]; S. W. Martin[1]

1. Iowa State University, Materials Science and Engineering, USA

11:30 AM

(GOMD-120-2021) Structure and electrochemical properties of 0.6 Li_2S + 0.3 SiS_2 + $LiP_{1-x}Al_xO_{3-x}$ glassy solid-state electrolytes

J. Wheaton*[1]; S. Leland[1]; S. Kmiec[1]; S. W. Martin[1]

1. Iowa State University, Materials Science and Engineering, USA

Glass-based Optical Devices I

Room: Pender Island

Session Chair: Tushar Sanjay Karnik, Massachusetts Institute of Technology

8:30 AM

(GOMD-121-2021) Progress in Mid-Infrared Supercontinuum Generation in Chalcogenide Glass Fibers (Invited)

S. Dai*[1]

1. Ningbo University, Laboratory of Infared materials and devices, China

9:00 AM

(GOMD-122-2021) Monolithic chalcogenide glass waveguide integrated interband cascaded laser

H. Lin*[2]; C. Kim[3]; L. Li[4]; M. Kim[3]; W. Bewley[3]; C. D. Merritt[3]; C. L. Canedy[3]; I. Vurgaftman[3]; A. Agarwal[1]; K. A. Richardson[5]; J. Hu[1]; J. R. Meyer[3]

1. Massachusetts Institute of Technology, Materials Science and Engineering, USA
2. Zhejiang University, College of Information Science & Electronic Engineering, China
3. Naval Research Laboratory, Code 5613, USA
4. Westlake University, China
5. University of Central Florida, The College of Optics & Photonics, USA

9:20 AM

(GOMD-123-2021) Photonic on-chip chalcogenide long-wave infrared gas sensor

T. Karnik*[1]; Q. Du[1]; K. Chen[1]; M. Kang[2]; K. A. Richardson[2]; J. Hu[1]

1. Massachusetts Institute of Technology, Materials Science and Engineering, USA
2. University of Central Florida, College of Optics and Photonics, USA

9:40 AM

(GOMD-124-2021) Chalcogenide glass photonic chip-based tunable ultrafast Raman soliton source

Q. Du*[1]; z. li[2]; C. Wang[2]; J. Zou[2]; K. A. Richardson[3]; Z. Cai[2]; J. Hu[1]; Z. Luo[2]

1. Massachusetts Institute of Technology, Materials Science and Engineering, USA
2. Xiamen University, China
3. University of Central Florida, USA

10:00 AM

Break

Glass-based Optical Devices II

Room: Pender Island

Session Chair: Myungkoo Kang, University of Central Florida

10:20 AM

(GOMD-125-2021) Next-generation phase change materials for programmable integrated photonics (Invited)

O. Muskens*[1]

1. University of Southampton, United Kingdom

10:50 AM

(GOMD-126-2021) Phase-change-material metasurface for nonlinear mid-infrared frequency conversion

M. Shalaginov*[1]; F. Yue[2]; R. Piccoli[2]; T. Gu[1]; K. A. Richardson[3]; R. Morandotti[2]; J. Hu[1]; L. Razzari[2]

1. Massachusetts Institute of Technology, USA
2. INRS-EMT, Canada
3. University of Central Florida, USA

11:10 AM

(GOMD-127-2021) Electro-thermal switching of optical phase-change materials using graphene

C. Ríos*[1]; Y. Zhang[1]; M. Shalaginov[1]; M. Kang[2]; K. A. Richardson[2]; T. Gu[1]; J. Hu[1]

1. Massachusetts Institute of Technology, Materials Science and Engineering, USA
2. University of Central Florida, CREOL, USA

11:30 AM

(GOMD-128-2021) All-optically reconfigurable frequency-selective resonance splitting in chalcogenide microring resonators

B. Shen*[1]; H. Lin[2]; S. Sharif Azadeh[3]; J. Nojic[1]; M. Kang[4]; F. Merget[1]; K. A. Richardson[4]; J. Hu[5]; J. Witzens[1]

1. Institute of Integrated Photonics, RWTH Aachen University, Germany
2. College of Information Science & Electronic Engineering, Zhejiang University, China
3. Max Planck Institute of Microstructure Physics, NINT Department, Germany
4. College of Optics and Photonics, University of Central Florida, USA
5. Massachusetts Institute of Technology, Department of Materials Science & Engineering, USA

11:50 AM

(GOMD-129-2021) Unveiling True Three-Dimensional Microstructural Evolution in Chalcogenide Nanocomposites as a Route to Advanced Infrared Functionality

M. Kang*[1]; I. Martin[2]; R. Sharma[1]; C. Blanco[1]; M. Shalaginov[3]; S. Antonov[4]; T. Prosa[2]; D. Larson[2]; J. Hu[3]; H. Francois-Saint-Cyr[5]; K. A. Richardson[1]

1. University of Central Florida, CREOL, College of Optics & Photonics, USA
2. CAMECA Instruments Inc, USA
3. Massachusetts of Institute of Technology, USA
4. Max-Planck-Institut für Eisenforschung GmbH, Germany
5. Thermo Fisher Scientific, USA

GOMD S5: Glass Education

Education and Professional Development

Room: Saturna Island

Session Chair: Mathieu Hubert, Corning Incorporated

8:30 AM

(GOMD-130-2021) How to get the most out of your ACerS Membership (Invited)

M. Mecklenborg*[1]

1. The American Ceramic Society, USA

9:00 AM

(GOMD-131-2021) Engineering Superheroes: A Multi-Platform Education Initiative (Invited)

R. Castro*[1]

1. University of California, Davis, Material Science & Engineering, USA

9:30 AM

(GOMD-132-2021) Challenges and opportunities for glass courses at Corning

M. Hubert*[1]; D. McEnroe[1]; T. St Clair[1]; C. Hogue[1]

1. Corning Incorporated, USA

9:50 AM

(GOMD-133-2021) North American Summer School on Photonic Materials (NASSPM): An experiment on incorporating laboratory experience in short courses

H. Jain*[1]; K. A. Richardson[3]; Y. Messaddeq[2]

1. Lehigh University, Institute for Functional Materials and Devices, USA
2. Laval University, Canada
3. University of Central Florida, USA

10:10 AM

(GOMD-134-2021) Pasteur Partners PhD (P3) - an alternative to traditional doctorate in USA

H. Jain*[1]; V. Dierolf[1]; A. Jagota[2]; L. Columba[2]; K. Zimmerman[2]

1. Lehigh University, Institute for Functional Materials and Devices, USA
2. Lehigh University, USA

Education and Professional Development Panel Discussion

Room: Saturna Island

10:30 AM

Panel Discussion on Education

Thursday, December 16, 2021

GOMD S1: Fundamentals of the Glassy State

Topology and Rigidity I

Room: Saltspring Island C

10:20 AM

(GOMD-137-2021) Topological Origin of the Low Thermal Expansion of Glassy Silica

Q. Zhou*[1]; M. Bauchy[1]; Y. Shi[2]

1. University of California, Los Angeles, Civil and Environmental Engineering, USA
2. Corning Incorporated, USA

10:40 AM

(GOMD-138-2021) Energy Landscape Signature of the Flexible-to-Rigid Transition in Network Glasses

Z. Zhao*[1]; H. Liu[1]; L. Tang[1]; M. Bauchy[1]

1. University of California, Los Angeles, Civil and Environmental Engineering, USA

11:00 AM

(GOMD-139-2021) Structural analysis for high-temperature levitated melts

S. Kohara*[1]

1. National Institute for Materials Science (NIMS), Japan

Glass under Extreme Conditions I

Room: Saltspring Island A/B

Session Chair: Nadja Lonnroth, Corning Incorporated

10:20 AM

(GOMD-140-2021) Atomistic Origins behind the Temporal Optical Evolution of Ge-Sb-S Chalcogenide Glasses upon Gamma Irradiation for Use in Extreme Environment

M. Kang*[1]; B. Sohn[2]; Q. Du[3]; D. Ma[3]; R. Pujari[3]; L. Sisken[1]; C. Blanco[1]; C. Goncalves[1]; C. Arias[1]; A. Yadav[1]; S. Novak[1]; C. Schwarz[4]; R. M. Gaume[1]; J. Hu[3]; A. Agarwal[3]; D. T. Tan[2]; K. A. Richardson[1]

1. University of Central Florida, CREOL, College of Optics & Photonics, USA
2. Singapore University of Technology and Design, Singapore
3. Massachusetts Institute of Technology, USA
4. Ursinus College, USA

10:40 AM

(GOMD-141-2021) Effect of ion radiation on the indentation response of oxide glasses

X. Ren*[1]; M. M. Smedskjaer[1]; H. Peng[2]; T. Du[1]

1. Aalborg University, Denmark, Department of Chemistry and Bioscience, Denmark
2. Lanzhou Uinversity, China

GOMD S2: Glass and Interactions with Its Environment - Fundamentals and Applications

Nuclear Waste Mobilization I

Room: Moresby Island

Session Chairs: Ming Tang, Clemson University; Natalie Smith-Gray, Washington State University

10:20 AM

(GOMD-142-2021) Predicting Zeolites' Stability during the Corrosion of Nuclear Waste Immobilization Glasses

B. Zhen-Wu[1]; J. V. Ryan[2]; G. Sant[1]; M. Bauchy*[1]

1. University of California, Los Angeles, Civil and Environmental Engineering Department, USA
2. Pacific Northwest National Lab, USA

10:40 AM

(GOMD-143-2021) Machine learning-based prediction of the corrosion behavior of nuclear waste glasses

Y. Song*[1]; J. Vienna[2]; J. Ryan[2]; M. Bauchy[1]

1. University of California, Los Angeles, Civil and Environmental Engineering, USA
2. Pacific Northwest National Laboratory, USA

11:00 AM

(GOMD-144-2021) Predicting nepheline precipitation in waste glasses using ternary submixture model and machine learning

X. Lu*[1]; I. Sargin[2]; J. Vienna[1]

1. Pacific Northwest National Lab, Energy and Environment Directorate, USA
2. Washington State University, USA

Surfaces and Coatings I

Room: Cortes Island

Session Chair: Joy Banerjee, Corning Incorporated

10:20 AM

(GOMD-145-2021) Surface analysis with vibrational spectroscopy – Correlations between vibrational spectral features and silicate glass network structures (Invited)

S. H. Kim*[1]

1. Pennsylvania State University, Chemical Engineering & Materials Science, USA

10:50 AM

(GOMD-146-2021) Water adsorption isotherm on glass and its impact on interfacial adhesion

Y. Lin*[1]; J. Banerjee[2]; N. J. Smith[2]; G. Agnello[2]; W. Walczak[2]; R. G. Manley[2]; S. H. Kim[1]

1. Pennsylvania State University, Chemical Engineering, USA
2. Corning Incorporated, USA

11:10 AM

(GOMD-147-2021) Liquid Entrenched Smooth Surface (LESS) - A New Class of Slippery Surface on Glass and Ceramics (Invited)

T. Wong*[1]

1. The Pennsylvania State University, Department of Mechanical Engineering, USA

11:40 AM

Open Q&A

GOMD S3: Optical and Electronic Materials and Devices - Fundamentals and Applications

Laser Interactions with Glass I

Room: Saturna Island

Session Chair: Gözden Torun, EPFL

10:20 AM

(GOMD-148-2021) Thermal erasure of nanopores induced by femtosecond laser in silicate glasses

M. Cavillon*[1]; Y. Wang[1]; B. Poumellec[1]; M. Lancry[1]

1. University Paris Saclay, France

10:40 AM

(GOMD-149-2021) Erasure mechanisms of Type II nanogratings in silica

Y. Wang*[1]; M. Cavillon[1]; B. Poumellec[1]; M. Lancry[1]

1. university of paris saclay, France

11:00 AM

(GOMD-150-2021) Controlled orientation of $LiNbO_3$ nanocrystals induced in Li_2O – Nb_2O_5 – SiO_2 – B_2O_3 glasses by femtosecond laser irradiation

E. Muzi[1]; M. Cavillon*[1]; M. Lancry[1]; B. Poumellec[1]; D. Janner[2]

1. Université Paris-Saclay, ICCMO, France
2. Politecnico di Torino, DISAT, Italy

11:20 AM

(GOMD-151-2021) Dependence of lattice rotation rate on the direction of single crystal crystal growth in glass

E. J. Musterman*[1]; V. Dierolf[2]; H. Jain[1]

1. Lehigh University, Materials Science and Engineering, USA
2. Lehigh University, Physics, USA

GOMD S1: Fundamentals of the Glassy State

Glass Crystallization and Glass-Ceramics I

Room: Pender Island

Session Chair: Matthew McKenzie, Corning Incorporated

1:30 PM

(GOMD-152-2021) Phase-field modeling of crystal nucleation in undercooled liquids (Invited)

L. Granasy*[1]; F. Podmaniczky[1]; T. Pusztai[1]

1. Wigner Research Centre for Physics, Institute for Solid State Physics and Optics, Hungary

2:00 PM

(GOMD-153-2021) Nanoscale microstructure and chemistry of transparent gahnite glass-ceramics revealed by atom probe tomography

A. Mitchell*[1]; D. Perea[2]; M. Wirth[2]; J. Ryan[2]; R. Youngman[3]; A. Rezikyan[3]; A. Fahey[3]; D. Schreiber[2]

1. Corning Incorporated, Glass Research, USA
2. Pacific Northwest National Lab, USA
3. Corning Incorporated, Characterization Sciences, USA

2:20 PM

(GOMD-154-2021) Low Temperature Nucleation Anomaly in Silicate Glasses - Is it Real? (Invited)

K. F. Kelton*[1]; X. Xia[3]; M. E. McKenzie[2]; R. Youngman[2]

1. Washington University, Physics, USA
2. Corning Incorporated, USA
3. Washington University, USA

2:50 PM

Break

Glass Crystallization and Glass-Ceramics II

Room: Pender Island

Session Chair: Matthew McKenzie, Corning Incorporated

3:10 PM

(GOMD-155-2021) In-situ and ex-situ characterization of crystallization in silicate mold fluxes by the Hot Thermocouple Technique

P. Porter*[1]; R. J. O'Malley[1]; R. Brow[1]

1. Missouri University of Science & Technology, Materials Science and Engineering, USA

3:30 PM

(GOMD-156-2021) Advances in nucleation modeling: A case study of soda lime silicate

M. E. McKenzie*[1]; R. Welch[2]; F. Chen[3]; X. Xia[3]; J. C. Mauro[2]; R. Youngman[1]; K. F. Kelton[3]

1. Corning Incorporated, Science & Technology, USA
2. Pennsylvania State University, USA
3. Washington University in St Louis, USA

3:50 PM

(GOMD-157-2021) Understanding Crystallization Though Atomistic Simulations (Invited)

C. Wilkinson*[1]; J. C. Mauro[1]

1. Pennsylvania State University, USA

4:20 PM

(GOMD-158-2021) Compositional Effects on the Crystallization of BCZT Perovskite Glass-Ceramics

D. K. Dobesh*[1]; M. Cicconi[1]; D. de Ligny[1]

1. Friedrich-Alexander-Universityet Erlangen-Neurnberg, Glass, Germany

Topology and Rigidity II

Room: Saltspring Island C

1:30 PM

(GOMD-159-2021) Topology-Informed Machine Learning for Predicting Glass Stiffness

K. Yang*[1]; B. Yang[2]; N. Krishnan[3]; C. G. Hoover[4]; M. M. Smedskjaer[5]; M. Bauchy[1]

1. UCLA, Civil and Environmental Engineering, USA
2. UCLA, Computer Science, USA
3. Indian Institute of Technology Delhi, Civil Engineering, India
4. Arizona State University, School of Sustainable Engineering and the Built Environment, USA
5. Aalborg University, Department of Chemistry and Bioscience, Denmark

1:50 PM

(GOMD-160-2021) Understanding Medium-Range Order Structure of Glasses using Persistent Homology

S. S. Sørensen*[2]; C. A. Biscio[3]; M. Bauchy[1]; L. Fajstrup[3]; M. M. Smedskjaer[2]

1. University of California, Los Angeles, Department of Civil and Environmental Engineering, USA
2. Aalborg University, Department of Chemistry and Bioscience, Denmark
3. Aalborg University, Department of Mathematical Sciences, Denmark

2:10 PM

(GOMD-161-2021) Machine learning-based rapid fly ash screening for greener concrete production

Y. Song*[1]; G. Sant[1]; M. Bauchy[1]

1. University of California, Los Angeles, Civil and Environmental Engineering, USA

Glass under Extreme Conditions II

Room: Saltspring Island A/B

Session Chair: Dominique de Ligny, University Erlangen-Nürnberg

1:30 PM

(GOMD-162-2021) Insights into the contribution of optical spectroscopies (Brillouin, Raman) to the study of v-SiO_2 at high pressure (Invited)

C. Weigel*[1]; M. Foret[1]; B. Hehlen[1]; S. Clément[1]; A. Polian[2]; R. Vacher[1]; B. Ruffle[1]

1. University of Montpellier, France
2. University Paris 6, France

2:00 PM

(GOMD-163-2021) A Multi-faceted Experimental Approach to Studying Structural Modification in Silicate Melts and Glasses under High-Pressure (Invited)

Y. Ryu*[1]; T. Yu[1]; C. Prescher[2]; S. Chariton[1]; E. Greenberg[1]; T. Officer[1]; F. Shi[1]; V. Prakapenka[1]; S. Tkachev[1]; P. Eng[1]; J. Stubbs[1]; P. Dera[3]; H. Watson[4]; M. L. Rivers[1]; Y. Wang[1]

1. The University of Chicago, Center for Advanced Radiation Sources, USA
2. Deutsches Elektronen-Synchrotron, Germany
3. University of Hawaii Manoa, Hawaii Institute of Geophysics and Planetology, USA
4. Union College, Department of Physics and Astronomy, USA

2:30 PM

(GOMD-164-2021) Structure and Properties of the Silica glass Pressure-quenched at Liquid phase

M. Ono*[1]; Y. Tanabe[1]; K. Zagarzusem[1]; M. Jeem[1]; M. Fujioka[1]; J. Nishii[1]

1. Hokkaido University, Research Institute for Electronic Science, Japan

Glass under Extreme Conditions III

Room: Saltspring Island A/B

Session Chair: Akihiro Yamada, University of Shiga Prefecture

3:20 PM

(GOMD-165-2021) Glass Processing Under Electromagnetic Extreme Conditions (Invited)

S. K. Sundaram*[1]

1. Alfred University, Inamori School of Engineering, USA

3:50 PM

(GOMD-166-2021) Effect of femtosecond laser exposure on aluminosilicate glass

M. Lesik*[1]; G. Torun[1]; N. Lonnroth[2]; Y. Bellouard[1]

1. Ecole Polytechnique Fédérale de Lausanne, STI/IMT, Switzerland
2. Huawei Technologies, Finland

4:10 PM

(GOMD-167-2021) Study of Silica Glass Structural Properties Under Compression Shockwave using Reactive Force Field: Molecular Dynamics Simulation

V. Bihani[1]; A. Yadav*[1]; N. Krishnan[1]

1. Indian Institute of Technology Delhi, Department of Civil Engineering, India

4:30 PM

(GOMD-168-2021) Densification of silica glass after grinding in planetary ball mills: Evidence of shear influence on the atomic structure

J. Struczynski[2]; S. Romeis[2]; J. Schmidt[2]; W. Peukert[2]; D. de Ligny*[1]

1. University Erlangen-Nürnberg, Materials Sciences and Engineering, Germany
2. University of Erlangen-Nuremberg, Department Chemie- und Bioingenieurwesen, Germany

GOMD S2: Glass and Interactions with Its Environment - Fundamentals and Applications

Nuclear Waste Mobilization II

Room: Moresby Island

Session Chairs: Mathieu Bauchy, University of California, Los Angeles; Xiaonan Lu, Pacific Northwest National Lab

1:30 PM

(GOMD-169-2021) Understanding the Effects of Various Anions and Cations on Sulfate Retention and Solubility Within Simulated Low Active Waste Glasses

N. J. Smith-Gray*[2]; N. Stone-Weiss[2]; J. M. Lonergan[1]; E. Nienhuis[1]; J. Marcial[1]; J. McCloy[2]

1. Pacific Northwest National Lab, USA
2. Washington State University, Materials Science and Engineering, USA

2:10 PM

Break

Nuclear Waste Mobilization III

Room: Moresby Island

Session Chairs: John Vienna, Pacific Northwest National Lab; Yu Song, University of California, Los Angeles

2:50 PM

(GOMD-171-2021) Low Melting Temperature Stannous Phosphate Glass For Efficient Salt Waste Form Solution

M. Tang*[1]

1. Clemson University, Department of Materials Science & Engineering, USA

3:10 PM

(GOMD-172-2021) Mathematical modeling of cold cap in nuclear waste melter

P. Ferkl*[1]; P. Hrma[2]; J. Klouzek[3]; J. Marcial[1]; A. A. Kruger[4]; R. Pokorny[3]

1. PNNL, USA
2. AttainX, USA
3. UCT Prague, Czechia
4. Department of Energy, Office of River Protection, USA

3:30 PM

(GOMD-173-2021) Effect of Irradiation on the Structure and Properties of Borosilicate Glasses

R. Kumar*[1]; A. Jan[1]; N. Krishnan[1]

1. Indian Institute of Technology Delhi, Department of Civil Engineering, India

3:50 PM

(GOMD-174-2021) Investigation of physical, optical and corrosion properties of nuclear waste glass simulants and the effects of gamma-ray irradiation

J. A. Jiménez*[1]; C. L. Crawford[2]

1. Augusta University, Chemistry & Physics, USA
2. Savannah River National Lab, USA

Surfaces and Coatings II

Room: Cortes Island

Session Chair: Gabriel Agnello, Corning Incorporated

1:30 PM

(GOMD-175-2021) Analyzing the Outer Atomic Layer using Low Energy Ion Scattering (LEIS) (Invited)

T. Grehl*[1]

1. IONTOF GmbH, Germany

2:00 PM

(GOMD-176-2021) Low Energy Ion Scattering for Quantification of Surface Density of Silanols on Fused Silica Glasses

T. Gholian Avval*[1]; S. Prusa[2]; H. Brongersma[3]; M. R. Linford[1]

1. Brigham Young University, Chemistry and Biochemistry, USA
2. Brno University of Technology, Mechanical Engineering, Czechia
3. Calipso, CEO, Netherlands

2:20 PM

(GOMD-177-2021) Dispersion-derived Tribological Coatings to Enhance Scratch Resistance of Glasses

S. Sahoo*[1]; O. P. Khatri[2]; N. Krishnan[3]; N. N. Gosvami[1]

1. Indian Institute of Technology Delhi, Materials Science and Engineering, India
2. CSIR - Indian Institute of Petroleum, India
3. Indian Institute of Technology Delhi, Civil Engineering, India

2:40 PM

(GOMD-178-2021) Subsurface Structural Change of Silica upon Nanoscale Physical Contact: Chemical Plasticity beyond Topographic Elasticity

S. H. Kim*[1]

1. Pennsylvania State University, Chemical Engineering & Materials Science, USA

3:00 PM

Open Q&A

3:10 PM

Break

Surfaces and Coatings III

Room: Cortes Island

Session Chair: Matthew Linford, Stanford University

3:30 PM

(GOMD-179-2021) A mechanistic approach to understanding the effects of exposure to variable acidic treatments on the intrinsic properties of flat glass surfaces (Invited)

G. Agnello*[1]; D. Cabrera[1]; C. Simons[1]; N. J. Smith[1]; J. Banerjee[1]; C. V. Cushman[1]; A. Antony[1]; H. Park[1]

1. Corning Incorporated, USA

4:00 PM

(GOMD-180-2021) Structural analysis of sputtered amorphous silica thin films a Raman spectroscopy investigation

S. ben Khemis*[1]; L. Cormier[1]; E. Burov[2]; H. Montigaud[2]; E. Gouillart[2]

1. Sorbonne Université / UPMC, IMPMC, France
2. Saint Gobain Recherche, Laboartoire Mixte Saint-Gobain/CNRS, France

4:20 PM

(GOMD-181-2021) Ab initio modeling of the electronic structure at multicomponent silicate glass surfaces

A. Antony*[1]; S. Goyal[1]; D. Thelen[1]; R. G. Manley[1]

1. Corning Incorporated, USA

4:40 PM

Open Q&A

GOMD S3: Optical and Electronic Materials and Devices - Fundamentals and Applications

Laser Interactions with Glass II

Room: Saturna Island

Session Chair: Maxime Cavillon, University Paris Saclay

1:30 PM

(GOMD-182-2021) Effect of polarization and surface effects on the orientation and growth of Sb_2S_3 crystals on the surface of Sb-S-I glass

C. Au-Yeung*[1]; D. Savytskii[1]; K. J. Veenhuizen[2]; V. Dierolf[1]; H. Jain[1]

1. Lehigh University, USA
2. Lebanon Valley College, Physics, USA

1:50 PM

(GOMD-183-2021) Effect of Glass Composition on the Laser-Induced Nucleation and Growth of Lithium Niobate Crystals in Lithium Niobosilicate Glass

K. J. Veenhuizen*[1]; C. Barker[2]; J. Franklin[1]; S. McAnany[3]; D. Nolan[4]; B. Aitken[4]; V. Dierolf[2]; H. Jain[3]

1. Lebanon Valley College, Physics, USA
2. Lehigh University, Physics, USA
3. Lehigh University, Materials Science and Engineering, USA
4. Corning Incorporated, USA

2:10 PM

(GOMD-184-2021) Recent advances in Mid-Infrared germano-gallate glasses: Fiber drawing and Direct laser writing

T. Guerineau*[2]; R. Ferreira Falci[2]; J. Lapointe[2]; J. Lafreniere-Greig[2]; L. Loi[3]; L. Canioni[3]; Y. Petit[3]; R. Vallée[2]; T. Cardinal[1]; Y. Messaddeq[2]

1. CNRS - ICMCB, France
2. Université Laval, Center for Optics, Photonics and Lasers, Canada
3. University Bordeaux, CELIA, France

2:30 PM

(GOMD-185-2021) Investigating femtosecond laser interaction with tellurite glass family

G. Torun*[1]; T. Kishi[3]; D. Pugliese[2]; D. Milanese[4]; E. Descrovi[2]; Y. Bellouard[1]

1. EPFL, Switzerland
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2:50 PM

(GOMD-186-2021) Sub-micrometric femtosecond laser structuring in silver-free and silver-containing gallo-germanate glasses

R. Zaiter*[1]; T. Guerineau[1]; T. Cardinal[1]; Y. Petit[2]; B. Sapaly[3]; J. Harb[2]; L. Canioni[2]; M. Lancry[3]

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2. Centre d'Études Lasers Intenses et Applications (CELIA) – Centre National de la Recherche Scientifique : UMR5107, Commissariat à l'énergie atomique et aux énergies alternatives : DAM/CESTA, Université Sciences et Technologies - Bordeaux 1, France
3. Institut de Chimie Moléculaire et des Matériaux d'Orsay (ICMMO) – Université Paris Saclay, France

3:10 PM

Break

Laser Interactions with Glass III

Room: Saturna Island

Session Chair: Theo Guerineau, University Laval

3:30 PM

(GOMD-187-2021) Formation of Nanoparticles in Glass Under Femtosecond Laser Irradiation

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3. Lebanon Valley College, Physics, USA
4. Corning Incorporated, USA
5. Lehigh University, International Materials Institute for New Functionality in Glass, USA

3:50 PM

(GOMD-188-2021) Structure-Terahertz Properties-Ultrafast Laser Irradiation Correlations in Borosilicate, Tellurite, and Chalcogenide Glasses

N. Tostanoski*[1]; S. K. Sundaram[1]

1. Alfred University, USA

4:10 PM

(GOMD-189-2021) Gallium Telluride Phase Change Materials for Nonvolatile Memory and Neuromorphic Computing

E. Bychkov*[1]; A. Tverjanovich[4]; C. J. Benmore[3]; M. Khomenko[2]

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2. Russian Academy of Science, IPLIT, Russian Federation
3. Argonne National Lab, APS, USA
4. St Petersburg University, Chemistry, Russian Federation

4:30 PM

(GOMD-190-2021) A method for mapping localized changes in the oxidation state of elements in glass with sub-micron resolution

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