

Marriott Downtown at CF Toronto Eaton Centre Hotel
Toronto, Canada

JULY 21 – 26, 2019

ceramics.org/gfmat-2-and-bio-4

2nd Global Forum on Advanced Materials and Technologies for Sustainable Development (GFMAT-2)

4th International Conference on Innovations in Biomaterials, Biomanufacturing, and Biotechnologies (Bio-4)

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CONFERENCE
GUIDE

Organized by ACerS



Bio-4 is organized by ACerS and its Bioceramics Division and endorsed by:



BMES BIOMEDICAL
ENGINEERING
SOCIETY

IAOC

INTERNATIONAL ACADEMY OF
CERAMIC IMPLANTOLOGY

Reimagining Glass

Glass Formulation • Custom Melting • Coating
Spheroidization • Milling & Screening





WELCOME

The American Ceramic Society welcomes you to the 2nd Global Forum on Advanced Materials and Technologies for Sustainable Development (GFMAT-2) and the 4th International Conference on Innovations in Biomaterials, Biomanufacturing and Biotechnologies (Bio-4).

GFMAT-2, whose 1st meeting was held also in Toronto, Canada, (2016) in conjunction with HTC9, addresses various key issues, challenges and opportunities in a wide variety of advanced materials and technologies that are critically needed for a sustainable societal development. Following the meetings held in Raleigh, North Carolina (2012), Columbus, Ohio (2014), and Chicago, Illinois (2016), Bio-4 focuses on developing cutting-edge technologies into marketable products through collaboration among researchers, professionals and manufacturers.

The emphasis of these concurrent meetings lies on recent societal challenges in the new millennium including, but not being limited to, health, energy, and environmental aspects. In addition, novel materials design paradigms are needed for fabricating materials with multifunctional applications, which can bring game changing solutions to some of the problems facing society. This event aims to bring together researchers and scientists in different fields from around the globe to discuss new approaches to addressing these challenges, and to provide a platform for intensive exchange of ideas, knowledge, and network building.

Our special thanks to conference sponsors, Mo-Sci Corporation, NGK SPARK PLUG CO.,LTD., Shanghai Chenhua Science Technology Corp., Ltd., Wiley, and Elsevier. The American Ceramic Society thanks you for participating in GFMAT-2/Bio-4 and hope you benefit from your time in Toronto.

ORGANIZING CHAIRS



Tatsuki Ohji
General Chair
AIST, Japan



Jingyang Wang
GFMAT-2 Lead Chair
Institute of Metal
Research, China



Palani Balaya
GFMAT-2 Co-chair
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Thomas Webster
Bio-4 Co-chair
Northeastern University,
USA



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Final Program

GFMAT-2	5 – 24
BIO-4	25 – 32

Mo-Sci Student Poster Awards

Tuesday, July 23 | 5:30 – 7:30 p.m.

The Global Graduate Researcher Network (GGRN) is hosting Student Poster Awards sponsored by Mo-Sci. Current graduate and undergraduate students presenting a poster are eligible for consideration for the Mo-Sci Student Poster Award. Student posters will be reviewed by technical reviewers from the ACeS community.

Three Mo-Sci Student Poster Awards of \$200 each will be given to the top three poster presenters. All awards will be announced at the conference dinner on Thursday, July, 25, 7 to 9 p.m.

B1. Innovations in Glasses for Healthcare Applications: A Symposium in Honor of Delbert E. Day

July 23 | York A/B



This symposium, in honor of Delbert E. Day, will cover progress and innovations in the fundamentals, technology and application of glasses in healthcare (bioglasses). In addition to recognizing the enormous contribution of Dr. Day to this area, the symposium will provide a forum for researchers to discuss their work in similar and related topical areas. Covering both melt-derived and sol-gel glasses, session topics include: fundamentals in the design, structure and reactivity of bioglasses; silicate, borate and phosphate bioglasses in the particulate, fibrous and porous solid forms; glass-ceramics and composites; bioglasses as delivery devices for ions and biomolecules in enhancing osteogenesis, angiogenesis and bacterial resistance; biocompatibility phenomena related to bioglasses; and biomedical applications of glasses and glass-ceramics.

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SCHEDULE AT A GLANCE

Sunday, July 21, 2019

Conference registration	2:00 p.m. – 6:30 p.m.	Ballroom Foyer
Welcome reception	5:00 p.m. – 7:00 p.m.	Ballroom Foyer

Monday, July 22, 2019

Conference registration	7:30 a.m. – 5:30 p.m.	Ballroom Foyer
Plenary session	8:20 a.m. – 12:10 p.m.	Salon A/B
Conference lunch	12:10 p.m. – 1:30 p.m.	
*Concurrent technical sessions	1:30 p.m. – 5:30 p.m.	

Tuesday, July 23, 2019

Conference registration	7:30 a.m. – 6:00 p.m.	Ballroom Foyer
*Concurrent technical sessions	8:30 a.m. – 5:30 p.m.	
Poster session set up	8:30 a.m. – 12:00 p.m.	Salon A/B
Lunch on own	12:30 p.m. – 1:30 p.m.	
Poster session & reception	6:30 p.m. – 8:30 p.m.	Salon A/B

Wednesday, July 24, 2019

Conference registration	7:30 a.m. – 12:00 p.m.	Ballroom Foyer
*Concurrent technical sessions	8:30 a.m. – 12:00 p.m.	
Free time	12:00 p.m. forward	

Thursday, July 25, 2019

Conference registration	7:30 a.m. – 5:00 p.m.	Ballroom Foyer
*Concurrent technical sessions	8:30 a.m. – 5:30 p.m.	
Lunch on own	12:30 p.m. – 2:00 p.m.	
Conference dinner	7:00 p.m. – 9:30 p.m.	Salon A/B

Friday, July 26, 2019

Conference registration	7:30 a.m. – 12:00 p.m.	Ballroom Foyer
*Concurrent technical sessions	8:30 a.m. – 12:00 p.m.	

*Concurrent sessions are in Salon C, D, Trinity I-V, York A, York B



PLENARY SPEAKERS

Monday, July 22 | Salon A/B

Session starts at 8:20 with opening remarks

Conference lunch to follow



8:30 – 9:10 a.m.

Serena M. Best

Professor of Materials Science, University of Cambridge

Title: *Optimizing bioactive scaffolds: Cellular response to calcium phosphate composition and architecture*



9:10 – 9:50 a.m.

Mrityunjay Singh

President, World Academy of Ceramics

Title: *Fourth industrial revolution and its impact on sustainable societal development*



10:10 – 10:50 a.m.

Xingdong Zhang

Professor at the National Engineering Research Center for Biomaterials, Sichuan University

Title: *Biofunctionalization—A new direction for bioceramics research*



10:50 – 11:30 a.m.

Claude Delmas

CNRS research director at the Bordeaux Institute of Condensed-Matter Chemistry (ICMCB), University of Bordeaux 1

Title: *From Volta to Solar Impulse: A battery journey*



11:30 a.m. – 12:10 p.m.

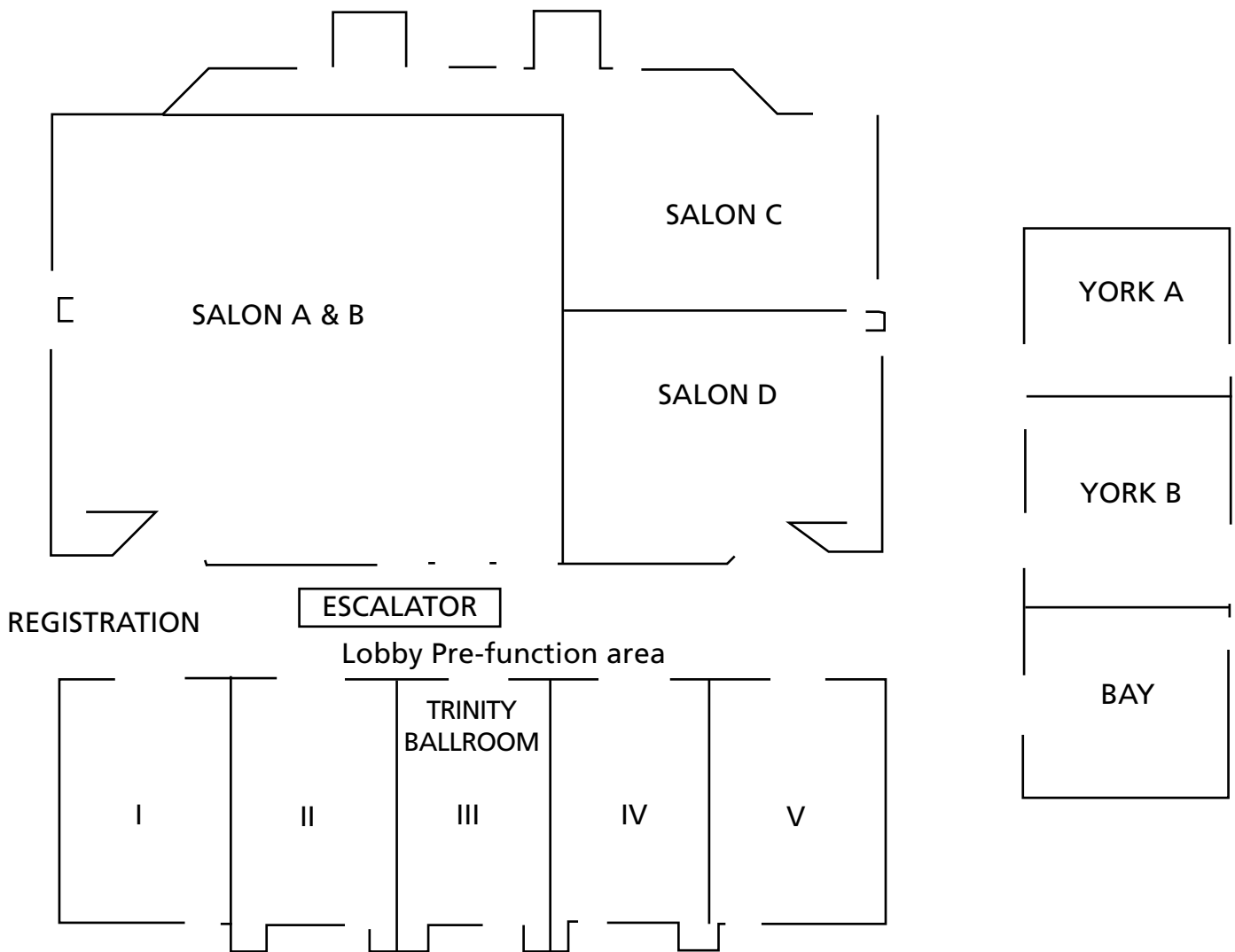
Robert Pilliar

Professor Emeritus, Faculty of Dentistry and Institute of Biomaterials and Biomedical Engineering, University of Toronto

Title: *Porous calcium polyphosphates — Biodegradable bone substitutes and beyond*

HOTEL FLOOR PLAN

Lower Convention Center





TECHNICAL PROGRAM AT A GLANCE

Session Title	Date	Time	Location
G1–Powder Processing Innovation and Technologies for Advanced Materials and Sustainable Developments			
Novel Shaping, Forming, and Sintering Technology, including Additive Manufacturing	Monday, July 22, 2019	1:20 - 3:20 PM	Trinity II
Particle and Powder Design and Synthesis	Monday, July 22, 2019	3:20 - 5:20 PM	Trinity II
Nanostructure and Microstructure Control	Tuesday, July 23, 2019	8:30 - 10:20 AM	Trinity II
Low-cost and Energy-saving Processing of Advanced Ceramics and Ceramic Composites, including Smart Recycling of Materials for Sustainable Development	Tuesday, July 23, 2019	10:20 - 11:50 AM	Trinity II
Advanced Powder Processing	Tuesday, July 23, 2019	1:30 - 3:20 PM	Trinity II
Advanced Characterization and Analytical Techniques for Powder Processing and Materials	Tuesday, July 23, 2019	3:20 - 4:50 PM	Trinity II
G2: Novel, Green, and Strategic Processing and Manufacturing Technologies			
Novel, Green, and Strategic Processing I	Tuesday, July 23, 2019	1:30 - 4:40 PM	Trinity IV
Novel, Green, and Strategic Processing II	Wednesday, July 24, 2019	8:30 - 11:00 AM	Trinity IV
Novel, Green, and Strategic Processing III	Thursday, July 25, 2019	8:30 - 11:20 AM	Trinity IV
Novel, Green, and Strategic Processing IV	Thursday, July 25, 2019	1:30 - 5:30 PM	Trinity IV
G3: Crystalline Materials for Electrical, Optical and Medical Applications			
Piezo/Ferro Materials	Monday, July 22, 2019	1:30 - 4:50 PM	Salon C
Semiconductors	Tuesday, July 23, 2019	8:30 - 10:20 AM	Salon C
Optical Materials I	Tuesday, July 23, 2019	10:20 AM - 12:00 PM	Salon C
Optical Materials II	Tuesday, July 23, 2019	1:30 - 5:30 PM	Salon C
Optical Materials III	Wednesday, July 24, 2019	8:30 - 11:50 AM	Salon C
Scintillators	Thursday, July 25, 2019	8:30 - 11:20 AM	Salon C
G4: Porous Ceramics for Advanced Applications through Innovative Processing			
Porous Bioceramics I	Thursday, July 25, 2019	8:30 - 10:20 AM	Trinity III
High SSA Ceramics	Thursday, July 25, 2019	10:20 AM - 12:10 PM	Trinity III
Innovative Characterization and Behavior of Porous Ceramics	Thursday, July 25, 2019	1:30 - 3:20 PM	Trinity III
Mechanical and Thermal Properties of Porous Ceramics	Thursday, July 25, 2019	3:20 - 5:30 PM	Trinity III
Porous Bioceramics II	Friday, July 26, 2019	8:30 - 10:10 AM	Trinity III
Processing and Engineering Applications of Porous Ceramics	Friday, July 26, 2019	10:10 AM - 12:00 PM	Trinity III
G5: Advanced Functional Materials, Devices, and Systems for Environmental Conservation, Pollution Control and Critical Materials			
Advanced Functional Materials, Devices, and Systems I	Monday, July 22, 2019	1:30 - 3:20 PM	Trinity III
Advanced Functional Materials, Devices, and Systems II	Monday, July 22, 2019	3:20 - 5:00 PM	Trinity III
Advanced Functional Materials, Devices, and Systems III	Tuesday, July 23, 2019	8:55 - 10:20 AM	Trinity III
Advanced Functional Materials, Devices, and Systems IV	Tuesday, July 23, 2019	10:20 - 11:55 AM	Trinity III
Advanced Functional Materials, Devices, and Systems V	Tuesday, July 23, 2019	1:30 - 3:20 PM	Trinity III
Advanced Functional Materials, Devices, and Systems VI	Tuesday, July 23, 2019	3:20 - 4:35 PM	Trinity III
Advanced Functional Materials, Devices, and Systems VII	Wednesday, July 24, 2019	8:50 - 10:20 AM	Trinity III
Advanced Functional Materials, Devices, and Systems VIII	Wednesday, July 24, 2019	10:20 AM - 12:00 PM	Trinity III
G6: Multifunctional Coatings for Sustainable Energy and Environmental Applications			
Thick Films and Coatings for Energy Applications	Thursday, July 25, 2019	8:30 AM - 12:10 PM	Trinity II
Thin Films and Functional Coatings	Thursday, July 25, 2019	1:30 - 4:10 PM	Trinity II
Aerosol Deposition Processes	Friday, July 26, 2019	8:30 - 10:30 AM	Trinity II

Session Title	Date	Time	Location
<i>G7: Ceramics Modeling, Genome and Informatics</i>			
Prediction of Structure and Performance I	Wednesday, July 24, 2019	8:30 - 10:20 AM	Trinity I
Prediction of Structure and Performance II	Wednesday, July 24, 2019	10:20 - 11:30 AM	Trinity I
Prediction of Structure and Performance III	Thursday, July 25, 2019	8:30 - 10:20 AM	Trinity I
Multi-scale Modeling I	Thursday, July 25, 2019	10:20 AM - 12:00 PM	Trinity I
Multi-scale Modeling II	Thursday, July 25, 2019	1:30 - 3:20 PM	Trinity I
Big Data and Informatics	Thursday, July 25, 2019	3:20 - 5:30 PM	Trinity I
Genome and Machine Learning	Friday, July 26, 2019	8:30 - 10:20 AM	Trinity I
Experiment Oriented Modeling	Friday, July 26, 2019	10:20 AM - 12:00 PM	Trinity I
<i>G8: Advanced Batteries and Supercapacitors for Energy Storage Applications</i>			
Na-ion Battery	Monday, July 22, 2019	1:30 - 3:20 PM	Salon D
Mg-ion Battery	Monday, July 22, 2019	3:20 - 5:20 PM	Salon D
Theory	Tuesday, July 23, 2019	8:30 - 10:20 AM	Salon D
All-Solid-State-Batteries	Tuesday, July 23, 2019	10:20 - 11:55 AM	Salon D
Anodes: Li-ion and Na-ion Battery	Tuesday, July 23, 2019	1:30 - 3:20 PM	Salon D
Li-ion Battery	Tuesday, July 23, 2019	3:20 - 4:50 PM	Salon D
K-ion Battery	Wednesday, July 24, 2019	8:30 - 10:20 AM	Salon D
Organic Materials for Battery	Wednesday, July 24, 2019	10:20 AM - 12:00 PM	Salon D
Cathodes: Li-ion and Na-ion Battery	Thursday, July 25, 2019	8:30 - 10:20 AM	Salon D
Na-ion Battery and Capacitors	Thursday, July 25, 2019	10:20 AM - 12:10 PM	Salon D
<i>G9: Innovative Processing of Metal Oxide Nanostructures, Heterostructures and Composite Materials for Energy Storage and Production</i>			
Innovative Processing	Thursday, July 25, 2019	1:30 - 5:00 PM	York B
<i>G11: Smart Processing and Production Root Technology for Hybrid Materials</i>			
Smart Processing for Hybrid Materials	Thursday, July 25, 2019	1:30 - 5:30 PM	Salon C
<i>G13 Ceramic Additive Manufacturing and Integration Technologies</i>			
Innovative Application	Monday, July 22, 2019	1:30 - 3:20 PM	Trinity IV
Integrated Approach	Monday, July 22, 2019	3:20 - 4:10 PM	Trinity IV
<i>G14: Advanced CMCs: Processing, Evaluation, and Applications</i>			
Advanced CMCs: Processing Evaluation, and Applications	Wednesday, July 24, 2019	8:30 - 11:40 AM	Trinity IIV
<i>G15: Advanced Luminescent Materials and Their Applications</i>			
Luminescent Materials and Applications	Thursday, July 25, 2019	1:30 - 5:20 PM	Salon D
<i>YOUNG PROFESSIONALS FORUM: Next-Generation Materials for Multifunctional Applications and Sustainable Development, and Concurrent Societal Challenges in the New Millennium</i>			
Advances in Biomedical Science and Engineering I	Monday, July 22, 2019	1:30 - 3:10 PM	Trinity I
Advances in Energy Research	Monday, July 22, 2019	3:20 - 4:40 PM	Trinity I
Advances in Biomedical Science and Engineering II	Tuesday, July 23, 2019	8:30 - 10:20 AM	Trinity I
Advances in Thermoelectric Materials	Tuesday, July 23, 2019	10:30 - 11:30 AM	Trinity I
Perovskites for Novel Applications	Tuesday, July 23, 2019	1:30 - 3:20 PM	Trinity I
Design and Development of Novel Functional Materials	Tuesday, July 23, 2019	3:20 - 5:00 PM	Trinity I
Advances in Biomedical Science and Engineering III	Thursday, July 25, 2019	11:30 AM - 12:00 PM	York A



TECHNICAL PROGRAM AT A GLANCE

Session Title	Date	Time	Location
<i>B1. Innovations in Glasses for Healthcare Applications: A Symposium in Honor of Delbert E. Day</i>			
Delbert E Day Symposium: Session I	Tuesday, July 23, 2019	8:20 - 10:20 AM	York A/B
Delbert E Day Symposium: Session II	Tuesday, July 23, 2019	10:20 - 11:50 AM	York A/B
Delbert E Day Symposium: Session III	Tuesday, July 23, 2019	1:30 - 3:20 PM	York A/B
Delbert E Day Symposium: Session IV	Tuesday, July 23, 2019	3:20 - 4:30 PM	York A/B
<i>B2. Advanced Additive Manufacturing Technologies for Bio-applications; Materials, Processes, and Systems</i>			
AM Technologies for Bio Applications I (Joint Session with G13)	Monday, July 22, 2019	4:30 - 5:30 PM	Trinity IV
AM Technologies for Bio Applications II	Tuesday, July 23, 2019	8:30 AM - 12:20 PM	Trinity IV
<i>B3. Clinical Translation of Biomaterials and Biophysical Stimulation</i>			
Modern Biomaterials	Tuesday, July 23, 2019	11:20 AM - 12:00 PM	Trinity V
New Generation Biomaterials	Thursday, July 25, 2019	8:30 - 9:20 AM	York A
Electric Field Induced Tissue Regeneration and Implant Integration	Thursday, July 25, 2019	9:20 - 11:20 AM	York A
Cell-Material Interactions	Thursday, July 25, 2019	1:30 - 3:20 PM	York A
Tissue Response to Biomaterials	Thursday, July 25, 2019	3:20 - 5:30 PM	York A
<i>B4. Multifunctional Bioceramics: Current and Future Therapy</i>			
Multifunctional Bioceramics	Monday, July 22, 2019	1:20 - 5:00 PM	York B
<i>B5. Nanotechnology in Medicine</i>			
Nanotechnology in Medicine	Wednesday, July 24, 2019	8:30 - 11:50 AM	York B
<i>B6. Recent Advances in Nanomedicine and Nanobiomaterials</i>			
Advanced Materials and Devices for the Treatment of Brain Disorders	Friday, July 26, 2019	8:30 - 10:40 AM	Trinity IV
<i>B7. Materials and Process Challenges to Upscale Fabrication of 3D Tissue Constructs</i>			
Materials and Process Challenges to Upscale Fabrication of 3D Tissue Constructs	Monday, July 22, 2019	1:30 - 3:20 PM	York A
<i>B9. Advances in Production Methods and High-Performance Materials for Dental, Oral and Maxillofacial Applications</i>			
High-performance Materials for Dental, Oral, and Maxillofacial Applications	Tuesday, July 23, 2019	8:30 - 9:50 AM	Trinity V
<i>B10. Point-of-Care Sensors and Diagnostic Devices</i>			
Point-of-Care Sensors and Diagnostic Devices	Thursday, July 25, 2019	10:00 - 11:40 AM	York B
<i>B11. Material Needs for Medical Devices</i>			
Material needs for Medical Devices I	Tuesday, July 23, 2019	1:30 - 4:50 PM	Trinity V
Material needs for Medical Devices II	Wednesday, July 24, 2019	8:30 - 11:50 AM	Trinity V
Material needs for Medical Devices III	Thursday, July 25, 2019	8:30 - 11:20 AM	Trinity V
Material needs for Medical Devices IV	Thursday, July 25, 2019	1:30 - 5:20 PM	Trinity V
Material needs for Medical Devices V	Friday, July 26, 2019	8:30 - 11:50 AM	Trinity V
<i>B12: Advanced Bioceramics and Clinical Applications</i>			
Advanced Bioceramics and Clinical Applications	Monday, July 22, 2019	1:30 - 5:30 PM	Trinity V
<i>B13: Zirconia Bioceramics in Metal Free Implant Dentistry</i>			
Metal-free Implant Dentistry	Wednesday, July 24, 2019	8:30 AM - 12:00 PM	York A

SYMPOSIA AND LEAD ORGANIZERS

2ND GLOBAL FORUM ON ADVANCED MATERIALS AND TECHNOLOGIES FOR SUSTAINABLE DEVELOPMENT (GFMAT-2)

G1: POWDER PROCESSING INNOVATION AND TECHNOLOGIES FOR ADVANCED MATERIALS AND SUSTAINABLE DEVELOPMENT

- **Makio Naito**, Joining and Welding Research Institute (JWRI), Osaka University, Japan
- **Junichi Tatami**, Yokohama National University, Japan

G2: NOVEL, GREEN, AND STRATEGIC PROCESSING AND MANUFACTURING TECHNOLOGIES

- **Tatsuki Ohji**, National Institute of Advanced Industrial Science and Technology (AIST); Japan
- **Mrityunjay Singh**, Ohio Aerospace Institute, USA

G3: CRYSTALLINE MATERIALS FOR ELECTRICAL, OPTICAL AND MEDICAL APPLICATIONS

- **Kiyoshi Shimamura**, National Institute for Materials Science, Japan

G4: POROUS CERAMICS FOR ADVANCED APPLICATIONS THROUGH INNOVATIVE PROCESSING

- **Manabu Fukushima**, National Institute of Advanced Industrial Science and Technology (AIST), Japan
- **Young-Wook Kim**, University of Seoul, South Korea

G5: ADVANCED FUNCTIONAL MATERIALS, DEVICES, AND SYSTEMS FOR ENVIRONMENTAL CONSERVATION, POLLUTION CONTROL AND CRITICAL MATERIALS

- **Nobuhito Imanaka**, Osaka University, Japan

G6: MULTIFUNCTIONAL COATINGS FOR SUSTAINABLE ENERGY AND ENVIRONMENTAL APPLICATIONS

- **Jun Akedo**, AIST, Japan
- **Hagen Klemm**, Fraunhofer Institute Ceramic Technologies and Systems, IKTS, Germany

G7: CERAMICS MODELING, GENOME AND INFORMATICS

- **Jingyang Wang**, Institute of Metal Research, Chinese Academy of Sciences, China
- **Gerard Vignoles**, University of Bordeaux, France
- **William J. Weber**, The University of Tennessee, USA

G8: ADVANCED BATTERIES AND SUPERCAPACITORS FOR ENERGY STORAGE APPLICATIONS

- **Palani Balaya**, National University of Singapore, Singapore
- **Michael Dolle**, Université de Montréal, Canada

G9: INNOVATIVE PROCESSING OF METAL OXIDE NANOSTRUCTURES, HETEROSTRUCTURES AND COMPOSITE MATERIALS FOR ENERGY STORAGE AND PRODUCTION

- **Sanjay Mathur**, University of Cologne, Germany

G11: SMART PROCESSING AND PRODUCTION ROOT TECHNOLOGY FOR HYBRID MATERIALS

- **Tadachika Nakayama**, Nagaoka University of Technology, Japan
- **Hyuksu Han**, Korea Institute of Industrial Technology, Korea

G13: CERAMIC ADDITIVE MANUFACTURING AND INTEGRATION TECHNOLOGIES

- **Soshu Kirihara**, Osaka University, Japan
- **Michael C. Halbig**, NASA Glenn Research Center, USA
- **Monica Ferraris**, Politecnico di Torino, Italy

G14: ADVANCED CMCs: PROCESSING, EVALUATION, AND APPLICATIONS

- **Emmanuel E. Boakye**, UES/AFRL Wright-Patterson AFB, USA
- **Dietmar Koch**, German Aerospace Center, Germany

G15: ADVANCED LUMINESCENT MATERIALS AND THEIR APPLICATIONS

- **Rong-Jun Xie**, Xiamen University, China





SYMPOSIA AND LEAD ORGANIZERS (CONT)

4TH INTERNATIONAL CONFERENCE ON INNOVATIONS IN BIOMATERIALS, BIOMANUFACTURING, AND BIOTECHNOLOGIES (BIO-4)

B1. INNOVATIONS IN GLASSES FOR HEALTHCARE APPLICATIONS: A SYMPOSIUM IN HONOR OF DELBERT E. DAY

- **Mohamed N. Rahaman**, Missouri University of Science and Technology, and University of Illinois at Chicago, USA
- **Richard K. Brow**, Missouri University of Science and Technology

B2. ADVANCED ADDITIVE MANUFACTURING TECHNOLOGIES FOR BIO-APPLICATIONS; MATERIALS, PROCESSES, AND SYSTEMS

- **Hui-suk Yun**, Korea Institute of Materials Science, Korea

B3. CLINICAL TRANSLATION OF BIOMATERIALS AND BIOPHYSICAL STIMULATION

- **Bikramjit Basu**, Indian Institute of Science, Bangalore, India
- **Surya K. Mallapragada**, Iowa State University

B4. MULTIFUNCTIONAL BIOCERAMICS: CURRENT AND FUTURE THERAPY

- **Miho Nakamura**, Tokyo Medical and Dental University, Japan

B5. NANOTECHNOLOGY IN MEDICINE

- **Thomas J. Webster**, Department of Chemical Engineering, Northeastern University, USA

B6. ADVANCE MATERIALS AND DEVICES FOR THE TREATMENT OF BRAIN DISORDERS

- **Tolou Shokuhfar**, Department of Bioengineering, University of Illinois at Chicago, USA
- **Reza Shahbazian**, Department of Mechanical Engineering, University of Illinois at Chicago, USA
- **Tahaamin Shokuhfar**, M.D., Northwestern University, Feinberg School of Medicine, Department of Radiology, Section of Neuroradiology, USA

B7. MATERIALS AND PROCESS CHALLENGES TO UPSCALE FABRICATION OF 3-D TISSUE CONSTRUCTS

- **Markus Reiterer**, Medtronic, PLC, USA

B9. ADVANCES IN PRODUCTION METHODS AND HIGH-PERFORMANCE MATERIALS FOR DENTAL, ORAL AND MAXILLOFACIAL APPLICATIONS

- **Orlando Lopez**, National Institute of Dental and Craniofacial Research, National Institutes of Health, USA
- **Lucy Di-Silvio**, King's College London Dental Institute and King's College London, Guy's Hospital Campus, UK

B10. POINT-OF-CARE SENSORS AND DIAGNOSTIC DEVICES

- **Krista Carlson**, Department of Metallurgical Engineering, University of Utah, USA
- **Pankaj Kumar**, Department of Chemical and Materials Engineering, University of Nevada, USA

B11. MATERIAL NEEDS FOR MEDICAL DEVICES

- **Roger Narayan**, North Carolina State University and The University of North Carolina, USA

B12: ADVANCED BIOCERAMICS AND CLINICAL APPLICATIONS

- **Xingdong Zhang**, Sichuan University, China
- **Jiang Chang**, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China
- **Julian R Jones**, Imperial College London, UK

B13: ZIRCONIA BIOCERAMICS IN METAL FREE IMPLANT DENTISTRY

- **Sammy Noubissi**, International Academy of Ceramic Implantology, USA
- **Saurabh Gupta**, International Academy of Ceramic Implantology, USA
- **Andrea Borgonovo**, University of Milan, Italy

YOUNG PROFESSIONALS FORUM

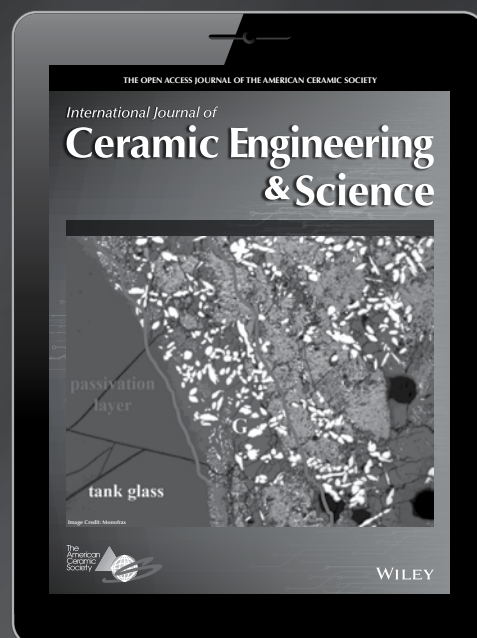
- **Surojit Gupta**, University of North Dakota, USA
- **Eva Hemmer**, University of Ottawa, Canada

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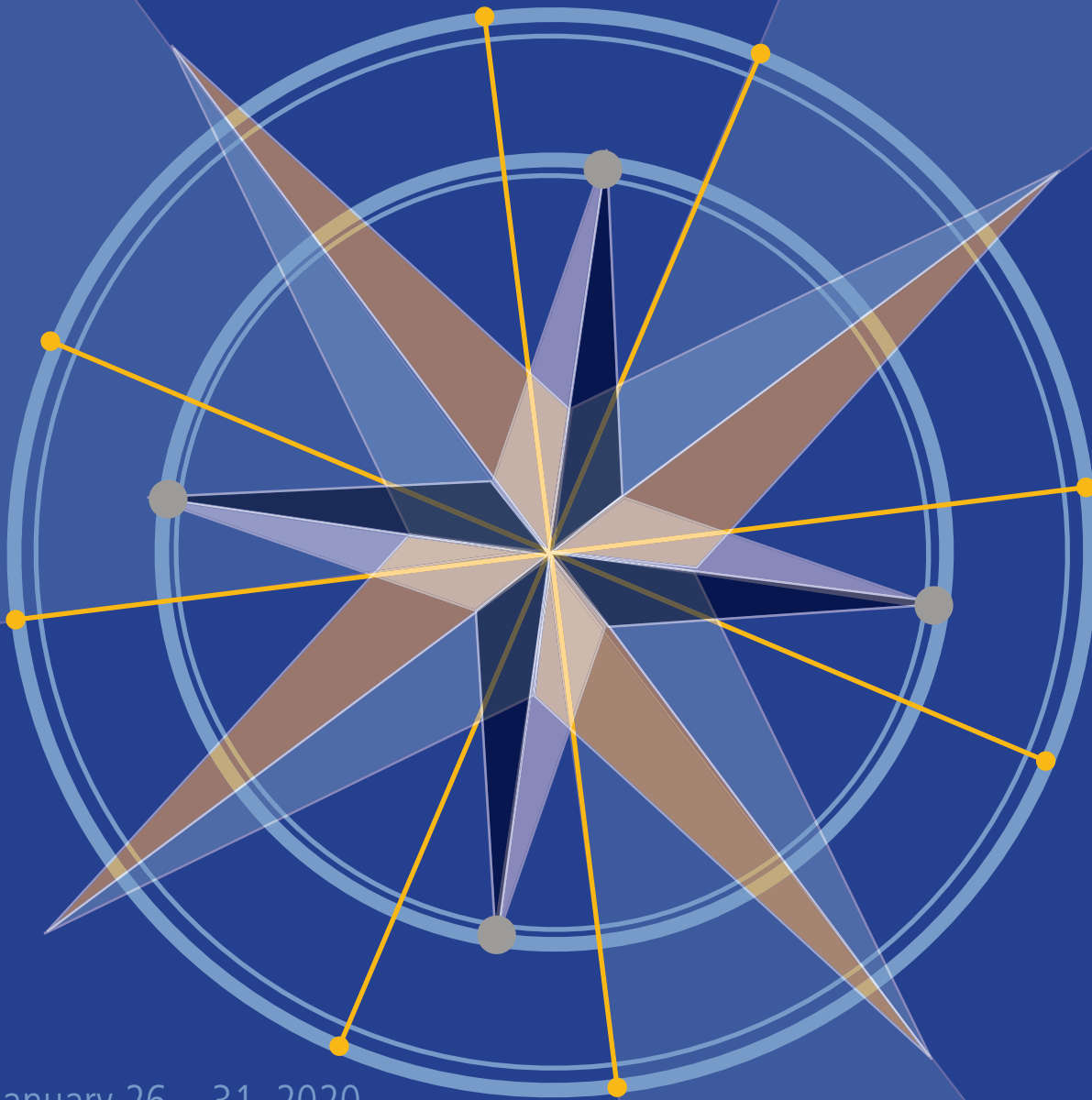


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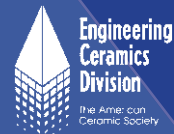
44TH INTERNATIONAL CONFERENCE
AND EXPOSITION ON
ADVANCED
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FOR
PAPERS**

ABSTRACTS DUE
JULY 29, 2019



January 26 – 31, 2020
HILTON DAYTONA BEACH
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ceramics.org/icacc2020



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Division of The American Ceramic Society

Oral Presenters

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
A									
Ahmed, I.	23-Jul	2:40PM	York A/B	28	FrieB, M.	24-Jul	11:00AM	Trinity II	18
Ahmed, I.	26-Jul	11:00AM	Trinity III	24	Fu, Q.	23-Jul	8:30AM	Trinity IV	28
Ahmed, S.	23-Jul	2:00PM	Trinity I	12	Fu, Q.	23-Jul	10:50AM	York A/B	27
Ahuja, R.	24-Jul	9:00AM	Trinity I	17	Fujihara, S.	25-Jul	2:00PM	Salon D	23
Akedo, J.	26-Jul	9:50AM	Trinity II	24	Fukushima, M.	25-Jul	4:50PM	Trinity III	20
Akimoto, J.	23-Jul	9:10AM	Trinity III	10	Funakubo, H.	23-Jul	4:10PM	Trinity III	11
Alarcon, E.I.	25-Jul	11:30AM	York A	24	G				
Alzahrani, A.	23-Jul	4:10PM	York A/B	28	Gadow, R.	22-Jul	1:20PM	Trinity II	5
Amachraa, M.	25-Jul	5:00PM	Salon D	23	Gadow, R.	25-Jul	2:30PM	Trinity V	32
Arachi, Y.	23-Jul	8:55AM	Trinity III	10	Gadow, R.	25-Jul	3:50PM	Trinity V	32
B					Gaignon, R.	22-Jul	5:10PM	Trinity IV	26
Balani, K.	25-Jul	4:50PM	Trinity V	32	Gaume, R.M.	23-Jul	10:50AM	Salon C	9
Banerjee, S.	22-Jul	3:20PM	Salon D	7	Glosse, P.	26-Jul	9:00AM	Trinity II	24
Banerjee, S.	23-Jul	1:30PM	Trinity I	12	Goldner, P.	23-Jul	4:00PM	Salon C	10
Barralet, J.	22-Jul	4:00PM	Trinity V	27	Goto, S.	23-Jul	3:20PM	Salon C	10
Bartomeu Garcia, C.	26-Jul	9:50AM	Trinity IV	32	Goto, Y.	23-Jul	10:30AM	Trinity I	12
Barui, S.	24-Jul	9:00AM	Trinity V	30	Gouma, P.	22-Jul	1:50PM	York B	26
Basu, S.	22-Jul	2:40PM	York B	26	Gouma, P.	25-Jul	10:20AM	Trinity V	32
Béland, L.	25-Jul	2:00PM	Trinity I	21	Goward, G.	23-Jul	3:20PM	Salon D	12
Benetti, D.	22-Jul	4:20PM	Trinity I	8	Grader, G.	25-Jul	11:20AM	Trinity III	19
Best, S.M.	22-Jul	8:30AM	Salon A/B	5	Grimaud, A.	23-Jul	3:50PM	Salon D	12
Birla, L.	23-Jul	1:30PM	Trinity IV	9	Gu, H.	26-Jul	11:30AM	Trinity I	25
Bitenc, J.	24-Jul	10:50AM	Salon D	17	Guignard, M.	25-Jul	11:20AM	Salon D	22
Boakye, E.E.	24-Jul	11:20AM	Trinity II	18	Gupta, S.	23-Jul	3:20PM	Trinity IV	9
Bock, R.M.	25-Jul	5:10PM	York A	31	Gupta, S.	23-Jul	4:20PM	Trinity I	13
Bomze, D.	22-Jul	4:50PM	Trinity IV	26	Gupta, S.	24-Jul	9:30AM	York A	30
Bomze, D.	23-Jul	8:50AM	Trinity V	29	Gupta, S.	25-Jul	2:00PM	York A	31
Borgonovo, A.	24-Jul	10:30AM	York A	30	H				
Braem, A.	25-Jul	1:30PM	Trinity V	32	Hadidi, L.	24-Jul	11:20AM	Salon D	17
Brauer, D.S.	23-Jul	9:00AM	York A/B	27	Halbig, M.C.	22-Jul	2:00PM	Trinity IV	7
Brow, R.	23-Jul	2:20PM	York A/B	28	Han, J.	23-Jul	2:30PM	Salon C	10
C					Han, Y.	26-Jul	11:00AM	Trinity I	25
Canepa, P.	23-Jul	9:30AM	Salon D	11	Hanawa, T.	22-Jul	1:20PM	York B	26
Canepa, P.	25-Jul	9:00AM	Trinity I	21	Hao, J.	25-Jul	4:00PM	Salon D	23
Cao, W.	23-Jul	9:00AM	Salon C	9	Hayase, G.	26-Jul	10:40AM	Trinity III	24
Carlier, D.	25-Jul	9:35AM	Salon D	22	Hayashi, K.	24-Jul	11:10AM	Trinity III	16
Castro, N.J.	24-Jul	8:30AM	York B	29	Heinz, H.	25-Jul	2:50PM	Salon C	23
Chang, J.	22-Jul	1:30PM	Trinity V	26	Heinz, H.	25-Jul	4:20PM	Trinity V	32
Chaussende, D.	23-Jul	8:30AM	Salon C	9	Hemmer, E.	23-Jul	9:20AM	Trinity I	12
Chen, B.	25-Jul	9:30AM	Trinity V	32	Heo, M.	23-Jul	9:00AM	Trinity I	12
Chen, X.	25-Jul	1:30PM	Salon D	23	Hinzer, K.	22-Jul	3:50PM	Trinity I	8
Chen, X.	25-Jul	3:20PM	Trinity I	21	Hoeland, W.	23-Jul	1:30PM	York A/B	27
Cherepy, N.	23-Jul	1:30PM	Salon C	10	Honma, T.	25-Jul	1:30PM	Salon C	23
Chern Lin, J.	25-Jul	2:00PM	Trinity V	32	Hoog Antink, M.M.	25-Jul	11:50AM	Trinity III	19
Ching, W.	25-Jul	8:30AM	Trinity I	21	Hoying, J.	22-Jul	2:00PM	York A	26
Choi, Y.	23-Jul	11:40AM	Trinity IV	28	Hsu, H.	23-Jul	9:20AM	Trinity IV	28
Chrissey, D.B.	25-Jul	1:30PM	Trinity II	21	Huang, L.	25-Jul	4:30PM	Salon D	23
Cooper, V.R.	25-Jul	9:30AM	Trinity I	21	Huang, Y.	22-Jul	2:30PM	Trinity II	5
Coyle, T.W.	25-Jul	10:30AM	Trinity II	20	Hupa, L.	23-Jul	11:10AM	York A/B	27
Cui, B.	22-Jul	2:20PM	Trinity IV	7	I				
Cui, B.	24-Jul	10:20AM	Trinity IV	16	Iijima, M.	22-Jul	1:50PM	Trinity II	5
Cui, Y.	24-Jul	9:30AM	Trinity I	17	Imanaka, N.	23-Jul	9:35AM	Trinity III	10
D					Imanaka, Y.	22-Jul	3:20PM	Salon C	6
Delagnes, J.M.	23-Jul	10:20AM	Salon C	9	Inada, M.	24-Jul	10:45AM	Trinity III	16
Delmas, C.	22-Jul	10:50AM	Salon A/B	5	Inada, M.	25-Jul	10:20AM	Trinity III	19
Delmas, C.	25-Jul	8:30AM	Salon D	22	Ionescu, E.	23-Jul	3:50PM	York A/B	28
Djurabekova, F.	25-Jul	11:00AM	Trinity I	21	Iriyama, Y.	23-Jul	11:25AM	Salon D	11
Du, J.	25-Jul	4:00PM	Trinity I	22	Ishikawa, T.	23-Jul	10:20AM	Trinity II	8
Dubey, A.K.	25-Jul	1:30PM	York A	31	Isu, N.	23-Jul	3:20PM	Trinity II	8
Dunkley, I.R.	25-Jul	9:30AM	Trinity III	19	Itagaki, Y.	23-Jul	11:15AM	Trinity III	10
Durmus, G.	24-Jul	10:50AM	York B	29	J				
Dwivedi, A.	25-Jul	11:00AM	Trinity IV	18	Jantunen, H.M.	22-Jul	2:00PM	Salon C	6
E					Jiang, C.	23-Jul	10:20AM	Trinity IV	28
Evdokimov, P.	23-Jul	3:20PM	Trinity V	29	Jiang, S.	24-Jul	9:30AM	Trinity IV	16
F					Jones, J.	23-Jul	8:30AM	York A/B	27
Fan, Y.	22-Jul	2:50PM	Trinity V	27	Jones, J.	23-Jul	1:30PM	Trinity V	29
Fischer, T.	25-Jul	2:00PM	York B	22	Ju, C.	24-Jul	11:20AM	Trinity V	30
					Jung, S.	23-Jul	10:20AM	York A/B	27

Presenting Author List

Oral Presenters

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
K									
Kageyama, H.	24-Jul	8:50AM	Trinity III	16	Medina Cruz, D.	25-Jul	10:20AM	Trinity IV	18
Kamboj, N.K.	26-Jul	10:00AM	Trinity V	33	Miola, M.	23-Jul	11:30AM	York A/B	27
Kanamura, K.	23-Jul	10:20AM	Salon D	11	Miola, M.	24-Jul	9:30AM	York B	29
Kanazawa, T.	23-Jul	3:50PM	Trinity II	8	Misra, M.	25-Jul	10:00AM	York B	31
Kanematsu, H.	24-Jul	10:20AM	Trinity V	30	Mitlin, D.	23-Jul	1:30PM	Salon D	11
Kanie, K.	26-Jul	10:10AM	Trinity II	24	Miura, A.	22-Jul	3:20PM	Trinity I	7
Katagiri, K.	22-Jul	2:35PM	Trinity III	6	Miyashita, Y.	25-Jul	3:30PM	Salon C	23
Kato, T.	23-Jul	10:50AM	Trinity II	8	Miyoshi, A.	24-Jul	9:45AM	Trinity III	16
Kawaguchi, N.	25-Jul	10:50AM	Salon C	19	Mohanty, S.	25-Jul	10:50AM	York B	31
Kawano, N.	25-Jul	9:30AM	Salon C	19	Morita, K.	25-Jul	2:30PM	Trinity IV	18
Khademhosseini, A.	22-Jul	1:30PM	York A	26	Mostaghimi, J.	25-Jul	8:30AM	Trinity II	20
Khan, Y.	26-Jul	11:20AM	Trinity V	33	Muccillo, E.N.	25-Jul	2:00PM	Trinity IV	18
Kikuchi, M.	24-Jul	9:30AM	Trinity V	30	Muccillo, R.	25-Jul	1:30PM	Trinity IV	18
Kim, P.	23-Jul	2:30PM	Trinity IV	9	Mukhopadhyay, A.	23-Jul	2:30PM	Salon D	12
Kim, Y.	25-Jul	3:20PM	Trinity III	20	Muto, H.	22-Jul	1:55PM	Trinity III	6
Kimura, T.	24-Jul	11:20AM	Salon C	16	Myung, S.	25-Jul	10:50AM	Salon D	22
Kimura, T.	25-Jul	10:50AM	Trinity III	19	N				
Kirihara, S.	22-Jul	2:40PM	Trinity IV	7	Naito, M.	23-Jul	11:30AM	Trinity II	8
Kirihara, S.	22-Jul	4:30PM	Trinity IV	26	Nakamura, M.	23-Jul	9:30AM	Salon C	9
Kishimoto, A.	23-Jul	3:45PM	Trinity III	11	Nakamura, Y.	23-Jul	3:20PM	Trinity III	11
Kitaoka, S.	25-Jul	9:50AM	Trinity II	20	Nakayama, T.	25-Jul	4:00PM	Salon C	23
Klemm, H.	24-Jul	8:30AM	Trinity II	17	Nakayama, T.	25-Jul	4:50PM	Salon C	23
Klopsch, L.F.	24-Jul	9:50AM	Trinity II	18	Nango, N.	25-Jul	1:30PM	Trinity III	20
Kobayashi, S.	25-Jul	9:00AM	Trinity III	19	Narayan, R.	23-Jul	4:20PM	Trinity V	29
Kobayashi, T.	23-Jul	10:55AM	Salon D	11	Narciso, J.	24-Jul	10:40AM	Trinity IV	16
Kopp, D.	25-Jul	8:30AM	Trinity IV	18	Narciso, J.	26-Jul	11:20AM	Trinity III	24
Koshimizu, M.	25-Jul	9:00AM	Salon C	19	Nazabal, V.	25-Jul	3:50PM	Trinity II	21
Krstic, V.	25-Jul	11:50AM	Salon D	22	Nazhat, S.N.	23-Jul	3:20PM	York A/B	28
Kumaravel, V.	25-Jul	2:00PM	Trinity II	21	Nemati, A.	23-Jul	3:40PM	Salon C	10
L					Nemati, A.	24-Jul	9:00AM	York B	29
Laberdesque, R.	24-Jul	8:30AM	Salon C	16	Nemec, P.	23-Jul	11:20AM	Salon C	9
Lee, K.N.	24-Jul	9:00AM	Trinity II	18	Nie, Z.	23-Jul	2:00PM	Trinity IV	9
Li, B.	25-Jul	9:00AM	Trinity IV	18	Nieto, A.	22-Jul	1:30PM	Trinity I	7
Li, J.	25-Jul	4:50PM	York A	31	Nishi, M.	22-Jul	4:20PM	Trinity II	5
Li, Q.	22-Jul	2:30PM	Salon C	6	Nishioka, S.	25-Jul	4:00PM	York B	22
Liang, H.	25-Jul	3:30PM	Salon D	23	Nitta, A.	22-Jul	4:40PM	Trinity II	5
Liivat, A.	22-Jul	2:05PM	Salon D	6	Nojiri, R.	22-Jul	2:10PM	Trinity II	5
Lima, R.S.	25-Jul	9:20AM	Trinity II	20	Nojiri, R.	23-Jul	2:20PM	Trinity II	8
Lin, H.	22-Jul	3:50PM	Trinity II	5	Nomura, N.	22-Jul	1:30PM	Trinity IV	7
Lin, J.	24-Jul	11:20AM	York B	30	Nomura, N.	23-Jul	10:50AM	Trinity IV	28
Liu, B.	26-Jul	9:00AM	Trinity I	25	Nordlund, K.	24-Jul	11:00AM	Trinity I	17
Lu, G.	25-Jul	2:50PM	York B	22	Noumbissi, S.	24-Jul	8:30AM	York A	30
Luo, J.	23-Jul	1:30PM	Trinity II	8	Nworie, F.S.	22-Jul	2:20PM	Trinity III	6
Luo, J.	25-Jul	10:20AM	Trinity I	21	O				
Luo, W.	23-Jul	4:50PM	Salon D	12	Oda, T.	25-Jul	1:30PM	Trinity I	21
M					Ogasawara, K.	23-Jul	1:30PM	Trinity III	11
Maeda, K.	24-Jul	10:20AM	Trinity III	16	Ogawa, K.	25-Jul	11:20AM	Trinity II	20
Mahshid, S.	23-Jul	8:30AM	Trinity I	12	Ogino, H.	24-Jul	9:20AM	Trinity III	16
Mahshid, S.S.	22-Jul	2:30PM	Trinity I	7	Oh, J.	26-Jul	9:20AM	Trinity II	24
Maiti, T.	23-Jul	2:30PM	Trinity I	12	Ohji, T.	22-Jul	3:20PM	Trinity IV	7
Maiti, T.	25-Jul	4:40PM	York B	23	Okada, S.	24-Jul	9:30AM	Salon D	17
Maity, T.	24-Jul	10:30AM	Trinity II	18	Okazaki, M.	23-Jul	2:45PM	Trinity III	11
Maji, K.	26-Jul	8:30AM	Trinity V	33	Okubo, M.	23-Jul	4:20PM	Salon D	12
Malik, H.	23-Jul	9:30AM	Trinity V	29	Orgiu, E.	23-Jul	11:00AM	Trinity I	12
Mallapragada, S.K.	25-Jul	9:20AM	York A	30	Orimo, S.	23-Jul	10:20AM	Trinity III	10
Mallik, P.K.	26-Jul	10:50AM	Trinity V	33	Ortgies, D.H.	26-Jul	9:00AM	Trinity V	33
Mandai, T.	22-Jul	4:50PM	Salon D	7	Ortona, A.	26-Jul	10:10AM	Trinity III	24
Manek-Hönninger, I.	23-Jul	4:30PM	Salon C	10	Osada, M.	22-Jul	4:20PM	Salon C	6
Manzhos, S.	23-Jul	9:00AM	Salon D	11	Otsuka, Y.	25-Jul	2:00PM	Salon C	23
Mao, X.	23-Jul	3:40PM	Trinity IV	9	Ouellet-Plamondon, C.	23-Jul	3:20PM	Trinity I	12
Martín Rodríguez, E.	22-Jul	2:00PM	Trinity I	7	P				
Masai, H.	23-Jul	2:00PM	Salon C	10	Pabst, W.	25-Jul	5:10PM	Trinity III	20
Masese, T.	24-Jul	9:00AM	Salon D	17	Pan, H.	23-Jul	9:30AM	York A/B	27
Masuda, Y.	24-Jul	9:00AM	Trinity IV	16	Panda, A.K.	25-Jul	4:30PM	York A	31
Masumoto, H.	22-Jul	1:30PM	Trinity III	6	Park, J.	26-Jul	8:30AM	Trinity II	24
Matsui, M.	22-Jul	4:20PM	Salon D	7	Parussangi, K.B.	25-Jul	2:30PM	Salon C	23
Matsunaga, K.	26-Jul	10:20AM	Trinity I	25	Pathak, P.	22-Jul	4:20PM	York B	26
Matsushima, Y.	23-Jul	1:55PM	Trinity III	11	Pearson, J.	25-Jul	3:20PM	York A	31
McCalla, E.	22-Jul	3:50PM	Salon D	7	Piat, R.	25-Jul	11:30AM	Trinity I	21

Presenting Author List

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A					N				
Alsarani, M.	23-Jul	6:30PM	Salon A/B	14	Naghavi Alhosseini, S.	23-Jul	6:30PM	Salon A/B	13
Anjum, F.	23-Jul	6:30PM	Salon A/B	14	Nakauchi, D.	23-Jul	6:30PM	Salon A/B	15
Azuma, S.	23-Jul	6:30PM	Salon A/B	14	Nara, Y.	23-Jul	6:30PM	Salon A/B	15
B					O				
Baek, S.	23-Jul	6:30PM	Salon A/B	15	Ngo, C.M.	23-Jul	6:30PM	Salon A/B	14
Bhattacharya, T.	23-Jul	6:30PM	Salon A/B	15	Ninomiya, F.	23-Jul	6:30PM	Salon A/B	14
C					P				
Chen, G.	23-Jul	6:30PM	Salon A/B	15	Okajima, N.	23-Jul	6:30PM	Salon A/B	13
Choi, K.	23-Jul	6:30PM	Salon A/B	15	Pabst, W.	23-Jul	6:30PM	Salon A/B	14
Cui, X.	23-Jul	6:30PM	Salon A/B	13	Park, C.	23-Jul	6:30PM	Salon A/B	14
D					R				
D'Sa, R.	23-Jul	6:30PM	Salon A/B	13	Paskaramoorthy, R.	23-Jul	6:30PM	Salon A/B	14
Dey, P.	23-Jul	6:30PM	Salon A/B	15	Piat, R.	23-Jul	6:30PM	Salon A/B	15
E					S				
Eryilmaz, I.	23-Jul	6:30PM	Salon A/B	15	Ren, W.	23-Jul	6:30PM	Salon A/B	13
G					T				
Gregorova, E.	23-Jul	6:30PM	Salon A/B	15	Roayaie, S.	23-Jul	6:30PM	Salon A/B	13
H					U				
Huang, W.	23-Jul	6:30PM	Salon A/B	13	Rodriguez-Mandujano, L.	23-Jul	6:30PM	Salon A/B	13
I					W				
Ikeda, J.	23-Jul	6:30PM	Salon A/B	13	Saini, S.	23-Jul	6:30PM	Salon A/B	14
J					Y				
Jana, S.S.	23-Jul	6:30PM	Salon A/B	15	Sasakawa, N.	23-Jul	6:30PM	Salon A/B	14
Jiang, Y.	23-Jul	6:30PM	Salon A/B	15	Seesala, V.	23-Jul	6:30PM	Salon A/B	13
Jung, J.	23-Jul	6:30PM	Salon A/B	15	Shi, X.	23-Jul	6:30PM	Salon A/B	13
K					Z				
Kato, T.	23-Jul	6:30PM	Salon A/B	15	Shinozaki, K.	23-Jul	6:30PM	Salon A/B	14
Kawaguchi, N.	23-Jul	6:30PM	Salon A/B	14	T				
Kawano, N.	23-Jul	6:30PM	Salon A/B	14	Tatami, J.	23-Jul	6:30PM	Salon A/B	15
Kazakova, G.	23-Jul	6:30PM	Salon A/B	13	Teraoka, K.	23-Jul	6:30PM	Salon A/B	15
Kim, J.	23-Jul	6:30PM	Salon A/B	15	Thibaut, A.	23-Jul	6:30PM	Salon A/B	14
Koshimizu, M.	23-Jul	6:30PM	Salon A/B	14	Tikhonov, A.	23-Jul	6:30PM	Salon A/B	13
L					U				
Lee, J.	23-Jul	6:30PM	Salon A/B	14	Tikhonova, S.	23-Jul	6:30PM	Salon A/B	15
Li, X.	23-Jul	6:30PM	Salon A/B	13	Tsuchiya, T.	23-Jul	6:30PM	Salon A/B	15
Lin, H.	23-Jul	6:30PM	Salon A/B	15	W				
M					Y				
Ma, Y.	23-Jul	6:30PM	Salon A/B	13	Uzawa, Y.	23-Jul	6:30PM	Salon A/B	15
Masai, H.	23-Jul	6:30PM	Salon A/B	14	Z				
Murai, R.	23-Jul	6:30PM	Salon A/B	13	Wang, D.	23-Jul	6:30PM	Salon A/B	13
Muto, H.	23-Jul	6:30PM	Salon A/B	15	Wang, J.	23-Jul	6:30PM	Salon A/B	13
N					Y				
O					Z				
P					Z				
R					Z				
S					Z				
T					Z				
U					Z				
V					Z				
W					Z				
X					Z				
Y					Z				
Z					Z				

Monday, July 22, 2019

Plenary Session

Room: Salon A/B

Session Chairs: Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology (AIST); Roger Narayan, NC State University

8:20 AM

Welcome and Introductions

8:30 AM

(PLEN-001-2019) Optimizing Bioactive Scaffolds: Cellular Response to Calcium Phosphate Composition and Architecture

S. M. Best*¹

1. University of Cambridge, Department of Materials Science, United Kingdom

9:10 AM

(PLEN-002-2019) Fourth Industrial Revolution and Its Impact on Sustainable Societal Development

M. Singh*¹

1. World Academy of Ceramics, Italy

9:50 AM

Break

10:10 AM

(PLEN-003-2019) Biofunctionalization: A New Direction for Bioceramics Research

X. Zhang*¹

1. Sichuan University, National Engineering Research Center for Biomaterials, China

10:50 AM

(PLEN-004-2019) From Volta to Solar Impulse: A battery journey

C. Delmas*¹

1. Université Bordeaux, ICMCB-CNRS, France

11:30 AM

(PLEN-005-2019) Porous Calcium Polyphosphates: Biodegradable Bone Substitutes and Beyond

R. Pilliar*¹

1. University of Toronto, Faculty of Dentistry, Canada

12:10 PM

Conference Lunch

G1: Powder Processing Innovation and Technologies for Advanced Materials and Sustainable Development

Novel Shaping, Forming, and Sintering Technology, including Additive Manufacturing

Room: Trinity II

Session Chairs: Makio Naito, JWRI, Osaka University; Jingxian Zhang, Shanghai Institute of Ceramics, Chinese Academy of Sciences

1:20 PM

(GFMAT-001-2019) Process technology and applications of Basalt fiber reinforced SiOC Composites as UD-profiles (Invited)

R. Gadow*¹; P. Weichand¹

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

1:50 PM

(GFMAT-002-2019) Effect of multifunctional acrylate structure on in-situ solidification behavior of non-aqueous Si₃N₄ slurries induced by Michael additive reaction

M. Iijima*¹; K. Hasegawa¹; J. Tatami¹

1. Yokohama National University, Graduate School of Environment and Information Sciences, Japan

2:10 PM

(GFMAT-003-2019) Chemical Solidification of Silica Powder Surface-activated by Mechanochemical Treatment

M. Fujii¹; R. Nojiri*¹; H. Razavi Khosroshahi¹

1. Nagoya Institute of Technology, Japan

2:30 PM

(GFMAT-004-2019) Enhancing toughness and strength of SiC ceramics with reduced graphene oxide by HP sintering

Y. Huang*¹

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

2:50 PM

Break

Particle and Powder Design and Synthesis

Room: Trinity II

Session Chairs: Jian Luo, University of California, San Diego; Toshihiro Ishikawa, Tokyo University of Science, Yamaguchi (Sanyo-Onoda City University)

3:20 PM

(GFMAT-005-2019) Novel electrical disintegration for selective dismantling of spent products (Invited)

C. Tokoro*¹

1. Waseda University, Japan

3:50 PM

(GFMAT-006-2019) Thermal Stability and Property of Osmium Boride Based Ceramic Compounds Synthesized by Mechanochemical Processing (Invited)

H. Lin*¹

1. Guangdong University of Technology, School of Electromechanical Engineering, China

4:20 PM

(GFMAT-007-2019) Application of the eccentric stirring milling on the efficient glass recovery from photovoltaic panel

M. Nishi*¹; Y. Tsunazawa¹; S. Kato²; M. Harita²; S. Owada¹; C. Tokoro¹

1. Waseda University, Japan
2. Harita Metal Co., Ltd., Japan
3. The Glass Recycling Committee of Japan, Japan

4:40 PM

(GFMAT-008-2019) Numerical investigation of a separator using water flow for efficient plastic recycling in automobile shredder residue

A. Nitta*¹; Y. Tsunazawa¹; S. Doi²; Y. Ando³; T. Kihara⁵; M. Harita⁴; C. Tokoro¹

1. Waseda Univ., Japan
2. NIHON-CIM Co., Ltd, Japan
3. Kyowa Co., Ltd., Japan
4. Harita Metal Co., Ltd, Japan
5. Ecomebius Co., Ltd, Japan

5:00 PM

(GFMAT-009-2019) Morphological-controlled Combustion Synthesis of Aluminum Nitride Powders and Their Application

Z. Shi*¹

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

G3: Crystalline Materials for Electrical, Optical and Medical Applications

Piezo/Ferro Materials

Room: Salon C

Session Chairs: Qiang Li, Tsinghua University; Danilo Suvorov, Jozef Stefan Institute

1:30 PM

(GFMAT-010-2019) The structural and dielectric properties of Ag(Nb_{1-x}Ta_x)O₃ (x = 0–0.8) ceramics (Invited)

D. Suvorov*¹; L. Li²; M. Spreitzer³

1. Jozef Stefan Institute, Advanced Materials, Slovenia
2. Zhejiang U., Zijingang Campus, Department of Materials Science and Engineering, China
3. Jozef Stefan Institute, Advanced Materials, Slovenia

2:00 PM**(GFMAT-011-2019) From common and upside-down electroceramic composites with room temperature fabrication method (Invited)**H. M. Jantunen*¹

1. University of Oulu, Microelectronics Research Unit, Finland

2:30 PM**(GFMAT-012-2019) Polarization fatigue and domain configuration in Mn-doped Relaxor-PT ferroelectric single crystals (Invited)**Q. Li*¹; Y. Zhou¹; Q. Yan¹

1. Tsinghua University, Department of Chemistry, China

3:00 PM**Break****3:20 PM****(GFMAT-013-2019) Low temperature ceramic processing for sustainable ICT society (Invited)**Y. Imanaka*¹

1. Fujitsu Laboratories Ltd., Japan

3:50 PM**(GFMAT-014-2019) In-situ TEM visualization of graphitization process: Towards interconnection and nanosoldering applications for future nanodevices (Invited)**M. Tanemura*¹; S. Sharma¹; M. Araby¹; S. Elnobi¹; M. Rosmi²; Y. Yaakob³; G. Kalita¹; M. Yusop⁴

1. Nagoya Institute of Technology, Department of Physical Science and Engineering, Japan
2. Universiti Pendidikan Sultan Idris, Malaysia
3. Universiti Putra Malaysia, Malaysia
4. Universiti Teknologi Malaysia, Malaysia

4:20 PM**(GFMAT-015-2019) 2D Ferroelectrics (Invited)**M. Osada*¹

1. Nagoya University, Japan

G5: Advanced Functional Materials, Devices, and Systems for Environmental Conservation, Pollution Control and Critical Materials**Advanced Functional Materials, Devices, and Systems I**

Room: Trinity III

Session Chairs: Shu Yin, IMRAM, Tohoku University; Satoshi Wada, University of Yamanashi

1:30 PM**(GFMAT-016-2019) Modification of titanium surface environment by ECR plasma oxidation, and calcification behavior (Invited)**H. Masumoto*¹

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

1:55 PM**(GFMAT-017-2019) Fabrication technique for functionally graded porous materials by use of spherical integrated granules (Invited)**H. Muto*¹; K. Tsuzuki¹; A. Yokoi¹; T. W. Kian¹; G. Kawamura¹; A. Matsuda¹

1. Toyohashi University of Technology, Japan

2:20 PM**(GFMAT-018-2019) Removal of Methylene blue from Aqueous Solutions Using Activated Rice Husk Biochar: Adsorption Isotherms, Kinetics and Error analysis**F. S. Nworie*¹

1. Ebonyi State University, Abakaliki, Industrial Chemistry, Nigeria

2:35 PM**(GFMAT-019-2019) Ammonolysis-free synthesis strategy of metal oxynitrides and oxycyanamides (Invited)**K. Katagiri*¹; R. Okada¹; K. Kawanishi¹; K. Inumaru¹

1. Hiroshima University, Department of Applied Chemistry, Japan

3:00 PM**Break****Advanced Functional Materials, Devices, and Systems II**

Room: Trinity III

Session Chairs: Hiroshi Masumoto, Tohoku University; Hiroyuki Muto, Toyohashi University of Technology

3:20 PM**(GFMAT-020-2019) Solvothermal Synthesis and Characterization of Oxide Based Oxygen Storage Materials (Invited)**S. Yin*¹

1. IMRAM, Tohoku University, Japan

3:45 PM**(GFMAT-021-2019) PM oxidation activity of metal-loaded perovskite-type oxide catalyst (Invited)**H. Yahiro*¹

1. Ehime University, Japan

4:10 PM**(GFMAT-022-2019) Solvothermal Synthesis of Barium Titanate Nanocubes and Their Assembly (Invited)**S. Wada*¹

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

4:35 PM**(GFMAT-023-2019) High oxide-ion conductivity by the overbonded channel oxygens in Si-deficient $\text{La}_{9.565}(\text{Si}_{5.826}\text{Va}_{0.174})\text{O}_{26}$ apatite without interstitial oxygens (Invited)**M. Yashima*¹; K. Fujii¹

1. Tokyo Institute of Technology, Japan

G8: Advanced Batteries and Supercapacitors for Energy Storage Applications**Na-ion Battery**

Room: Salon D

Session Chair: Palani Balaya, National University of Singapore

1:30 PM**(GFMAT-024-2019) Recent advances in Na-ion materials: From energy to power**M. Arnaiz¹; J. Gómez-Cámer¹; E. Gonzalo¹; N. E. Drewett¹; J. Ajuria¹; E. Goikolea²; M. Galceran¹; T. Rojo*¹

1. CIC energiGUNE, Spain
2. University of the Basque Country UPV/EHU, Inorganic Chemistry, Spain

2:05 PM**(GFMAT-025-2019) Towards new silicate materials for Na-ion batteries (Invited)**A. Liivat*¹

1. Uppsala University, Department of Chemistry - Ångström Laboratory, Sweden

2:35 PM**(GFMAT-026-2019) Elucidating structural transformations of electrodes while they are being used: The wonderful world of in situ synchrotron X-ray and neutron diffraction**N. Sharma*¹

1. University of New South Wales, Australia

3:00 PM

Break

Mg-ion Battery

Room: Salon D

Session Chair: Teófilo Rojo, CIC energiGUNE

3:20 PM

(GFMAT-027-2019) Defining Conduction Pathways in Cathode Materials: Resolving Logjams through Atomistic Design and Mesoscale Structuring (Invited)S. Banerjee*¹

1. Texas A&M University, Chemistry, USA

3:50 PM

(GFMAT-028-2019) Combinatorial chemistry of mg-scale advanced battery materials (Invited)E. McCalla*¹

1. McGill University, Chemistry, Canada

4:20 PM

(GFMAT-029-2019) Origin of excellent/poor reversibility of magnesium-based anodes (Invited)M. Matsui*¹

1. Kobe University, Department of Chemical Science and Engineering, Japan

4:50 PM

(GFMAT-030-2019) Anion coordination and electrochemistry in magnesium battery electrolyte (Invited)T. Mandai*¹; K. Kanamura²

1. National Institute for Materials Science, Rechargeable Battery Materials Group, Japan
 2. Tokyo Metropolitan University, Graduate School of Urban Environmental Sciences, Japan

G13: Ceramic Additive Manufacturing and Integration Technologies**Innovative Application**

Room: Trinity IV

Session Chair: Soshu Kirihiro, Osaka University

1:30 PM

(GFMAT-031-2019) Effect of Zr addition on the microstructure and mechanical properties of additively manufactured Cu-Cr-Zr alloys (Invited)N. Nomura*¹

1. Tohoku University, Graduate School of Engineering, Department of Materials Processing, Japan

2:00 PM

(GFMAT-032-2019) Additive Manufacturing Enabled Innovative Materials and Structures for Aerospace ApplicationsM. C. Halbig*¹; M. Singh²

1. NASA Glenn Research Center, USA
 2. Ohio Aerospace Institute, USA

2:20 PM

(GFMAT-033-2019) Additive Manufacturing of YSZ Ceramics by Laser Engineered Net ShapingX. Yan¹; Y. Chen²; F. Wang¹; C. Kanger¹; M. Sealy¹; B. Cui*¹

1. University of Nebraska, Lincoln, Mechanical & Materials Engineering, USA
 2. Oak Ridge National Laboratory, Spallation Neutron Source, USA

2:40 PM

(GFMAT-034-2019) Fabrication of Micro Photonic Crystals by Ultraviolet Laser LithographyS. Kirihiro*¹

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

3:00 PM

Break

*Denotes Presenter

Integrated Approach

Room: Trinity IV

Session Chair: Michael Halbig, NASA Glenn Research Center

3:20 PM

(GFMAT-035-2019) Additive Manufacturing of Ceramics: Issues and Challenges (Invited)T. Ohji*¹

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

3:40 PM

(GFMAT-036-2019) Functionally Graded Additive Manufacturing of Ceramics (Invited)H. Yun*¹

1. Korea Institute of Materials Science, Republic of Korea

Young Professionals Forum - Next Generation Materials for Multifunctional Applications and Sustainable Development, and Concurrent Societal Challenges in the New Millennium**Advances in Biomedical Science and Engineering I**

Room: Trinity I

Session Chairs: Eva Hemmer, University of Ottawa; Andy Nieto, Naval Postgraduate School

1:30 PM

(YPF-001-2019) Advanced Bioceramics – From Transparent Alumina to Graphene Nanocomposites (Invited)A. Nieto*¹; Y. Han²; J. Shackelford³; R. Gao²; K. Hwang⁴; F. Chen²; S. Kim⁵

1. Naval Postgraduate School, Dept. of Mechanical and Aerospace Engineering, USA
 2. Wuhan University of Technology, China
 3. University of California, Davis, USA
 4. Gyeongsang National University, Engineering Research Institute, Republic of Korea
 5. Yeungnam University, School of Materials Science and Engineering, Republic of Korea

2:00 PM

(YPF-002-2019) Long-lifetime luminescent nanoparticles and deep-tissue imaging: From autofluorescence removal to multiplexed sensing (Invited)E. Martín Rodríguez*¹; D. H. Ortgies²; G. López Peña¹; E. Ximenes²; B. del Rosal²; N. Fernandez³; D. Jaque⁴

1. Universidad Autónoma de Madrid, Física Aplicada, Spain
 2. Instituto Ramón y Cajal de Investigación Sanitaria IRYCIS, Spain
 3. Swinburne University of Technology, Australia
 4. Universidad Autónoma de Madrid, Spain

2:30 PM

(YPF-003-2019) Innovations in biosensor platforms toward point-of-care molecular diagnosticsS. S. Mahshid*¹

1. Sunnybrook Research Institute, Biological Sciences Platform, Canada

2:50 PM

Break

Advances in Energy Research

Room: Trinity I

Session Chairs: Yosuke Goto, Tokyo Metropolitan University; Sankha Banerjee, California State University, Fresno

3:20 PM

(YPF-004-2019) Liquid-phase chemistry of sulfide electrolytes for all-solid-state lithium battery (Invited)A. Miura*¹; N. Rosero-Navarro¹; K. Tadanaga²

1. Hokkaido University, Engineering, Japan
 2. Hokkaido University, Japan

3:50 PM**(YPF-005-2019) Photonic power converters and photovoltaics: Designs and materials for very high efficiencies (Invited)**K. Hinzer*¹

1. University of Ottawa, Canada

4:20 PM**(YPF-007-2019) Carbon Dots: A versatile material for solar energy harvesting devices**D. Benetti*¹; H. Zhao²; A. Vomiero⁴; F. Rosei²

1. Institut National de la Recherche Scientifique, Énergie Matériaux Télécommunications, Canada
2. INRS, Canada
3. Qingdao University, College of Physics, China
4. Lulea University of Technology, Engineering Sciences & Mathematics, Sweden

Tuesday, July 23, 2019**G1: Powder Processing Innovation and Technologies for Advanced Materials and Sustainable Development****Nanostructure and Microstructure Control**

Room: Trinity II

Session Chairs: Hua-Tay Lin, Guangdong University of Technology; Norifumi Isu, LIXIL Corp.

8:30 AM**(GFMAT-037-2019) Preparation and properties of aluminum magnesium boride ceramics (Invited)**J. Zhang*¹

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

9:00 AM**(GFMAT-038-2019) Lithium metal protection layer for high performance lithium metal batteries (Invited)**S. Sun¹; U. Paik¹; T. Song*¹

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

9:30 AM**(GFMAT-039-2019) Densification, microstructural tailoring and performance of Ta_{0.8}Hf_{0.2}C-based ultra-high temperature ceramic composites**J. Yin*¹; B. Zhang¹; X. Liu¹; Z. Huang¹

1. Shanghai Institute of Ceramics, China

9:50 AM**Break****Low-cost and Energy-saving Processing of Advanced Ceramics and Ceramic Composites, including Smart Recycling of Materials for Sustainable Development**

Room: Trinity II

Session Chairs: Rainer Gadow, Institute for Manufacturing Technologies of Ceramic Components and Composites, University of Stuttgart; Motoyuki Iijima, Yokohama National University

10:20 AM**(GFMAT-040-2019) Simple process for direct formation of photocatalytic anatase-TiO₂ on titanium-metal (Invited)**T. Ishikawa*¹; K. Tsujikura¹

1. Tokyo University of Science, Yamaguchi (Sanyo-Onoda City University), Japan

10:50 AM**(GFMAT-041-2019) The comparison between mechanochemical process by planetary ball milling and heating process for crystal structure change of cerium and yttrium minerals in weathered residual rare earth ores**T. Kato*¹; C. Tokoro²

1. Waseda University, Graduate School of Creative Science and Engineering, Japan
2. Waseda University, Japan

11:10 AM**(GFMAT-042-2019) Characterization of milled carbon fiber as filler powder for composite materials**D. Shimamoto*¹; Y. Sugimoto¹; Y. Hotta¹

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

11:30 AM**(GFMAT-043-2019) High Quality Advanced Materials Designed by Smart Powder Processing**M. Naito*¹; T. Kozawa²; A. Kondo²

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

Advanced Powder Processing

Room: Trinity II

Session Chair: Junichi Tatami, Yokohama National University

1:30 PM**(GFMAT-044-2019) From Flash Sintering to Electric Field Effects on Microstructural Evolution: ZnO as an Example (Invited)**J. Nie¹; C. Hu¹; J. Luo*¹

1. University of California, San Diego, USA

2:00 PM**(GFMAT-045-2019) Control on Density of Highly Textured Ca₃Co₄O₉ Ceramics Using a Hot-Forging Sintering for Efficient Thermoelectric Applications**R. Shimonishi*¹; M. Hagiwara²; S. Fujihara¹

1. Keio University, Japan
2. Keio University, Department of Applied Chemistry, Japan

2:20 PM**(GFMAT-046-2019) Preparation of solid sliding composite by non-sintering solidification process**R. Nojiri*¹; H. Razavi Khosroshahi¹; M. Fujii¹

1. Nagoya Institute of Technology, Japan

2:40 PM**Break****Advanced Characterization and Analytical Techniques for Powder Processing and Materials**

Room: Trinity II

Session Chair: Junichi Tatami, Yokohama National University

3:20 PM**(GFMAT-047-2019) Biomimic Anti-stain Surface Treatment for Housing Wet Area (Invited)**N. Isu*¹

1. LIXIL Corp., Material and Property Analysis Laboratory, Japan

3:50 PM**(GFMAT-048-2019) Investigation of Cr(III) substituted spinel type mixed oxide as catalytic materials for water oxidation**T. Kanazawa*¹; S. Nozawa²; K. Maeda³

1. Tokyo Institute of Technology, Chemistry, Japan
2. Institute of Materials Structure Science, Japan
3. Tokyo Institute of Technology, Japan

4:10 PM**(GFMAT-049-2019) ZrN:(Eu/La) nano-particles through carbothermal nitridation**G. Westin*¹

1. Uppsala University, Sweden

4:30 PM**(GFMAT-050-2019) In-situ observation of internal structure of ceramic slurry, green body and sintered body by optical coherence tomography**J. Tatami*¹; T. Takahashi²; M. Iijima³

1. Yokohama National University, Japan
2. Kanagawa Institute of Industrial Science and Technology, Japan
3. Yokohama National University, Graduate School of Environment and Information Sciences, Japan

G2: Novel, Green, and Strategic Processing and Manufacturing Technologies**Novel, Green, and Strategic Processing I**

Room: Trinity IV

Session Chairs: Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology (AIST); Surojit Gupta, University of North Dakota

1:30 PM**(GFMAT-051-2019) Sustainability, Diversity and Inclusion in a Global Landscape: Implications in the field of Material Sciences research (Invited)**L. Birla*¹

1. Elsevier, Materials Sciences, Netherlands

2:00 PM**(GFMAT-052-2019) Eco-Materials Processing and Life Cycle Assessment (Invited)**Z. Nie*¹

1. Beijing University of Technology, College of Materials Science and Engineering, China

2:30 PM**(GFMAT-053-2019) Monoethanolamine for Rare Earth Recovery (Invited)**P. Kim*¹; G. Das²; M. Lencka²; A. Anderko²; R. Riman¹

1. Rutgers University, Materials Science and Engineering, USA
2. OLI Systems, Inc., USA

3:00 PM**Break****3:20 PM****(GFMAT-054-2019) Current Progress in the Design of Novel Green Materials by Using Lignin as a Feedstock**S. Gupta*¹

1. University of North Dakota, Mechanical Engineering, USA

3:40 PM**(GFMAT-055-2019) Spontaneous Coagulation Casting: Invention and development**X. Mao*¹

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

4:00 PM**(GFMAT-056-2019) Green synthesis of a synergetic structure of tellurium nanowires and metallic nanoparticles for biomedical applications**A. Vernet Crua*¹; D. Medina Cruz¹; T. J. Webster¹; B. Zhang¹

1. Northeastern University, Chemical Engineering, USA

4:20 PM**(GFMAT-057-2019) Synthesis of TaC nano powders and its densification**W. Wang*¹; Z. Fu²; H. Wang¹; C. Liu¹

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

G3: Crystalline Materials for Electrical, Optical and Medical Applications**Semiconductors**

Room: Salon C

Session Chair: Yoshihiko Imanaka, Fujitsu Laboratories Ltd.

8:30 AM**(GFMAT-058-2019) Steps dynamics during high temperature solution growth of silicon carbide (Invited)**D. Chaussende*¹; X. Xing¹; Y. Yao²; T. Yoshikawa²

1. Univ. Grenoble Alpes, CNRS, SIMAP, France
2. The University of Tokyo, Institute of Industrial Science, Japan

9:00 AM**(GFMAT-059-2019) Synthesis of SiC nanowires for high-efficiency electromagnetic wave absorption (Invited)**J. Kuang¹; W. Cao*¹

1. University of Science and Technology Beijing, China

9:30 AM**(GFMAT-060-2019) Bone tissue engineering with piezoelectrical properties (Invited)**M. Nakamura*¹

1. University of Turku, Institute of Biomedicine, Finland

10:00 AM**Break****Optical Materials I**

Room: Salon C

Session Chair: Didier Chaussende, CNRS / Univ. Grenoble Alpes

10:20 AM**(GFMAT-061-2019) Nonlinear materials for middle infrared OPCPA: State of the art and perspectives (Invited)**J. M. Delagnes*¹

1. University of Bordeaux, CELIA, France

10:50 AM**(GFMAT-062-2019) Post-processing of CVD ZnSe transparent ceramics for infrared windows and nonlinear optics: The importance of stoichiometry and microstructure control (Invited)**R. M. Gaume*¹; C. Goncalvez¹; X. Chen¹; K. A. Richardson¹

1. University of Central Florida, CREOL, USA

11:20 AM**(GFMAT-063-2019) Fabrication and characteristics of co-sputtered Ga-Sb-Te thin films**M. Bouska¹; V. Nazabal²; T. Halenkovic¹; J. Gutwirth¹; P. Nemecek*¹

1. University of Pardubice, Czechia
2. Université de Rennes 1, France

11:40 AM**(GFMAT-064-2019) Gd doped YAG transparent ceramics with an ultraviolet emission**G. Zhang*¹; Y. Wu¹

1. Alfred University, Materials Science, USA

Optical Materials II

Room: Salon C

Session Chairs: Jean-Christophe Delagnes, University of Bordeaux;
Inka Manek-Hönniger, University of Bordeaux**1:30 PM****(GFMAT-065-2019) Fluoride Ceramic Phosphors for LED Lighting (Invited)**N. Cherepy*; R. Osborne¹; Z. M. Seeley²; S. A. Payne¹; W. Beers³; W. Cohen³; D. Schlagel⁴; H. Comanzo⁵; A. Srivastava⁵

1. Lawrence Livermore Nat'l Lab, Chemistry and Materials Science, USA
2. Lawrence Livermore Nat. Lab, Chemical Sciences Division, USA
3. Current by GE, USA
4. Ames Laboratory, USA
5. GE Global Research, USA

2:00 PM**(GFMAT-066-2019) Comparison between sintered crystal and stoichiometric glass for phosphor application (Invited)**H. Masai*¹

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

2:30 PM**(GFMAT-067-2019) Electro-optical device with tunable coloration and transparency using colloidal core/shell nanoparticles (Invited)**J. Han*¹; E. Lee¹; M. Freyman¹; E. Feigenbaum¹; A. Pascall¹; J. Kuntz¹; M. Worsley¹; T. Y. Han¹

1. Lawrence Livermore National Lab, USA

3:00 PM**Break****3:20 PM****(GFMAT-068-2019) Zirconia phosphor for biological temperature sensing probe: Afterglow property and its doping effect**S. Goto*¹; M. Ohashi¹; N. Terakado²; Y. Takahashi¹; Y. Nakajima³; N. Onoue¹; T. Shinozaki⁴; T. Fujiwara²

1. Tohoku University, Japan
2. Tohoku University, Department of Applied Physics, Japan
3. Daiichi Kigenso Kagaku Kogyo Co., Ltd., Japan
4. Sendai Med. Center, Japan

3:40 PM**(GFMAT-069-2019) Synthesis and characterization of PbS Quantum Dots/perovskite solar cells**A. Nematy*¹; A. Attari Navab¹

1. Sharif University of Technology, Materials Science & Engineering, Islamic Republic of Iran

4:00 PM**(GFMAT-070-2019) Rare Earth Doped Crystals for Microwave-Optical Quantum Interfaces (Invited)**P. Goldner*¹

1. Chimie ParisTech, France

4:30 PM**(GFMAT-071-2019) Femtosecond direct laser writing in Calciumfluoride crystals (Invited)**I. Manek-Hönniger*¹; W. Gebremichael¹; Y. Petit²; L. Canioni¹

1. University of Bordeaux, CELIA, France
2. University of Bordeaux, ICMCB/CELIA, France

5:00 PM**(GFMAT-072-2019) Upconverting nanoparticles for seeing and delivering drugs inside the body (Invited)**G. Jalani¹; V. Tam*¹; D. Rosenzweig¹; R. Naccache¹; L. Haglund¹; F. Vetroni²; M. Cerruti¹

1. McGill University, Canada
2. Institut National de la Recherche Scientifique, Université du Québec, Centre Énergie, Matériaux et Télécommunications, Canada
3. Concordia University, Chemistry and Biochemistry, Canada

G5: Advanced Functional Materials, Devices, and Systems for Environmental Conservation, Pollution Control and Critical Materials**Advanced Functional Materials, Devices, and Systems III**

Room: Trinity III

Session Chairs: Tetsuo Uchikoshi, National Institute for Materials Science; Yoshiteru Itagaki, Ehime University

8:55 AM**(GFMAT-073-2019) Preparation of a-LiAlO₂ with layered-NaCl type structure by sol-gel method and the electrochemical property**Y. Arachi*¹; A. Shibata¹

1. Kansai University, Chemistry and Materials Engineering, Japan

9:10 AM**(GFMAT-074-2019) Synthesis and Property of Garnet-Type Fast Lithium Ion Conducting Materials (Invited)**J. Akimoto*¹; K. Kataoka¹

1. AIST, Japan

9:35 AM**(GFMAT-075-2019) Novel Calcium Ion Conducting Solids with NASICON-type Structure (Invited)**N. Imanaka*¹

1. Osaka University, Applied Chemistry, Japan

10:00 AM**Break****Advanced Functional Materials, Devices, and Systems IV**

Room: Trinity III

Session Chairs: Nobuhito Imanaka, Osaka University; Junji Akimoto, AIST

10:20 AM**(GFMAT-076-2019) Advanced Hydride Research for Energy Device Application (Invited)**S. Orimo*¹

1. Tohoku University, Japan

10:50 AM**(GFMAT-077-2019) Oxygen Separation from Air using BSCF-based Mixed Conductor Membrane (Invited)**T. Uchikoshi*¹; K. Ishii³; A. Stevenson²; C. Tardivat²

1. National Institute for Materials Science, Japan
2. Saint-Gobain, France
3. Hokkaido University, Japan

11:15 AM**(GFMAT-078-2019) Ammonia fueled solid oxide fuel cells with Ni based anodes (Invited)**Y. Itagaki*¹; J. Cui¹; Y. Tani¹; H. Yahiro¹

1. Ehime University, Department of Science and Engineering, Japan

11:40 AM**(GFMAT-079-2019) An Internet of Things based multi-purpose ceramic sensor for ultra-high temperature and heat flux sensing**A. Purwar¹; V. Sharma*²

1. Indian School of Business, India
2. Indian Institute of Science, Material Research Centre, India

Advanced Functional Materials, Devices, and Systems V

Room: Trinity III

Session Chairs: Yoshinobu Nakamura, Department of Advances Materials Science, Faculty of Frontier Science, The University of Tokyo; Kiyofumi Katagiri, Hiroshima University

1:30 PM

(GFMAT-080-2019) Theoretical prediction of 4f-5d transition energy of Ce³⁺ in garnet-type oxides based on the combination of first-principles calculation and machine learning (Invited)

K. Ogasawara*¹

1. Kwansai Gakuin University, Department of Chemistry, Japan

1:55 PM

(GFMAT-081-2019) Deep red phosphors based on fluorine doped lithium aluminate with the luminescent centers of 3d transition metals (Invited)

Y. Matsushima*¹; R. Kobayashi¹; C. Sato¹; Y. Kamada¹; K. Sato¹; H. Tamura¹; H. Kominami¹; K. Hara²; M. Kakihana²

1. Yamagata University, Chemistry and chemical engineering, Japan
2. Tohoku University, Institute of Multidisciplinary Research for Advanced Materials, Japan
3. Shizuoka University, Research Institute of Electronics, Japan
4. Shizuoka University, Electronics and Materials Science, Japan

2:20 PM

(GFMAT-082-2019) Development of 3R Process for Electrical and Optical Ceramics Components by Using Photo-Reaction Process (Invited)

T. Tsuchiya*¹; T. Manabe¹; N. Kijima¹; Y. Uzawa¹

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

2:45 PM

(GFMAT-083-2019) Investigation on titania modified with first-low transition-metal oxides nanoparticles for water photooxidation under visible light

M. Okazaki*¹; K. Maeda¹

1. Tokyo Institute of Technology, Japan

3:00 PM

Break

Advanced Functional Materials, Devices, and Systems VI

Room: Trinity III

Session Chairs: Tetsuo Tsuchiya, National Institute of Advanced Industrial Science and Technology (AIST); Kazuyoshi Ogasawara, Kwansai Gakuin University

3:20 PM

(GFMAT-084-2019) Optical Observation of the Current Carrying Degradation Process of a RuO₂ resistor under a Severe Usage Environment (Invited)

Y. Nakamura*¹; M. Miyayama¹

1. Graduate School of Engineering, The University of Tokyo, Applied Chemistry, Japan

3:45 PM

(GFMAT-085-2019) Change in mechanical properties of dielectric ceramics on annealing contacted with the other isomorphous ceramics (Invited)

A. Kishimoto*¹; K. Nomura¹; T. Teranishi¹; H. Hayashi¹

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

4:10 PM

(GFMAT-086-2019) Enhancement of piezoelectric response in {100}-oriented films using extrinsic contribution (Invited)

H. Funakubo*¹; N. Oshima¹; H. Inoue¹; Y. Ehara¹; T. Shimizu¹; H. Uchida²

1. Tokyo Institute of Technology, Japan
2. Sophia University, Japan

G8: Advanced Batteries and Supercapacitors for Energy Storage Applications

Theory

Room: Salon D

Session Chair: Naoaki Yabuuchi, Tokyo Denki University

8:30 AM

(GFMAT-088-2019) Design principles for layered and spinel intercalation compounds for Li, Na and K-ion batteries (Invited)

A. Van der Ven*¹

1. University of California Santa Barbara, Materials, USA

9:00 AM

(GFMAT-089-2019) Methodological issues in DFT based modeling of active electrode materials for advanced metal-ion batteries (Invited)

S. Manzhos*¹

1. Institut National de la Recherche Scientifique, Centre Énergie Matériaux Télécommunications, Canada

9:30 AM

(GFMAT-090-2019) Thermodynamics and Ion Transport of Multivalent Cathode Materials (Invited)

P. Canepa*¹

1. National University of Singapore, Materials Science and Engineering, Singapore

10:00 AM

Break

All-Solid-State-Batteries

Room: Salon D

Session Chair: Mickael Dollé, Université de Montreal

10:20 AM

(GFMAT-091-2019) Development of Flexible Composite Solid Electrolyte and Quasi-solid Composite Cathode for Practical Realization of Solid-state Lithium-ion Batteries

K. Kanamura*¹; M. Shoji¹; E. Cheng¹

1. Tokyo Metropolitan University, Graduate School of Urban Environmental Sciences, Japan

10:55 AM

(GFMAT-092-2019) All-Solid-State Sodium Battery using electrode materials with different sintering temperature (Invited)

T. Kobayashi*¹

1. Central Research Institute of Electric Power Industry, Japan

11:25 AM

(GFMAT-093-2019) Oxide-based All-Solid-State Rechargeable Batteries using Room Temperature Ceramics Densification Technology (Invited)

Y. Iriyama*¹

1. Nagoya University, Japan

Anodes: Li-ion and Na-ion Battery

Room: Salon D

Session Chair: Valerie Pralong, CNRS ENSICAEN

1:30 PM

(GFMAT-094-2019) Pristine or Highly Defective? Understanding the Role of Graphene Structure for Stable Lithium Metal Plating (Invited)

D. Mitlin*¹

1. University of Alberta and NINT NRC, Chemical and Materials Engineering, Canada

2:00 PM

(GFMAT-095-2019) Interfacial reactions in sodium based batteries (Invited)

L. Ma¹; R. Mogensen¹; R. Younesi*¹

1. Uppsala University, Chemistry-Ångström Laboratory, Sweden

2:30 PM**(GFMAT-096-2019) Anode materials for Na-ion batteries and beyond (Invited)**A. Mukhopadhyay*¹

1. Indian Institute of Technology (IIT) Bombay, Metallurgical Engineering and Materials Science, India

3:00 PM**Break****Li-ion Battery**

Room: Salon D

Session Chair: Claude Delmas, Université Bordeaux

3:20 PM**(GFMAT-097-2019) Ion Dynamics in Solid-State Electrolytes and Electrodes as Revealed by Magnetic Resonance Imaging and Spectroscopy (Invited)**J. D. Bazak¹; G. Goward*¹

1. McMaster University, Canada

3:50 PM**(GFMAT-098-2019) Toward the development of aqueous batteries: Mastering the electrochemical interfaces (Invited)**A. Grimaud*¹,

1. College de France - CNRS, France

4:20 PM**(GFMAT-099-2019) Reversible oxygen-redox chemistry for large-capacity battery electrodes (Invited)**M. Okubo*¹

1. University of Tokyo, Japan

4:50 PM**(GFMAT-100-2019) Mxenes: 2D materials for high-performance batteries (Invited)**W. Luo*¹

1. Uppsala University, Sweden

Young Professionals Forum - Next Generation Materials for Multifunctional Applications and Sustainable Development, and Concurrent Societal Challenges in the New Millennium**Advances in Biomedical Science and Engineering II**

Room: Trinity I

Session Chairs: Sahar Mahshid, Sunnybrook Research Institute; Daniele Benetti, Institut National de la Recherche Scientifique

8:30 AM**(YPF-008-2019) Nanosurface fluidic devices based on 2D and 3D nanostructures for optical and electrochemical detection (Invited)**S. Mahshid*¹

1. McGill University, Bioengineering, Canada

9:00 AM**(YPF-009-2019) Mechanical behavior of pva-h with fluid-solid mixture structure using mixing theory for nucleus pulposus replacement**M. Heo*¹; C. Han¹; C. Han¹

1. Pusan National University, Republic of Korea

9:20 AM**(YPF-010-2019) From Nano to Micro – Synthesis and Optical Characterization of Rare-Earth-based Materials**E. Hemmer*¹

1. University of Ottawa, Chemistry and Biomolecular Sciences, Canada

9:40 AM**(YPF-011-2019) Strain engineering and surface hydrophobicity of NiTi shape memory alloys**P. Wu*¹

1. Singapore University of Technology and Design, Entropic Interface Group, Engineering Product Development, Singapore

10:00 AM**Break****Advances in Thermoelectric Materials**

Room: Trinity I

Session Chair: Tanmoy Maiti, Indian Institute of Technology Kanpur

10:30 AM**(YPF-012-2019) SbSe₂-based layered oxyselenides as a candidate multifunctional material for thermoelectric conversion and superconductivity (Invited)**Y. Goto*¹; Y. Mizuguchi¹

1. Tokyo Metropolitan University, Japan

11:00 AM**(YPF-013-2019) Generating thermoelectricity with flexible organic polymers (Invited)**E. Orgiu*¹

1. Institut National de la Recherche Scientifique, Energy Materials Telecommunications, Canada

Perovskites for Novel Applications

Room: Trinity I

Session Chair: Yosuke Goto, Tokyo Metropolitan University

1:30 PM**(YPF-014-2019) Micro-plasma based surface modification and enhancement in dielectric and piezoelectric properties of ZnO and BaTiO₃ based multifunctional composite thin films (Invited)**S. Banerjee*¹; S. Ahmed²; E. Leal-Quiros³

1. California State University, Fresno, Mechanical Engineering, USA
2. State University of New York - Buffalo State, Mechanical Engineering, USA
3. University of California, Merced, Mechanical Engineering, USA

2:00 PM**(YPF-015-2019) Simulation studies of Viable Perovskite Photovoltaic Devices utilizing Non-toxic and Cheap Material Alternatives (Invited)**S. Ahmed*¹; S. Banerjee²; S. Chowdhury³

1. State University of New York - Buffalo State, Mechanical Engineering, USA
2. California State University, Fresno, Mechanical Engineering, USA
3. Portland State University, Mechanical and Materials Engineering, USA

2:30 PM**(YPF-016-2019) Oxide Double Perovskites for High Temperature Thermoelectric Power Generation (Invited)**T. Maiti*¹

1. Indian Institute of Technology Kanpur, Materials Science and Engineering, India

3:00 PM**Break****Design and Development of Novel Functional Materials**

Room: Trinity I

Session Chairs: Akira Miura, Hokkaido University; Saquib Ahmed, State University of New York - Buffalo State

3:20 PM**(YPF-017-2019) Graphene: A multifunctional material to understand to design sustainable solutions (Invited)**C. Ouellet-Plamondon*¹

1. École de technologie supérieure, Canada

3:50 PM**(YPF-018-2019) Viral design approach for 3D colloidal plasmonic nanostructures (Invited)**

E. Sokullu^{*1}; M. Pinsard¹; J. Zhang¹; J. Plathier¹; G. Kolhatkar¹; A. S. Blum²; F. L egar e¹; A. Ruediger¹; T. Ozaki¹; M. A. Gauthier¹

1. Institut National de la Recherche Scientifique (INRS), Energy Materials Telecommunications (EMT) Research Center, Canada
2. McGill University, Chemistry, Canada

4:20 PM**(YPF-019-2019) A Review on the Design of MAX and MAB Phase Reinforced Composites**

S. Gupta^{*1}

1. University of North Dakota, Mechanical Engineering, USA

4:40 PM**Wrap up and planning for next YPN****Poster Session**

Room: Salon A/B

6:30 PM**(BIO-P001-2019) Evaluation of Parenteral Glass Packaging with Multiscale Imaging Techniques**

Y. Ma^{*1}; C. Srinivasan¹; S. Lee¹; C. Cruz¹

1. US Food and Drug Administration, Center for Drug Evaluation and Research, USA

(BIO-P002-2019) Large bone defect heal capacity of borosilicate bioactive scaffolds in goat tibia model

X. Cui^{*1}; D. Wang²; W. Huang²; H. Pan¹

1. Shenzhen Institutes of Advanced Technology, CAS, Center for Human Tissues and Organs Degeneration, China
2. Tongji University, School of Materials Science and Engineering, China

(BIO-P003-2019) Photothermal effect of graphene oxide-modified 3D-printed borosilicate bioglass scaffolds

A. Yao^{*1}; D. Wang¹; W. Huang¹

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

(BIO-P004-2019) Physicochemical and biological properties of bone cement made from bioactive borosilicate glass containing strontium

W. Huang^{*1}; X. Cui¹; D. Wang¹; A. Yao¹; H. Pan¹

1. Tongji University, School of Materials Science and Engineering, China
2. Shenzhen Institutes of Advanced Technology, CAS, Center for Human Tissues and Organs Degeneration, China
3. Shenzhen Institutes of Advanced Technology, Chinese Academy of Science, Center for Human Tissues and Organs Degeneration, China

(BIO-P005-2019) Angiogenesis and full-Thickness wound healing efficiency of a copper-doped borate bioactive glass/poly (lactic-co-glycolic acid) dressing loaded with vitamin E in vitro and in vivo

D. Wang^{*1}; Y. Tang¹; L. Pang¹; H. Hu¹; W. Jia¹; W. Huang¹

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

(BIO-P006-2019) Stereolithography of osteoconductive elastic bone implants based on hydrogel and octacalcium phosphate

A. Tikhonov^{*1}; E. Klimashina¹; P. Evdokimov¹; G. Shipunov¹; I. Scherbackov²; D. Zyuzin²; V. Putlayev¹; V. Dubrov²

1. Lomonosov Moscow State University, Department of Materials Science, Russian Federation
2. Lomonosov Moscow State University, Department of Fundamental Medicine, Russian Federation

(BIO-P007-2019) Resorbable ceramic materials based on calcium magnesium phosphates for bone regeneration

G. Kazakova^{*1}; V. Putlayev¹; T. Safronova¹

1. Lomonosov Moscow State University, Materials of Science, Russian Federation

(BIO-P008-2019) Effect of fluorapatite (FAP) coating on transform reaction of dicalcium phosphate dihydrate (DCPD) to FAP

N. Okajima^{*1}; M. Tafu¹; S. Takamatsu¹; T. Toshima¹; M. Takada²; Y. Hagino²

1. National Institute of Technology, Toyama College, Japan
2. Fudo Tetra Co., Japan

(BIO-P009-2019) 3D printed bioceramic microfluidic chip for biomimetic bone microenvironment and osteogenic drug screening

X. Shi^{*1}

1. South China University of Technology, China

(BIO-P010-2019) Evaluation of controlled cisplatin delivery in calcium phosphates/silicates nanoparticles for bone cancer therapy

L. Rodr guez-Mandujano^{*1}; J. Rinc n-L pez¹; A. Giraldo-Betancur²; J. Mu oz-Salda a¹

1. Centro de Investigaci n y de Estudios Avanzados del IPN, Cinvestav Unidad Quer taro, CENAPROT, Mexico
2. CONACyT-Centro de Investigaci n y de Estudios Avanzados del IPN, Cinvestav Unidad Quer taro, CENAPROT, Mexico

(BIO-P011-2019) Polypyrrole-coated poly(vinyl alcohol) fibers with improved neural performance at the tissue-electrode interface of brain implants

S. Naghavi Alhosseini^{*1}; F. Moztarzadeh¹; A. Karkhane¹; M. Mozafari²

1. Amirkabir University of Technology, Islamic Republic of Iran
2. Materials and Energy Research Center (MERC), Bioengineering Research Group, Nanotechnology and Advanced Materials Department, Islamic Republic of Iran

(BIO-P012-2019) Nitric oxide releasing coatings for the prevention of biofilm formation

R. D'Sa^{*1}; M. Li¹; J. Aveyard¹; G. Fleming¹

1. University of Liverpool, Engineering, United Kingdom

(BIO-P013-2019) Green machining of Alumina Dental Prosthesis: Root Implant, Crown and Bridge

V. Seesala^{*1}; S. Dhara¹

1. Indian Institute of Technology Kharagpur, School of Medical Science and Technology, India

(BIO-P014-2019) Cermet of Alumina - Ti₆Al₄V and green Machining

V. Seesala^{*1}; S. Dhara¹

1. Indian Institute of Technology Kharagpur, School of Medical Science and Technology, India

(BIO-P015-2019) Bioactive glass-containing coating layers on the surface of dental implants: An innovative approach to enhance bone regeneration at implant interface

F. Marhamati¹; S. Naghavi Alhosseini²; S. Roayaie^{*3}; M. Mozafari⁴

1. Kerman University of Medical Sciences, School of Dentistry, Islamic Republic of Iran
2. Amirkabir University of Technology, Biomedical Engineering Department, Islamic Republic of Iran
3. Shahid Beheshti University, Islamic Republic of Iran
4. Materials and Energy Research Center (MERC), Bioengineering Research Group, Nanotechnology and Advanced Materials Department, Islamic Republic of Iran

(BIO-P016-2019) Bone Tissue Compatibility of Hydroxyapatite-coated PEEK with Foamed Surface

R. Murai^{*1}; K. Mori¹; M. Kitamura¹; S. Kasahara¹

1. NGK SPARK PLUG CO., LTD., Japan

(BIO-P017-2019) A New Injectable Bone Graft Substitutes for Segmental/Large Bone Defects

W. Ren^{*1}; D. C. Markel²

1. Wayne State University, USA
2. Providence Hospital, Orthopaedic Surgery, USA

(BIO-P018-2019) Immune response with nanorod-structured biphasic calcium phosphate ceramics and the regulation on MC3T3-E1 cells

J. Wang^{*1}; H. Cang¹; X. Zhu²; X. Zhang²

1. Northwestern Polytechnical University, School of Life Sciences, China
2. Sichuan University, China

(BIO-P019-2019) Evaluation of durability of low temperature degradation free Zirconia toughened alumina head

J. Ikeda^{*1}

1. Kyocera Corporation, Medical Division Research Section, Japan

(BIO-P020-2019) Evaluating the Platelet Activation Related to the Degradation of Biomaterials by Scheme of Molecular Markers

S. Ye¹; H. Wang²; F. Zhao¹; T. Yuan^{*1}; J. Liang¹; C. Zhou¹; X. Zhang¹

1. Sichuan University, National Engineering Research Center for Biomaterials, China
2. Chinese Academy of Medical Science & Peking Union Medical College, Institute of Blood Transfusion, China

(BIO-P021-2019) Osteoinductivity of porous biphasic calcium phosphate ceramic spheres with nanocrystalline and their efficacy in guiding bone regeneration

X. Li^{*1}; Y. Xiao¹; X. Zhu¹; X. Zhang¹

1. Sichuan University, China

(BIO-P022-2019) Application of CaP biomaterials in repair of load-bearing bone defects

X. Zhu^{*1}; X. Yang¹; X. Li¹; X. Zhang¹

1. Sichuan University, China

(BIO-P023-2019) Fracture Behavior and Stress Distribution of Monolithic and CAD/CAM Veneered Zirconia FDPsM. Alsarani^{*1}; O. El-Mowafy¹; T. W. Coyle²; A. Rizkalla³; J. Fava⁴

1. University of Toronto, Restorative Dentistry, Canada
2. University of Toronto, Materials Science and Engineering, Canada
3. Western University, Chemical and Biochemical Engineering, Canada
4. University of Toronto, Prosthodontics, Canada

(YPF-P024-2019) Double perovskite based composite material for solid oxide fuel cell electrode applicationS. Saini^{*1}

1. IIT Kanpur, Materials Science and Engineering, India

(GFMAT-P025-2019) Band-gap energies and Seebeck coefficient of $\text{Cu}_2\text{Sn}(\text{S}_y\text{Se}_{1-x})_3$ solid solutionM. Sijar¹; J. Cho¹; W. Jin¹; J. Kim²; C. Park^{*1}

1. Seoul National University, Department of Materials Science and Engineering, Republic of Korea
2. Korea Institute of Science and Technology, Republic of Korea

(GFMAT-P026-2019) Densification and grain growth in alumina ceramics prepared via conventional sintering and spark plasma sintering (SPS)W. Pabst^{*1}; E. Gregorova¹; V. Necina¹; T. Uhlirava¹

1. University of Chemistry and Technology, Prague, Department of Glass and Ceramics, Czechia

(GFMAT-P027-2019) The potential of brewery waste for the synthesis of Carbon Quantum DotA. Thibaut^{*1}

1. ETS, Canada

(GFMAT-P028-2019) Enhanced Thermoelectric Figure of Merit ZT In Halide Doped Bismuth SulfideF. Anjum^{*1}; T. Maiti¹

1. Indian Institute of Technology Kanpur, Materials Science & Engineering, India

(GFMAT-P029-2019) Synthesis of molybdenum trioxide nanoparticles by pulsed wire discharge using multiple molybdenum wiresC. M. Ngo^{*1}; H. Suematsu¹; T. D. Do¹; H. D. Nguyen¹; T. Nakayama¹

1. Extreme Energy-Density Research Institute, Nagaoka University of Technology, Japan

(GFMAT-P030-2019) Corrosion and Corrosion-Erosion resistance of Ni-Co -TiO₂ nanocomposite coatingsS. Balasivanandha Prabhu²; R. Paskaramoorthy^{*1}

1. University of the Witwatersrand, Mechanical Engineering, South Africa
2. Anna University, Mechanical Engineering, India

(GFMAT-P031-2019) Improvement of fatigue strength of thermoplastic composites reinforced by kenaf natural fibreO. Asumani¹; R. Paskaramoorthy^{*1}

1. University of the Witwatersrand, Mechanical Engineering, South Africa

(GFMAT-P032-2019) Effect of impurities on properties of calcium phosphates from unused phosphate and calcium resourcesF. Ninomiya^{*1}; S. Takamatsu¹; M. Tafu¹; T. Toshima¹

1. National Institute of Technology, Toyama College, Japan

(GFMAT-P033-2019) Reactivity improvement of dicalcium phosphate dihydrate (DCPD) with fluoride ion by using unused calcium resourcesN. Sasakawa^{*1}; M. Tafu¹; S. Takamatsu¹; T. Toshima¹; M. Irie²; T. Fujita³; Y. Matsushita³

1. National Institute of Technology, Toyama College, Japan
2. University of Miyazaki, Japan
3. Chiyoda-Ute, Japan

(GFMAT-P034-2019) Fabrication of textured B₄C with oriented pores via magnetic field assisted colloidal processingS. Azuma^{*1}; T. Uchikoshi¹; K. Yoshida²; T. S. Suzuki¹

1. National Institute for Materials Science (NIMS), Japan
2. Tokyo Institute of Technology, Laboratory for Advanced Nuclear Energy, Institute of Innovative Research, Japan

(GFMAT-P035-2019) Synthesis of ordered mesoporous silica from rice husk for recycling bioresourceJ. Lee^{*1}; J. Chun¹; Y. Gu¹

1. Korea Institute of Ceramic Engineering and Technology (KICET), Convergence Bioceramic Materials Center, Republic of Korea

(GFMAT-P036-2019) Evaluation of LiGaO₂ single crystal scintillator for neutron detectionT. Yanagida^{*1}; K. Watanabe²; N. Kawaguchi²

1. Nara Institute of Science and Technology, Japan
2. Nara Institute of Science and Technology, Graduate School of Materials Science, Japan
3. Nagoya University, Japan

(GFMAT-P037-2019) Evaluation of terbium activated Sr₂(Y,Gd,Lu)₈(SiO₄)₆O₂ single crystals on scintillation propertiesT. Yanagida^{*1}; N. Kawaguchi²

1. Nara Institute of Science and Technology, Japan
2. Nara Institute of Science and Technology, Graduate School of Materials Science, Japan

(GFMAT-P038-2019) Fabrication of Sr_{0.5}Ba_{0.5}Nb₂O₆ Nanocrystallite-Precipitated Transparent Glass-CeramicsH. Masai^{*1}; T. Miyazaki²; T. Fujiwara³

1. National Institute of Advanced Industrial Science and Technology (AIST), Department of Materials and Chemistry, Japan
2. Tohoku University, Japan
3. Tohoku University, Applied Physics, Japan

(GFMAT-P039-2019) Nano-phase separation and the effect of SnO addition in TiO₂-precipitated glass-ceramicsH. Masai^{*1}; T. Miyazaki²; K. Mibu³; Y. Takahashi³; T. Fujiwara³

1. National Institute of Advanced Industrial Science and Technology (AIST), Department of Materials and Chemistry, Japan
2. Tohoku University, Japan
3. Nagoya Institute of Technology, Japan
4. Tohoku University, Department of Applied Physics, Japan

(GFMAT-P040-2019) Radiation response properties of strontium aluminoborate glasses doped with CeN. Kawano^{*1}; N. Kawaguchi²; G. Okada³; Y. Fujimoto⁴; T. Yanagida⁵

1. Akita University, Japan
2. Nara Institute of Science and Technology, Graduate School of Materials Science, Japan
3. Kanazawa Institute of Technology, Japan
4. Tohoku University, Japan
5. Nara Institute of Science and Technology, Japan

(GFMAT-P041-2019) Scintillation properties of tellurium oxide glasses doped with europiumN. Kawano^{*1}; K. Shinozaki²; H. Kimura³; N. Kawaguchi⁴; T. Yanagida³

1. Akita University, Japan
2. AIST, Inorganic Functional Materials Research Institute, Japan
3. Nara Institute of Science and Technology, Japan
4. Nara Institute of Science and Technology, Graduate School of Materials Science, Japan

(GFMAT-P042-2019) Scintillation properties of Yb²⁺-doped strontium halide crystalsD. Sekine¹; Y. Fujimoto¹; M. Koshimizu^{*1}; T. Yanagida²; K. Asai¹

1. Tohoku University, Department of Applied Chemistry, Japan
2. Nara Institute of Science and Technology, Japan

(GFMAT-P043-2019) Nucleation Mechanism from Fluoride Segregation in New Transparent Oxyfluoride Nanocrystallized GlassesK. Shinozaki^{*1}; Y. Ishii²; S. Sukenaga³; H. Shibata³; K. Ohara⁴

1. AIST, Inorganic Functional Materials Research Institute, Japan
2. Osaka University, Graduate School of Engineering Science, Japan
3. Tohoku University, Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Japan
4. JASRI, Japan

(GFMAT-P044-2019) Synthesis and Luminescence of Layered Organic-Inorganic Perovskite Nanocrystals in GlassK. Shinozaki^{*1}; N. Kawano²

1. AIST, Inorganic Functional Materials Research Institute, Japan
2. Akita University, Japan

(GFMAT-P045-2019) Scintillation and X-ray Storage Luminescence of Sn-doped Zinc Sodium Phosphate GlassesN. Kawaguchi^{*1}; T. Yanagida²

1. Nara Institute of Science and Technology, Graduate School of Materials Science, Japan
2. Nara Institute of Science and Technology, Japan

(GFMAT-P046-2019) Radioluminescence Properties of Sn-doped Gallium Oxide Single CrystalsN. Kawaguchi^{*1}; T. Yanagida¹

1. Nara Institute of Science and Technology, Japan

(GFMAT-P047-2019) Scintillation properties of RE₂Hf₂O₇ single crystalsD. Nakauchi*; N. Kawaguchi¹; T. Yanagida¹

1. Nara Institute of Science and Technology, Japan

(GFMAT-P048-2019) Evaluation of Sm:SrCl₂ single crystal scintillatorsD. Nakauchi*; Y. Fujimoto¹; N. Kawaguchi²; T. Yanagida²

1. Tohoku University, Japan
2. Nara Institute of Science and Technology, Japan

(GFMAT-P049-2019) Piezoelectric thin films on Si for ultrasonic fingerprint recognition systems

S. Baek*

1. Korea Institute of Science and Technology, Center for Electronic Materials, Republic of Korea

(GFMAT-P050-2019) Active brazing of Al₂O₃ to copper using dual active filler Ag-Cu-Sn-Zr-Ti for electric vehicleR. S. Harini¹; S. J. Hwang¹; D. W. Kim¹; H. J. Kang¹; J. Jung*

1. University of Seoul, Department of Materials Science and Engineering, Republic of Korea

(GFMAT-P051-2019) Starch-based processing of porous ceramics with hierarchical microstructure and partially sintered matrixE. Gregorova*; W. Pabst¹; T. Uhlir¹

1. University of Chemistry and Technology, Prague, Department of Glass and Ceramics, Czechia

(GFMAT-P052-2019) Biomaterial with bioactive function and biomaterial with antimicrobial functionH. Muto*; S. Kobayashi²

1. Adamant Namiki Precision Jewel Co., Ltd., Advanced R&D Dept, Japan
2. Tokyo Metropolitan University, Mechanical Engineering, Japan

(GFMAT-P053-2019) Porous ceramic grafts made via unit-by-unit additive manufacturing

K. Teraoka*

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

(GFMAT-P054-2019) 3D ultra-porous bone graft bioceramic materials via SLAS. Tikhonova*; P. Evdokimov¹; P. Milkin¹; D. Zuev¹; V. Putlayev²

1. Lomonosov Moscow State University, Department of Materials Science, Russian Federation
2. Lomonosov Moscow State University, Department of Chemistry, Russian Federation

(GFMAT-P055-2019) Fabrication and investigations of thermoelectric properties of organic thin film devicesI. Eryilmaz*; Y. Chen¹; E. Orgiu¹

1. Institut National de la Recherche Scientifique, Energy Materials Telecommunications, Canada

(GFMAT-P056-2019) Thermoelectric performance of p-type BiSbTe based materials coated by ZnO via an atomic layer depositionJ. Kim*; C. Park²; K. Kim¹; J. Shin³; S. Kim¹

1. Korea Institute of Science and Technology, Republic of Korea
2. Seoul National University, Republic of Korea
3. Korea Institute of Science and Technology, Center for Electronic Materials, Republic of Korea

(GFMAT-P057-2019) Development of RuO₂ thin film prepared by photo-assisted metal-organic depositionY. Uzawa*; M. Suzuki²; T. Nakajima¹; I. Yamaguchi¹; T. Tsuchiya¹; D. B. Chrisey²

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan
2. Tulane University, Physics, USA
3. National Institute of Advanced Industrial Science and Technology, Japan

(GFMAT-P058-2019) Flexible Transparent Conducting Thin Film Prepared by Photo Chemical Solution Process For Flexible ElectronicsT. Tsuchiya*; Y. Uzawa¹; T. Nakajima¹; I. Yamaguchi¹

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

(GFMAT-P059-2019) Measurement of mechanical properties of SiC coating using microcantilever beam specimensJ. Tatami*; Y. Imoto¹; A. Ito¹; M. Iijima¹; T. Yahagi²; T. Takahashi²

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

(GFMAT-P060-2019) Numerical Modeling of the Lamellar Domain Damage in MMCR. Piat*; P. Happ¹; M. Kashtalyan²; I. Gus²

1. Darmstadt University of Applied Science, Germany
2. School of Engineering, University of Aberdeen, United Kingdom

(GFMAT-P061-2019) Synthesis of Stable β-PdH_{0.43} nanocrystals with Controllable Structure and Their Catalytic Activity towards Formic Acid OxidationY. Jiang*; C. Zhan¹

1. Xiamen University, China

(GFMAT-P062-2019) Impact of electric field and grain size on thermal conductivity of spin thermal conductivity filmY. Nara*; N. Terakado²; Y. Takahashi²; T. Fujiwara³

1. Tohoku University, Japan
2. Tohoku University, Department of Applied Physics, Japan
3. Tohoku University, Applied Physics, Japan

(GFMAT-P063-2019) Compositional engineering to novel bismuth-based organic-inorganic hybrid halide perovskitesP. Dey*; T. Maiti¹

1. Indian Institute of Technology Kanpur, Materials Science and Engineering, India

(GFMAT-P064-2019) Nb and La doped SrTiO₃ oxides and nanocomposites for high temperature thermoelectric power generationS. S. Jana*; T. Maiti²

1. Indian Institute of Technology, Material Science Engineering, India
2. Indian Institute of Technology Kanpur, Materials Science and Engineering, India

(GFMAT-P065-2019) Enhanced thermoelectric performance of 20% Nb-doped SrTiO₃: Effect of Spark Plasma SinteringT. Bhattacharya*; T. Maiti²

1. Indian Institute of Technology, Materials Science and Engineering, India
2. Indian Institute of Technology Kanpur, Materials Science and Engineering, India

(GFMAT-P066-2019) Tensile Creep Behaviors of Lap-Spliced Carbon Fiber-Textile Reinforced Cementitious Mortar Composites

K. Choi*

1. Soongsil University, School of Architecture, Republic of Korea

(GFMAT-P067-2019) Characterizations of Sr₂CeO₄ ceramics for scintillator applicationsT. Kato*; N. Kawaguchi¹; T. Yanagida¹

1. Nara Institute of Science and Technology, Japan

(GFMAT-P068-2019) Defects as luminescence centres in long persistent phosphor of α-Na_xZn_{3-0.5x}(PO₄)₂G. Chen*; H. Lin¹; Z. Zheng¹; W. Chen¹

1. Minnan Normal University, School of Chemistry Chemical Engineering & Environment, China

(GFMAT-P069-2019) Luminescence mechanism and enhancement of a red long persistent phosphor γ-Zn₃(PO₄)₂: Mn²⁺ by doping Mg²⁺H. Lin*; G. Chen¹; Z. Zheng¹

1. Minnan Normal University, School of Chemistry Chemical Engineering & Environment, China

(GFMAT-P070-2019) Optical and scintillation properties of Ce-doped Ca₃Sc₂Si₃O₁₂ single crystalT. Kato*; N. Kawaguchi¹; T. Yanagida¹

1. Nara Institute of Science and Technology, Japan

Wednesday, July 24, 2019

G2: Novel, Green, and Strategic Processing and Manufacturing Technologies**Novel, Green, and Strategic Processing II**

Room: Trinity IV

Session Chairs: Kiyoshi Shimamura, National Institute for Materials Science; Yoshitake Masuda, National Institute of AIST

8:30 AM**(GFMAT-101-2019) Novel single crystals for electro-optical applications: Growth and characteristics (Invited)**K. Shimamura*; V. Garcia¹

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

9:00 AM**(GFMAT-102-2019) Novel, Green, and Strategic Processing of Ceramic Nanomaterials for Sensors: SnO₂, TiO₂, ZnO (Invited)**Y. Masuda*¹

1. National Institute of AIST, Japan

9:30 AM**(GFMAT-103-2019) Glass and Ceramic Drilling Using Fiber Lasers (Invited)**S. Jiang*¹

1. AdValue Photonics Inc, USA

10:00 AM**Break****10:20 AM****(GFMAT-105-2019) Localized plasticity in SiC ceramics induced by laser shock processing**F. Wang¹; X. Yan¹; C. Zhang²; L. Deng²; M. Nastasi¹; Y. Lu²; B. Cui*¹

1. University of Nebraska-Lincoln, Mechanical and Materials Engineering, USA
2. University of Nebraska-Lincoln, Electrical and Computer Engineering, USA

10:40 AM**(GFMAT-106-2019) SiC/VSi₂ for different uses**J. Narciso*¹; A. Ortega¹; M. R. Caccia¹

1. Alicante University, Spain

G3: Crystalline Materials for Electrical, Optical and Medical Applications**Optical Materials III**

Room: Salon C

Session Chairs: Nerine Cherepy, Lawrence Livermore National Lab; Philippe Goldner, Chimie ParisTech

8:30 AM**(GFMAT-108-2019) Novel waveguide Bragg grating structures produced by femtosecond direct laser writing (Invited)**R. Laberdesque*¹; Y. Petit¹; H. Fares¹; A. Abou-Khalil²; S. Danto¹; I. Manek-Hönninger²; T. Cardinal¹; L. Canioni²

1. CNRS, ICMCB, France
2. University of Bordeaux, CELIA, France

9:00 AM**(GFMAT-109-2019) Development of Advanced Oxide Thin Films Prepared by Ultraviolet Laser Reaction for Electrical and Optical Applications (Invited)**T. Tsuchiya¹; T. Nakajima¹; I. Yamaguchi*¹; J. Nomoto¹; Y. Uzawa¹

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

9:30 AM**(GFMAT-110-2019) Additive Manufacturing of Transparent Ceramics (Invited)**Z. M. Seeley*¹; T. Yee¹; N. Cherepy¹; S. A. Payne¹

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

10:00 AM**Break****10:20 AM****(GFMAT-111-2019) Unique Advanced Transparent Oxide Ceramics Films (Invited)**T. Yamamoto*¹; Y. Furubayashi¹

1. Kochi University of Technology, Research Institute, Japan

10:50 AM**(GFMAT-112-2019) Fabrication of transparent polycrystalline ceramics by colloidal processing and SPS (Invited)**T. S. Suzuki*¹

1. National Institute for Materials Science, Ceramics Processing Group, Japan

11:20 AM**(GFMAT-113-2019) Rapid Sintering of Alumina by Laser Irradiation (Invited)**T. Kimura*¹

1. Japan Fine Ceramics Center, Japan

G5: Advanced Functional Materials, Devices, and Systems for Environmental Conservation, Pollution Control and Critical Materials**Advanced Functional Materials, Devices, and Systems VII**

Room: Trinity III

Session Chairs: Kazuhiko Maeda, Tokyo Institute of Technology; Katsuro Hayashi, Kyushu University

8:50 AM**(GFMAT-114-2019) New opportunities in chemistry from mixed-anion compounds (Invited)**H. Kageyama*¹

1. Kyoto University, Japan

9:20 AM**(GFMAT-115-2019) Design and development of layered mixed anion compounds for future functional materials (Invited)**H. Ogino*¹

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

9:45 AM**(GFMAT-116-2019) Effect of Nitrogen/Fluorine Codoping into Rutile TiO₂ on Its Photocatalytic Activity**A. Miyoshi*¹; J. J. Vequizo²; S. Nishioka¹; Y. Kato³; M. Yamamoto⁴; S. Yamashita⁵; T. Yokoi¹; S. Nozawa⁶; A. Yamakata¹; T. Yoshida¹; K. Kimoto²; K. Maeda¹

1. Tokyo Institute of Technology, Japan
2. Toyota Technological Institute, Japan
3. Osaka City University, Japan
4. Nagoya University, Japan
5. National Institute for Materials Science (NIMS), Japan
6. High Energy Accelerator Research Organization, Japan

10:00 AM**Break****Advanced Functional Materials, Devices, and Systems VIII**

Room: Trinity III

Session Chairs: Hiroshi Kageyama, Kyoto University; Hiraku Ogino, National Institute of Advanced Industrial Science and Technology (AIST)

10:20 AM**(GFMAT-117-2019) Photocatalytic and Photoelectrochemical Water Splitting and CO₂ Fixation using New Mixed-Anion Compounds (Invited)**K. Maeda*¹

1. Tokyo Institute of Technology, Japan

10:45 AM**(GFMAT-118-2019) Fabrication of ceria-zirconia particles with high specific surface area by microwave-emulsion method (Invited)**M. Inada*¹; J. Hojo²

1. Kyushu University, Center of Advanced Instrumental Analysis, Japan
2. Kyushu University, Faculty of Engineering, Japan

11:10 AM**(GFMAT-119-2019) Titanium Carbonitride Nanoflakes Converted from MXene by Nitrogen Gas Annealing (Invited)**K. Hayashi*¹; K. Nishimi¹; N. Tsuruno¹; K. Kimoto³; G. Hasegawa¹; M. Inada²

1. Kyushu University, Department of Applied Chemistry, Japan
2. Kyushu University, Japan
3. National Institute for Materials Science (NIMS), Japan

11:35 AM

(GFMAT-120-2019) Two-Dimensional MXene and Their Composites: Synthesis and Applications (Invited)J. Zhu*¹

1. Shaanxi University of Science and Technology, School of Materials Science and Engineering, China

G7: Ceramics Modeling, Genome and Informatics**Prediction of Structure and Performance I**

Room: Trinity I

Session Chair: Yanwen Zhang, Oak Ridge National Laboratory

8:30 AM

(GFMAT-121-2019) Effects of Electronic and Nuclear Energy Dissipation on Nanostructure Evolution (Invited)W. J. Weber*¹; E. Zarkadoulas²; Y. Zhang²

1. University of Tennessee, Materials Science and Engineering, USA
2. Oak Ridge National Lab, Materials Science and Technology, USA

9:00 AM

(GFMAT-122-2019) Hydrogen Storage Materials and Hydrogen Economy (Invited)R. Ahuja*¹

1. Uppsala University, Physics and Astronomy, Sweden

9:30 AM

(GFMAT-123-2019) Thermochromic VO₂ for smart windows: A view from first principles calculations (Invited)Y. Cui*¹; B. Liu¹; Y. Gao¹

1. Shanghai University, China

10:00 AM

Break

Prediction of Structure and Performance II

Room: Trinity I

Session Chair: William Weber, University of Tennessee

10:20 AM

(GFMAT-124-2019) Ab Initio Molecular Dynamics Studies of Low-Energy Recoil Events in Functional OxidesY. Zhang*¹; B. A. Petersen²; B. Liu³; H. Xiao⁴; W. J. Weber²

1. Oak Ridge National Laboratory, USA
2. University of Tennessee, Materials Science and Engineering, USA
3. Shanghai University, China
4. University of Electronic Science and Technology of China, China

11:00 AM

(GFMAT-125-2019) Diurnal variation detector concept for dark matter particles (Invited)K. Nordlund*¹

1. University of Helsinki, Finland

G8: Advanced Batteries and Supercapacitors for Energy Storage Applications**K-ion Battery**

Room: Salon D

Session Chair: Seung-Taek Myung, Sejong University

8:30 AM

(GFMAT-127-2019) On the way to K-ion batteries: Negative electrodes based on p-group elements (Invited)V. Gabaudan¹; J. Touja¹; R. Berthelot¹; L. Monconduit¹; L. Stievano*¹

1. ICGM, University of Montpellier, CNRS, France

9:00 AM

(GFMAT-128-2019) Advancing Materials Research For Rechargeable Potassium Ion Batteries (Invited)T. Masese*¹; K. Yoshii¹; M. Kato¹; K. Kubota¹; H. Senoh¹

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

9:30 AM

(GFMAT-129-2019) High Voltage Sodium and Potassium-ion Batteries by Concentrated Aqueous Electrolytes (Invited)S. Okada*¹; K. Nakamoto¹; R. Sakamoto²; M. Ito¹

1. Kyushu University, Institute for Materials Chemistry and Engineering, Japan
2. Kyushu University, Interdisciplinary Graduate School of Engineering Sciences, Japan

10:00 AM

Break

Organic Materials for Battery

Room: Salon D

Session Chair: Shigeto Okada, Kyushu University

10:20 AM

(GFMAT-130-2019) Further Insights into the Interfacial Chemistry of Organic Electrode Materials for Li-ion batteries (Invited)A. Naylor²; D. Brandell²; S. Renault*¹

1. Institut des Matériaux Jean Rouxel (IMN), France
2. Department of Chemistry – Ångström Laboratory, Sweden

10:50 AM

(GFMAT-131-2019) Organic cathode materials for Mg batteries (Invited)J. Bitenc*¹; K. Pirnat¹; T. Bančič¹; A. Vizintin¹; A. Randon Vitanova²; R. Dominko¹

1. National Institute of Chemistry, Department of Materials Chemistry, Slovenia
2. Honda R&D Europe GmbH, Germany

11:20 AM

(GFMAT-132-2019) Water processable binders for aqueous rechargeable lithium ion batteryE. Tomassi¹; J. Profil²; S. Rousselot¹; L. Hadidi*¹; L. Stafford²; M. Dollé¹

1. Université de Montréal, Chemistry, Canada
2. Université de Montréal, Physics, Canada

11:40 AM

(GFMAT-133-2019) Active Material / Carbon Nanotube Electrodes: A Versatile Architecture For High Energy Density Lithium BatteriesS. Rousselot*¹; P. Antitomaso¹; L. Savignac²; S. Genereux¹; L. W. Taylor³; T. Bibienne¹; M. Pasquali²; S. B. Schougaard²; M. Dollé¹

1. Université de Montréal, Chemistry, Canada
2. Université du Québec à Montréal, Chemistry, Canada
3. Rice University, Dept of Chemical and Biomolecular Engineering and Dept of Chemistry, USA

G14: Advanced CMCs: Processing, Evaluation, and Applications**Advanced CMCs: Processing Evaluation, and Applications**

Room: Trinity II

Session Chairs: Emmanuel Boakye, UES Inc.; Marina Ruggles-Wrenn, Air Force Institute of Technology

8:30 AM

(GFMAT-134-2019) Development of non-oxide ceramic matrix composites for application in advanced gas turbine (Invited)H. Klemm*¹; C. Steinborn¹; K. Schönfeld¹; A. Michaelis²

1. FhG IKTS Dresden, Germany
2. Fraunhofer IKTS, Germany

9:00 AM**(GFMAT-135-2019) Thermal History Mapping Technology for Turbine Engine Diagnostics (Invited)**K. N. Lee*¹; C. Pilgrim²

1. NASA Glenn Research Center, Materials & Structures, USA
2. Sensor Coating Systems, United Kingdom

9:30 AM**(GFMAT-136-2019) Static Fatigue of Hi-Nicalon™-S Fiber at Elevated Temperature in Air, Steam and Silicic-Acid-Saturated Steam**S. Robertson¹; M. Ruggles-Wrenn*¹; R. Hay²; T. Shillig¹; R. Mitchell¹; B. Kroeger¹; L. Gumucio¹

1. Air Force Institute of Technology, Aeronautics & Astronautics, USA
2. Air Force Research Laboratory, USA

9:50 AM**(GFMAT-137-2019) Manufacturing and testing of a novel hybrid nozzle assembly based on liquid silicon infiltration**L. F. Klopsch*¹

1. DLR - German Aerospace Center, Ceramic Composites and Structures, Germany

10:10 AM**Break****10:30 AM****(GFMAT-138-2019) Critical role of ZrO₂ on Densification, Microstructure Development and High Temperature Erosion Behaviour of Spark Plasma Sintered NbB₂ (Invited)**T. Maity*¹; N. Gopinath³; K. Biswas¹; B. Basu²

1. Indian Institute of Technology Kanpur, Materials Science and Engineering, India
2. Indian Institute of Science, Materials Research Centre, India
3. Indian Institute of Science, Aerospace Engineering, India

11:00 AM**(GFMAT-139-2019) Manufacture and thermomechanical characterisation of wet filament wound C/C-SiC composites**M. Frieß*¹

1. DLR - German Aerospace Center, Institute of Structures and Design, Germany

11:20 AM**(GFMAT-140-2019) Rare earth disilicate fiber coatings for SiC/SiC CMCs**E. E. Boakye*¹; P. Mogilevsky¹; T. A. Parthasarathy¹; T. Key¹; M. Cinibulk²; R. Hay²; S. Opeka¹

1. UES Inc., Materials Science, USA
2. Materials and Manufacturing Directorate AFRL, USA

Thursday, July 25, 2019**G2: Novel, Green, and Strategic Processing and Manufacturing Technologies****Novel, Green, and Strategic Processing III**

Room: Trinity IV

Session Chairs: Paul Kim, Rutgers University; Baoqiang Li, Institute for Advanced Ceramics, Harbin Institute of Technology

8:30 AM**(GFMAT-141-2019) Carbonate Ceramics for the Reduction of Global Carbon Footprint (Invited)**D. Kopp*¹; R. Riman¹

1. Rutgers, The State University of New Jersey, Materials Science & Engineering, USA

9:00 AM**(GFMAT-142-2019) Microwave carbonization for chitosan derived porous carbon and carbon dots for supercapacitor and bioimaging (Invited)**B. Li*¹; G. Liu¹; Y. Chen¹; D. Jia¹; Y. Zhou¹

1. Institute for Advanced Ceramics, Harbin Institute of Technology, China

9:30 AM**(GFMAT-143-2019) Cold Sintering processing of perovskite halides for solar cell applications (Invited)**M. Kumar¹; P. Bharti¹; P. A. Jha¹; P. K. Jha¹; P. Singh*¹

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

10:00 AM**Break****10:20 AM****(GFMAT-144-2019) Biogenic metallic nanoparticles: A nanometric trojan horse approach**D. Medina Cruz*¹; T. J. Webster¹

1. Northeastern University, Chemical Engineering, USA

10:40 AM**(GFMAT-145-2019) Study on Processing of Novel Spinel Transparent Ceramics by Aqueous Gel-casting Technique**H. Wang*¹

1. Wuhan University of Technology, China

11:00 AM**(GFMAT-146-2019) Ceramic Matrix Nanocomposites Fabricated using Cold Sintering Assisted Synthesis Route**A. Dwivedi*¹

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

Novel, Green, and Strategic Processing IV

Room: Trinity IV

Session Chairs: Reginaldo Muccillo, IPEN; Koji Morita, National Institute for Materials Science (NIMS)

1:30 PM**(GFMAT-147-2019) Electric field-assisted sintering of ceramic materials for sustainable energy production devices (Invited)**R. Muccillo*¹

1. IPEN, Brazil

2:00 PM**(GFMAT-148-2019) Nanocrystalline scandia-stabilized zirconia with improved properties after consolidation by high pressure electric field-assisted sintering (Invited)**E. N. Muccillo*¹; R. L. Grosso¹; R. Castro²

1. Energy and Nuclear Research Institute, Brazil
2. University of California, Davis, Material Science & Engineering, USA

2:30 PM**(GFMAT-149-2019) Fabrication of transparent zinc sulfide by spark-plasma-sintering (SPS) (Invited)**K. Morita*¹; B. Kim¹; T. S. Suzuki¹

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

3:00 PM**Break****3:20 PM****(GFMAT-150-2019) Spark Plasma Sintering of Mesoporous Powders (Invited)**L. Wang*¹; M. Wang¹; W. Jiang¹

1. Donghua University, China

3:50 PM**(GFMAT-151-2019) The fabrication of ultrastrong 3Y-TZP and ATZ ceramics by an oscillatory pressure sintering process**Z. Xie*¹

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

4:10 PM**(GFMAT-152-2019) Mechanical Properties of Multi-Material of Carbon-Fiber-Reinforced Plastic/Aluminum Alloy**Y. Sugimoto¹; D. Shimamoto*¹; Y. Hotta¹; T. Ohji¹

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

4:30 PM**(GFMAT-153-2019) High-throughput Combustion Synthesis of Solid State Ceramic Powders at Electric Field Assisted Ultra-high Temperature**S. Shuang*¹; H. Li¹; G. He¹; Y. Li¹; J. Li¹

1. Technical Institute of Physics and Chemistry, CAS, China

4:50 PM**(GFMAT-154-2019) Effect of NiO Content on the Microwave Sintering and Electrical Properties of NiO-YSZ Composite and Ni-YSZ cermet anode for SOFC**K. L. Singh¹; A. P. Singh*²; P. Sharma¹1. DAV Institute of Engineering and Technology, Applied Sciences, India
2. IKG Punjab Technical University, Research & Development, India**5:10 PM****(GFMAT-155-2019) Comparison of Microwave Processing and Conventional Processing of Sr doped Hydroxyapatite Biomaterial**A. P. Singh*¹; R. Chdha²; C. Sharma²; K. L. Singh³1. IKG Punjab Technical University, Research & Development, India
2. IKG Punjab Technical University, Chemical Sciences, India
3. DAV Institute of Engineering Technology, Applied Sciences, India**G3: Crystalline Materials for Electrical, Optical and Medical Applications****Scintillators**

Room: Salon C

Session Chairs: Zachary Seeley, Lawrence Livermore National Lab;
Takayuki Yanagida, Nara Institute of Science and Technology**8:30 AM****(GFMAT-156-2019) Development of transparent ceramic scintillators (Invited)**T. Yanagida*¹; N. Kawaguchi²1. Nara Institute of Science and Technology, Japan
2. Nara Institute of Science and Technology, Graduate School of Materials Science, Japan**9:00 AM****(GFMAT-157-2019) Analysis of the energy transfer processes in orthosilicate scintillators using transient absorption spectroscopy (Invited)**M. Koshimizu*¹; Y. Muroya²; S. Yamashita³; H. Yamamoto⁴; T. Yanagida⁵; Y. Fujimoto¹; K. Asai¹1. Tohoku University, Department of Applied Chemistry, Japan
2. Osaka University, Japan
3. University of Tokyo, Japan
4. National Institute for Quantum and Radiological Science and Technology, Japan
5. Nara Institute of Science and Technology, Japan**9:30 AM****(GFMAT-158-2019) Luminescence properties of organic-inorganic layered perovskite-type compounds under UV and X-ray irradiation (Invited)**N. Kawano*¹; M. Koshimizu²; A. Horiai²; F. Nishikido³; R. Haruki⁴; S. Kishimoto⁴; K. Shibuya⁶; Y. Fujimoto⁵; T. Yanagida⁵; K. Asai²1. Akita University, Japan
2. Tohoku University, Department of Applied Chemistry, Japan
3. National Institute of Radiological Sciences, Japan
4. High Energy Accelerator Research Organization, Japan
5. Nara Institute of Science and Technology, Japan
6. University of Tokyo, Japan**10:00 AM****Break****10:20 AM****(GFMAT-159-2019) Photoluminescence and Scintillation in New Oxyfluoride Glasses with Designed Fluoride Segregation (Invited)**K. Shinozaki*¹; S. Sukenaga²; H. Shibata³; K. Ohara³; G. Okada³; N. Kawaguchi³; T. Yanagida⁵1. AIST, Inorganic Functional Materials Research Institute, Japan
2. Tohoku University, Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Japan
3. JASRI, Japan
4. Kanazawa Institute of Technology, Japan
5. Nara Institute of Science and Technology, Graduate School of Materials Science, Japan**10:50 AM****(GFMAT-160-2019) Fluoride Scintillators for Thermal Neutron Detection (Invited)**N. Kawaguchi*¹; T. Yanagida²1. Nara Institute of Science and Technology, Graduate School of Materials Science, Japan
2. Nara Institute of Science and Technology, Japan**G4: Porous Ceramics for Advanced Applications through Innovative Processing****Porous Bioceramics I**

Room: Trinity III

Session Chair: Manabu Fukushima, National Institute of Advanced Industrial Science and Technology (AIST)

8:30 AM**(GFMAT-161-2019) Unidirectional oriented Porous Ceramic and Zirconia with bioactive surface (Invited)**G. Turri*¹; H. Muto²1. Namiki Precision of Europe SA, Business and R&D Division, Swaziland
2. Adamant Namiki Precision Jewel Co., Ltd., Advanced R&D Dept, Japan**9:00 AM****(GFMAT-162-2019) Fabrication and Characterization of Hydroxyapatite/Poly(lactic acid) Porous Scaffolds (Invited)**S. Kobayashi*¹; Y. Zusho¹; T. Osada¹

1. Tokyo Metropolitan University, Mechanical Engineering, Japan

9:30 AM**(GFMAT-163-2019) Porosity of calcium phosphate ceramic granules and ceramic-collagen composites used as bone void fillers (Invited)**I. R. Dunkley*¹; K. Nieder¹

1. Medtronic, Biologics, USA

10:00 AM**Break****High SSA Ceramics**

Room: Trinity III

Session Chairs: Young-Wook Kim, University of Seoul; Kay Teraoka, National Institute of Advanced Industrial Science and Technology (AIST)

10:20 AM**(GFMAT-164-2019) Microwave-emulsion method for the fabrication of spherical mesoporous silica-titania (Invited)**M. Inada*¹; J. Hojo²1. Kyushu University, Center of Advanced Instrumental Analysis, Japan
2. Kyushu University, Faculty of Engineering, Japan**10:50 AM****(GFMAT-165-2019) Interior Porosity Designed Synthesis of Mesoporous Alumina Powders Using Polymeric Surfactants (Invited)**T. Kimura*¹

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

11:20 AM**(GFMAT-166-2019) Formation of electrospun nanofibers with nanobelt, hollow and lamellar morphologies (Invited)**G. Grader*¹; O. Elishav²; Y. Shener¹; V. Beilin¹; G. S. Shter¹1. Technion - Israel Institute of Technology, Chemical Engineering, Israel
2. Technion - Israel Institute of Technology, Israel**11:50 AM****(GFMAT-167-2019) Enzyme-modified ceramic capillary membranes for the production of peptides under flow**M. M. Hoog Antink*¹; T. Sewczyk²; S. Kroll³; P. Árki³; S. Beutel²; K. Rezwan¹; M. Maas¹1. University of Bremen, Advanced Ceramics, Germany
2. Leibniz University Hannover, Institute for Technical Chemistry, Germany
3. University of Applied Sciences and Arts, IfBB – Institute for Bioplastics and Biocomposites, Germany
4. Technische Universität Bergakademie Freiberg, Institute of Electronic and Sensor Materials, Germany

Innovative Characterization and Behavior of Porous Ceramics

Room: Trinity III

Session Chair: Mary Anne White, Dalhousie University

1:30 PM

(GFMAT-168-2019) Three-dimensional flow in the pores of the porous material can be evaluated using the micro X-ray CT image (Invited)

N. Nango^{*}; K. Nomura¹; Y. Horiguchi¹; S. Kubota¹

1. RATOC SYSTEM ENGINEERING CO., LTD, Japan

2:00 PM

(GFMAT-169-2019) Resilient ceramic aerogels constructed by silicon-based nanowires (Invited)

H. Wang^{*}; L. Su¹; M. Li¹; D. Lu¹

1. Xi'an Jiaotong University, Material Science and Engineering, China

2:30 PM

(GFMAT-170-2019) Effect of porous C/C preforms density on water lubrication tribology properties of C/C-SiC composites fabricated by RMI

J. Wang^{*}; X. Liu¹

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

2:50 PM

(GFMAT-171-2019) Sol-gel oxycarbide derived carbons developed through chemical and chlorine etching and their electrochemical characteristics

A. Tamayo^{*}; M. Rodriguez²; L. Salvador²; F. Rubio¹; A. Mazo¹; J. Rubio¹

1. Institute of Ceramics and Glass, CSIC, Spain
2. University of Extremadura, Spain

3:10 PM

Break

Mechanical and Thermal Properties of Porous Ceramics

Room: Trinity III

Session Chair: Satoshi Kobayashi, Tokyo Metropolitan University

3:20 PM

(GFMAT-172-2019) Processing of High Strength Porous Silica Ceramics with Low Thermal Conductivity (Invited)

Y. Kim^{*}; S. Rajpoot¹; R. Malik¹

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

3:50 PM

(GFMAT-173-2019) Thermal Properties of Freeze-Cast Ceramics (Invited)

M. White^{*}

1. Dalhousie University, Canada

4:20 PM

(GFMAT-174-2019) Research on porous ceramics for heat-insulation (Invited)

C. Wang^{*}

1. Tsinghua University, China

4:50 PM

(GFMAT-175-2019) Thermal conductivity using three-dimensional oriented microstructures in gelation freezing derived cellular ceramics

M. Fukushima^{*}; H. Hyuga¹; Y. Yoshizawa¹

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

5:10 PM

(GFMAT-176-2019) Young's modulus and Poisson's ratio of porous ceramics with random microstructure

W. Pabst^{*}; T. Uhlirova¹; E. Gregorova¹

1. University of Chemistry and Technology, Prague, Department of Glass and Ceramics, Czechia

G6: Multifunctional Coatings for Sustainable Energy and Environmental Applications

Thick Films and Coatings for Energy Applications

Room: Trinity II

Session Chairs: Kentaro Shinoda, National Institute of Advanced Industrial Science and Technology (AIST); Tetsuya Yamamoto, Korea University of Technology

8:30 AM

(GFMAT-177-2019) Agglomeration of suspended solids in suspension plasma spraying (SPS) Process (Invited)

J. Mostaghimi^{*}; E. Dalir¹; M. Javid¹; A. Dolatabadi²; C. Moreau²

1. University of Toronto, Mechanical and Industrial Engineering, Canada
2. Concordia University, Mechanical and Industrial Engineering, Canada

9:00 AM

(GFMAT-178-2019) Advanced opportunities for fine ceramic coatings and coatings properties

M. Shahien^{*}; K. Shinoda¹; M. Suzuki¹; J. Akedo¹

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

9:20 AM

(GFMAT-179-2019) Toward Reducing the Environmental Footprint in the Manufacture of Plasma Sprayed YSZ Thermal Barrier Coatings (TBCs) (Invited)

R. S. Lima^{*}

1. National Research Council of Canada, Canada

9:50 AM

(GFMAT-180-2019) Crystal structure and thermal conductivity of cation-deficient perovskite type oxides

S. Kitaoka^{*}; T. Matsudaira¹; N. Kawashima¹; T. Ogawa¹; C. Fisher¹; T. Kato¹; D. Yokoe¹; Y. Habu²

1. Japan Fine Ceramics Center, Japan
2. TOCALO Co., Ltd., Japan

10:10 AM

Break

10:30 AM

(GFMAT-181-2019) Tailoring the wettability of hydrophobic ceramic coatings fabricated by the solution precursor plasma spray process (Invited)

T. W. Coyle^{*}; P. Xu²; J. Mostaghimi²

1. University of Toronto, Materials Science and Engineering, Canada
2. University of Toronto, Mechanical and Industrial Engineering, Canada

11:00 AM

(GFMAT-182-2019) Fine Powder Plasma Spraying of Alumina with Various Diameter

M. Suzuki^{*}

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

11:20 AM

(GFMAT-183-2019) The Role of the Interfacial Oxide film on Cold Spayed Particle Deposition at the Interface Between an Aluminum Particle and an YSZ Ceramic Substrate (Invited)

K. Ogawa^{*}; S. Nakamura¹; Y. Ichikawa¹

1. Tohoku University, Fracture and Reliability Research Institute, Japan

11:50 AM

(GFMAT-184-2019) Hybrid Aerosol Deposition Process: Deposition Mechanism and Functional Design

K. Shinoda^{*}; M. Shahien²; J. Akedo¹

1. National Institute of Advanced Industrial Science and Technology (AIST), Advanced Manufacturing Research Institute, Japan
2. National Institute of Advanced Industrial Science and Technology (AIST), Advanced Coating Technology Research Center, Japan

Thin Films and Functional Coatings

Room: Trinity II

Session Chairs: Jun Akedo, AIST; Thomas Coyle, University of Toronto

1:30 PM**(GFMAT-185-2019) Pulsed Photoinitiated Fabrication of Inkjet Printed Titanium Dioxide/Reduced Graphene Oxide Nanocomposite Thin Films (Invited)**D. B. Chrisey*¹

1. Tulane University, Physics, USA

2:00 PM**(GFMAT-186-2019) Thermal stability of molybdenum doped titania anatase photocatalyst for indoor building materials**V. Kumaravel*¹; S. Mathew¹; J. Bartlett¹; S. C. Pillai¹

1. Institute of Technology Sligo, Nanotechnology and Bio-Engineering Research Group, Department of Environmental Science, Ireland

2:20 PM**(GFMAT-187-2019) Fabrication of Oxide Nanostructure Gas Sensor Devises by a Simple Step MOD Method Fabrication of Oxide Nanostructure Gas Sensor Devises by a Simple Step MOD Method**T. Sugahara*¹; L. Alipour¹; K. Suganuma¹

1. Osaka University, Japan

2:40 PM**(GFMAT-188-2019) Flexible Oxide Thin Film Grown by Excimer Laser Assisted Metal Organic Deposition**T. Tsuchiya*¹; Y. Uzawa¹; T. Nakajima¹; I. Yamaguchi¹; J. Nomoto¹

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

3:00 PM**Break****3:20 PM****(GFMAT-189-2019) Smart coating process of Ga-doped ZnO films for wide applications (Invited)**T. Yamamoto*¹; Y. Furubayashi¹

1. Kochi University of Technology, Research Institute, Japan

3:50 PM**(GFMAT-190-2019) Development of Infrared Sensor for Detecting Water Pollution Based on Selenide Waveguide**M. Baillieu¹; E. Baudet¹; E. Rinnert²; J. Charrier³; L. Bodiou³; F. Colas²; K. Boukerma⁴; P. Nemeč⁴; K. Michel⁵; V. Nazabal*¹

1. CNRS-University of Rennes 1, ISCR, France
2. IFREMER, France
3. University of Rennes 1, FOTON, France
4. University of Pardubice, Czechia
5. BRGM, France

G7: Ceramics Modeling, Genome and Informatics**Prediction of Structure and Performance III**

Room: Trinity I

Session Chair: Jian Luo, University of California, San Diego

8:30 AM**(GFMAT-191-2019) New approach to the theory of formation of high entropy alloys (Invited)**W. Ching*¹

1. University of Missouri-Kansas City, USA

9:00 AM**(GFMAT-192-2019) Screening Interfaces of Energy Materials Using First-Principles Calculations (Invited)**P. Canepa*¹

1. National University of Singapore, Materials Science and Engineering, Singapore

9:30 AM**(GFMAT-193-2019) First principles-based studies of finite temperature properties of complex oxides (Invited)**V. R. Cooper*¹; K. Pitike¹; Y. Li²

1. Oak Ridge National Laboratory, Materials Science and Technology Division, USA
2. Oak Ridge National Laboratory, Center for Computational Sciences, USA

10:00 AM**Break****Multi-scale Modeling I**

Room: Trinity I

Session Chair: Wai-Yim Ching, University of Missouri-Kansas City

10:20 AM**(GFMAT-194-2019) A Decade-Long Thrust to Compute "Grain Boundary Diagrams": From Phenomenological Models to Atomistic Simulations and Deep Learning**J. Luo*¹

1. University of California, San Diego, USA

11:00 AM**(GFMAT-195-2019) Perspectives of ion beam application for synthesis of room temperature single electron transistors embedded in SiO₂ (Invited)**F. Djurabekova*¹; C. Fridlund¹; K. Nordlund¹

1. University of Helsinki, Department of Physics, Finland

11:30 AM**(GFMAT-196-2019) Effective Elastic Properties of Two-Phase Composites: Numerical Studies of the Irregular Undulated Shape of Inclusions (Invited)**R. Piat*¹; P. Happ¹

1. Darmstadt University of Applied Science, Germany

Multi-scale Modeling II

Room: Trinity I

Session Chair: Xingqiu Chen, Institute of Metal Research

1:30 PM**(GFMAT-197-2019) Effects of many body interactions in potential models for ceramics (Invited)**T. Oda*¹

1. Seoul National University, Department of Nuclear Engineering, Republic of Korea

2:00 PM**(GFMAT-198-2019) Alkali ions sorption in cement paste: A computational study across time and length scales (Invited)**L. Béland*¹

1. Queen's University, Mechanical & Materials Engineering, Canada

2:30 PM**(GFMAT-199-2019) Theoretical studies on triplet-triplet annihilation based photon up-conversion in solution and solid (Invited)**Y. Shigeta*¹

1. University of Tsukuba, Center for Computational Sciences, Japan

3:00 PM**Break****Big Data and Informatics**

Room: Trinity I

Session Chairs: Jincheng Du, University of North Texas; Valentino Cooper, Oak Ridge National Laboratory

3:20 PM**(GFMAT-200-2019) Spontaneous Ferroelectric Distortion Driven Weyl Semimetal State in HgPbO₃**X. Chen*¹

1. Institute of Metal Research, China

4:00 PM**(GFMAT-201-2019) Design of lithium ion solid state electrolytes by couple atomistic simulations and experimental investigations (Invited)**J. Du*¹

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

4:30 PM**(GFMAT-202-2019) Application of Computational Thermodynamics in Solid Oxide Fuel Cell (Invited)**Y. Zhong*¹

1. Worcester Polytechnic Institute, Mechanical Engineering, USA

5:00 PM**(GFMAT-203-2019) Machine-learning phase prediction of high-entropy alloys (Invited)**H. Zhuang*¹; W. Huang¹; P. Martin¹

1. Arizona State University, USA

G8: Advanced Batteries and Supercapacitors for Energy Storage Applications**Cathodes: Li-ion and Na-ion Battery**

Room: Salon D

Session Chair: Neeraj Sharma, University of New South Wales

8:30 AM**(GFMAT-204-2019) The Sodium Layered Oxides in Na-Batteries**C. Delmas*¹; D. Carlier²; M. Guignard²; J. Yoshida⁴

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

9:05 AM**(GFMAT-205-2019) Aqueous Processing and Formation of Ni-Rich Cathodes for Lithium-Ion Batteries (Invited)**D. L. Wood*¹; M. Wood¹; S. An¹; J. Li¹; Z. Du¹; R. Ruther¹; C. Mao¹

1. Oak Ridge National Lab, Fuel Cell Technologies Program, USA

9:35 AM**(GFMAT-206-2019) DFT-assisted Solid State NMR Characterization of Vanadium Fluorophosphates as Battery Materials**D. Carlier*¹; T. Bamine¹; P. Sanz-Camacho¹; L. Nguyen¹; E. Boivin¹; C. Masquelier²; L. Croguennec²

1. ICMCB, France
2. ICMCB-CNRS, France
3. LRCS, France

9:55 AM**Break****Na-ion Battery and Capacitors**

Room: Salon D

Session Chair: Dany Carlier, ICMCB

10:20 AM**(GFMAT-207-2019) Sodium reactivity in Na-Mn-O systems (Invited)**V. Pralong*¹; E. Adamczyk²

1. CNRS ENSICAEN, France
2. CNRS CRISMAT, France

10:50 AM**(GFMAT-208-2019) Na-Mn-O compounds for rechargeable sodium batteries (Invited)**S. Myung*¹

1. Sejong University, Republic of Korea

11:20 AM**(GFMAT-209-2019) Lithium and sodium electrochemical (de) intercalation in layered molybdenum oxides (Invited)**M. Guignard*¹; M. Suchomel¹; N. Sharma²; C. Delmas¹

1. ICMCB-CNRS, France
2. University of New South Wales, Australia

11:50 AM**(GFMAT-210-2019) High Permittivity Ceramics for Single Layer Capacitors and Energy Storage Devices**V. Krstic*¹

1. Functional Materials Manufacturing Inc., Canada

G9: Innovative Processing of Metal Oxide Nanostructures, Heterostructures and Composite Materials for Energy Storage and Production**Innovative Processing**

Room: York B

Session Chair: Thomas Fischer, University of Cologne

1:30 PM**(GFMAT-211-2019) Synthesis and Properties of Low-dimensional Titania Nanotube/Polyaniline Nanohybrids by In-situ Photopolymerization (Invited)**K. Tsukatani¹; S. Tsukuda²; T. Goto¹; S. Chou¹; T. Sekino*¹

1. Osaka University, The Institute of Scientific and Industrial Research, Japan
2. Tohoku University, Institute of Multidisciplinary Research for Advanced Materials, Japan

2:00 PM**(GFMAT-212-2019) Oxide Bilayers as High Efficiency Water Oxidation Catalysts through Electronically Coupled Phase Boundaries (Invited)**T. Fischer*¹; J. Leduc¹; Y. Gönüllü¹; S. Mathur¹

1. University of Cologne, Institute of Inorganic Chemistry, Germany

2:30 PM**(GFMAT-213-2019) Low-temperature Sintering Process of Bioactive Glass Nanoparticles Under Hydrothermal Conditions**Y. Seo*¹; T. Goto¹; S. Chou¹; T. Sekino¹

1. Osaka University, The Institute of Scientific and Industrial Research, Japan

2:50 PM**(GFMAT-214-2019) The inhibition of hydrogen and oxygen recombination and over-all water splitting over Pt-TiO₂**G. Lu*¹

1. Lanzhou Institute of Chemical Physics, China

3:10 PM**Break****3:30 PM****(GFMAT-215-2019) Solution processing of complex nanostructured sponges (Invited)**G. Westin*¹

1. Uppsala University, Sweden

4:00 PM**(GFMAT-216-2019) Correlation between electron density of SrTiO_{3-δ} powder and hydrogen/oxygen evolution photocatalytic activities**S. Nishioka*¹; J. Hyodo²; J. J. Vequizo³; S. Yamashita⁴; H. Kumagai¹; K. Kimoto⁴; A. Yamakata³; Y. Yamazaki²; K. Maeda¹

1. Tokyo Institute of Technology, Japan
2. Kyushu University, Japan
3. Toyota Technical Institute, Japan
4. National Institute for Materials Science (NIMS), Japan

4:20 PM**(GFMAT-217-2019) Preparation of thin film in low-dimensional spin system toward electric control of thermal conductivity**N. Terakado^{*}; Y. Machida¹; Y. Nara¹; S. Watanabe¹; Y. Takahashi¹; T. Fujiwara¹

1. Tohoku University, Japan

4:40 PM**(GFMAT-218-2019) Novel Tetra-cation Organometallic Halide-based Perovskite Solar Cell**P. Dey¹; T. Maiti^{*}

1. Indian Institute of Technology Kanpur, Materials Science and Engineering, India

G11: Smart Processing and Production Root Technology for Hybrid Materials**Smart Processing for Hybrid Materials**

Room: Salon C

Session Chair: Tadachika Nakayama, Nagaoka University of Technology

1:30 PM**(GFMAT-219-2019) Oxide glass-ceramics for all-solid state Na ion batteries (Invited)**T. Honma^{*}; T. Komatsu²

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

2:00 PM**(GFMAT-220-2019) Effects of Adhesives Types on Interfacial Strength Evaluation Method for Plasma-Sprayed Hydroxyapatite Coating (Invited)**Y. Otsuka^{*}

1. Nagaoka University of Technology, System Safety, Japan

2:30 PM**(GFMAT-221-2019) Pyroelectric power generation with 7mol% La-modified Lead Zirconate Titanate PLZT (7/65/35)**K. B. Parussangi^{*}

1. Nagaoka University of Technology, Department of Mechanical Engineering, Japan

2:50 PM**(GFMAT-222-2019) A C-S-H Builder and Interface Modeling Tools towards Accurate Reactive Full Electrolyte Simulations of Cement Materials up to the Micrometer Scale**D. Guittet²; T. Jamil²; H. Heinz^{*}

1. University of Colorado-Boulder, USA
2. University of Colorado, Department of Chemical and Biological Engineering, USA

3:10 PM**Break****3:30 PM****(GFMAT-223-2019) Evaluation of Mechanical Property by Micro Slurry-Jet Erosion Test in Ceramics (Invited)**Y. Miyashita^{*}; Y. Kihara¹; T. Katsumata²; T. Matsubara²

1. Nagaoka University of Technology, Department of Mechanical Engineering, Japan
2. Palmeco Corporation Limited, Japan

4:00 PM**(GFMAT-224-2019) Self-healing properties of die-silicate compound-based composite material (Invited)**T. Nakayama^{*}

1. Nagaoka Univ of Tech, Japan

4:30 PM**(GFMAT-225-2019) Adsorption of Pb and Cd in rice husk and their immobilization in glass-ceramic structure**E. Sharifikolouei^{*}; F. Baino¹; M. Salvo¹; D. Fino¹; M. Ferraris¹

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

4:50 PM**(GFMAT-226-2019) Development of mixing method of ceramics powder using electric field**T. Nakayama^{*}

1. Nagaoka Univ of Tech, Japan

5:10 PM**(GFMAT-227-2019) Investigation of pyroelectric power generation amount by controlling Sn:Ti ratio of PLZST**H. Sugiyama^{*}; Y. Kawamura¹; K. B. Parussangi¹; N. Ishibashi¹; H. Yoshimura¹; M. Takeda¹; N. Yamada¹; H. Hashimoto²; T. Goto²; T. Sekino²; T. Nakayama¹

1. Nagaoka Univ of Tech, Japan
2. Osaka University, The Institute of Scientific and Industrial Research, Japan

G15: Advanced Luminescent Materials and Their Applications**Luminescent Materials and Applications**

Room: Salon D

Session Chairs: Rong-Jun Xie, Xiamen University; Jianhua Hao, Hong Kong Polytechnic University

1:30 PM**(GFMAT-228-2019) Novel Approaches for Stabilizing Luminescent Lead Halide Perovskite Materials and Their Applications in Analytical Sensing (Invited)**F. M. Li¹; H. Z. Kang¹; Y. Jiang¹; X. Chen^{*}

1. Xiamen University, China

2:00 PM**(GFMAT-229-2019) Synthesis and Fluorochromic Properties of Eu³⁺-activated Tungstate Phosphors**S. Fujihara^{*}; H. Ye¹; R. Hara¹; M. Hagiwara¹

1. Keio University, Japan

2:20 PM**(GFMAT-231-2019) Luminescent Materials for Laser-Driven Solid State Lighting (Invited)**R. Xie^{*}; L. Wang²

1. Xiamen University, China
2. China Jiliang University, China

3:10 PM**Break****3:30 PM****(GFMAT-232-2019) The f-d transitions of Ce³⁺, Pr³⁺ and Eu²⁺ in silicates for potential display and detecting applications (Invited)**H. Liang^{*}

1. Sun Yat-sen University, School of Chemistry, China

4:00 PM**(GFMAT-233-2019) Luminescent 2D layered semiconductor nanosheets doped with lanthanide activated ions (Invited)**J. Hao^{*}

1. Hong Kong Polytechnic University, Hong Kong

4:30 PM**(GFMAT-234-2019) Scandium-Based Luminescent Nanomaterials (Invited)**L. Huang^{*}

1. Nanjing Tech University, China

5:00 PM**(GFMAT-235-2019) Ab Initio molecular dynamics study of structure-composition-property relationships in phosphors**M. Amachraa^{*}; H. Tang¹; C. Chen²; Z. Wang²; S. Ong³

1. University of California, San Diego, Materials Science, USA
2. Technical University of Denmark, Physics, Denmark
3. University of California, San Diego, Department of NanoEngineering, USA

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

Advances in Biomedical Science and Engineering III

Room: York A

Session Chair: Eva Hemmer, University of Ottawa

11:30 AM

(YPF-020-2019) Translational Biomaterials: How interdisciplinary Science can be put to work (Invited)

E. I. Alarcon*¹

1. University of Ottawa, Biochemistry, Microbiology and Immunology, Canada

Friday, July 26, 2019

G4: Porous Ceramics for Advanced Applications through Innovative Processing

Porous Bioceramics II

Room: Trinity III

Session Chair: Alberto Ortona, SUPSI

8:30 AM

(GFMAT-237-2019) Osteoconductive microarchitecture of ceramics realized by additive manufacturing for bone tissue engineering (Invited)

F. E. Weber*¹

1. University Zurich, Center for Medical Dentistry/Oral Biotechnology & Bioengineering, Switzerland

9:00 AM

(GFMAT-238-2019) Additive manufacturing of ceramic-based materials for bioapplications: A state of the art of the activity in the field at the Institute of Research for Ceramics (IRCER, Limoges, France) (Invited)

F. Rossignol*¹

1. Institute of Research for Ceramics (IRCER), UMR CNRS 7315, France

9:30 AM

(GFMAT-239-2019) 3DP of bioceramics with accurate hierarchical pores for personalized maxillofacial repair

C. Zhou*¹; B. Zhang¹; Y. Fan¹; X. Zhang¹

1. Sichuan University, China

9:50 AM

Break

Processing and Engineering Applications of Porous Ceramics

Room: Trinity III

Session Chairs: Franz Weber, University Zurich; Fabrice Rossignol, Institute of Research for Ceramics (IRCER)

10:10 AM

(GFMAT-240-2019) Cellular ceramics produced by additive manufacturing and coated with natural zeolite: A new class of filter for the adsorption of micro-pollutants in waste and surface waters (Invited)

R. Koenig¹; G. Bianchi¹; M. Spaggiari¹; A. Ortona*¹

1. SUPSI, MEMTI, Switzerland

10:40 AM

(GFMAT-241-2019) Pseudoboehmite–polymethylsilsesquioxane macroporous monoliths formed by colloidal gelation

G. Hayase*¹

1. Tohoku University, Japan

11:00 AM

(GFMAT-242-2019) Developing Porous Glass and Ceramic Microspheres for Water Treatment Applications

I. Ahmed*¹; S. Samad¹; E. Lester¹

1. University of Nottingham, Faculty of Engineering, United Kingdom

11:20 AM

(GFMAT-243-2019) Manufacture of high porous SiC to be used as catalysis suport

J. Narciso*¹; M. R. Caccia¹; A. Ortega¹

1. Alicante University, Spain

11:40 AM

(GFMAT-244-2019) Argon microbubbles enhance strength and toughness in borosilicate glass

B. Wang*¹

1. Xi'an Jiaotong University, State Key Laboratory for Mechanical Behavior of Materials, China

G6: Multifunctional Coatings for Sustainable Energy and Environmental Applications

Aerosol Deposition Processes

Room: Trinity II

Session Chair: Rogerio Lima, National Research Council of Canada

8:30 AM

(GFMAT-245-2019) Highly Transparent Al₂O₃ Film and Deep Black Colored Al₂O₃ Film Fabricated by Using Aerosol Deposition Process (Invited)

J. Park*¹; D. Kim¹; H. Seok¹; K. Lee¹

1. IONES Co., Ltd., Republic of Korea

9:00 AM

(GFMAT-246-2019) Shadow-optical visualization of the gas jet formation in the Aerosol Deposition Method

P. Glosse*¹; S. Denneler²; O. Stier²; D. Hanft¹; R. Moos¹

1. University of Bayreuth, Department of Functional Materials, Germany

2. Siemens AG, Germany

9:20 AM

(GFMAT-247-2019) New coating method for optically down converting composite layers via aerosol deposition process (Invited)

S. Kim²; M. Cho¹; S. Kim²; J. Oh*¹

1. Kwangwoon University, Electronic materials engineering, Republic of Korea

2. Ajou University, Molecular Science and Technology, Republic of Korea

9:50 AM

(GFMAT-248-2019) Bonding Mechanism of Ceramic Fine Particles on RTC phenomenon of Aerosol Deposition Process

J. Akedo*¹

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

10:10 AM

(GFMAT-249-2019) Liquid Phase Synthesis of Functional Nanoparticles Controlled in Size and Shape and their Application to Printed Electronics Technology

K. Kanie*¹

1. Tohoku University, IMRAM, Japan

G7: Ceramics Modeling, Genome and Informatics

Genome and Machine Learning

Room: Trinity I

Session Chair: Katsuyuki Matsunaga, Nagoya University

8:30 AM

(GFMAT-250-2019) Orbital-free density functional theory calculation combined with semi-local machine-learned kinetic energy density functional (Invited)

J. Seino*¹; R. Kageyama¹; M. Fujinami¹; Y. Ikabata¹; H. Nakai¹

1. Waseda University, Japan

9:00 AM

(GFMAT-251-2019) Design of new thermal barrier coating materials through high-throughput first principles calculations (Invited)

B. Liu*¹; Y. Liu¹

1. Shanghai University, China

9:30 AM

(GFMAT-252-2019) Phonon Engineering for tunable thermal properties of RE-silicate TEBC 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

10:00 AM

Break

Experiment Oriented Modeling

Room: Trinity I

Session Chair: Bin Liu, Shanghai University

10:20 AM

(GFMAT-253-2019) Electronic Structures at Dislocation Cores in Zinc Sulfide Showing Extraordinary Plastic Deformation

K. Matsunaga*¹

1. Materials Physics, Nagoya University; Nanostructures Research Laboratory, Japan Fine Ceramics Center, Japan

11:00 AM

(GFMAT-254-2019) Modeling of PVD Process for Thermal Barrier Coating of Turbine Blades (Invited)

Y. Han*¹; Y. Oh¹; S. Lee¹; H. Kim¹

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

11:30 AM

(GFMAT-255-2019) Core-rim structures as a hierarchical phase relationship developed by dopant re-distribution via sintering (Invited)

H. Gu*¹

1. Shanghai University, School of Materials Science & Engineering, Materials Genome Institute, China

Monday, July 22, 2019

B2: Advanced Additive Manufacturing Technologies for Bio-Applications: Materials, Processes, and Systems

AM Technologies for Bio Applications I (Joint Session with G13)

Room: Trinity IV

Session Chairs: Soshu Kirihara, Osaka University; Cho-Pei Jiang, National Taipei University of Technology

4:30 PM

(BIO-001-2019) Fabrication of Bioceramic Implants by Stereolithographic Additive

S. Kirihara*¹

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

4:50 PM

(BIO-002-2019) Lithography-based Ceramic Manufacturing as tool for production of bioresorbable ceramic scaffolds

D. Bomze*¹; C. Schmidleithner²; M. Schwentenwein¹; D. Kalaskar³; J. Stampff²

1. Lithoz GmbH, Austria
2. Vienna University of Technology, Institute of Materials Science and Technology, Austria
3. University College London, Division of Surgery and Interventional Sciences, United Kingdom

5:10 PM

(BIO-003-2019) Innovative solutions in order to produce multi bioceramic implants by 3D printing

R. Gaignon*¹

1. 3DCERAM SINTO, France

B4: Multifunctional Bioceramics: Current and Future Therapy

Multifunctional Bioceramics

Room: York B

Session Chairs: Miho Nakamura, Tokyo Medical and Dental University; Ahmed El-Ghannam, University of North Carolina at Charlotte

1:20 PM

(BIO-004-2019) Characterization and Control of Surface States of Metals and Ceramics (Invited)

T. Hanawa*¹

1. Tokyo Medical and Dental University, Institute of Biomaterials and Bioengineering, Japan

1:50 PM

(BIO-005-2019) Nonwoven polymer fiber mats-based scaffolds and bio-sensor substrates: Morphology, Structure, and Mechanical Properties (Invited)

P. Gouma*¹

1. The Ohio State University, MSE, USA

2:20 PM

(BIO-006-2019) Bioactive Ceramic Dental Cements

C. Primus*¹; R. Walsh²; K. Woodmansey³

1. Primus Consulting, USA
2. Advanced Endo of Texas, USA
3. St. Louis University, Center for Advanced Dental Education, USA

2:40 PM

(BIO-007-2019) (Fe/Sr) co-doped biphasic calcium phosphate with tailored osteoblast cell functionality

S. Basu*¹; A. Ghosh²; A. Barui²; B. Basu¹

1. Indian Institute of Science, Materials Research Centre, India
2. Indian Institute of Engineering Science And Technology, India

3:00 PM

Break

*Denotes Presenter

3:20 PM

(BIO-008-2019) Fiber-Reinforced Bioactive Composites for Implant Applications (Invited)

P. K. Vallittu*¹

1. University of Turku, Biomaterials Science, Finland

3:50 PM

(BIO-009-2019) Application of synchrotron X-ray radiation for the analyses of biomaterials and biological tissues (Invited)

M. Uo*¹

1. Tokyo Medical and Dental University, Advanced Biomaterials, Japan

4:20 PM

(BIO-010-2019) Effect of different root canal filling materials in endo-perio lesions: Design and computational analysis

A. Purwar¹; P. Pathak*²

1. Indian School of Business, India
2. Ramaiah University of Applied Sciences, Bengaluru, Department of Periodontics, India

4:40 PM

(BIO-011-2019) Anisotropic crystal growth of dicalcium phosphate dihydrate by chemical micro-mist synthesis

T. Toshima*¹; D. Yamashita¹; S. Takamatsu¹; M. Tafu²

1. National Institute of Technology, Toyama College, Department of Mechanical Engineering, Japan
2. National Institute of Technology, Toyama College, Japan
3. National Institute of Technology, Toyama College, Department of Applied Chemistry and Chemical Engineering, Japan

B7: Materials and Process Challenges to Upscale Fabrication of 3-D Tissue Constructs

Materials and Process Challenges to Upscale Fabrication of 3D Tissue Constructs

Room: York A

Session Chair: Markus Reiterer, Medtronic, PLC

1:30 PM

(BIO-013-2019) Nano-and Microfabricated Hydrogels for Regenerative Engineering (Invited)

A. Khademhosseini*¹

1. University of California Los Angeles, Department of Bioengineering, USA

2:00 PM

(BIO-014-2019) Robotic fabrication of tissues (Invited)

J. Hoying*¹

1. Advanced Solutions Life Sciences, USA

2:30 PM

(BIO-015-2019) In vitro tissue engineering by stimuli-responsive biomaterials (Invited)

M. Yamamoto*¹

1. Tohoku University, Department of Materials Processing, Graduate School of Engineering, Japan

3:00 PM

Break

B12: Advanced Bioceramics and Clinical Applications

Advanced Bioceramics and Clinical Applications

Room: Trinity V

Session Chair: Xingdong Zhang, Sichuan University

1:30 PM

(BIO-016-2019) Bioceramic/polymer composites for tissue regeneration (Invited)

J. Chang*¹

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

2:10 PM**(BIO-017-2019) Polymeric brushite cement (P-DCPD) as a tool of local protein delivery**W. Ren^{*1}; T. Shi¹; D. C. Markel²

- Wayne State University, USA
- Providence Hospital, Orthopaedic Surgery, USA

2:30 PM**(BIO-018-2019) Rational Design of the Versatile Surface with Cells/Bacteria Recognition Capability and its mechanism**L. Wang^{*1}; J. Chen¹; Y. Wang¹

- South China University of Technology, School of Biomedical Science and Engineering, China

2:50 PM**(BIO-019-2019) Functional Bionic Hydrogels for Chondral and Osteochondral Regeneration**Y. Fan^{*1}

- Sichuan University, National Engineering Research Center for Biomaterials, China

3:10 PM**Break****3:30 PM****(BIO-020-2019) Bio-inspired Nano-/micro- CaP Biomaterials and Scaffolds for Bone Interface Tissue Regeneration (Invited)**Y. Du¹; J. Wang¹; S. Zhang^{*1}

- Huazhong University of Science and Technology, Advanced Biomaterials and Tissue Engineering Center, China

4:00 PM**(BIO-021-2019) Bioinorganic Angiogenesis (Invited)**J. Barralet^{*1}

- McGill University, Surgery, Canada

4:30 PM**(BIO-022-2019) Copper-containing silicate bioceramics for tumor therapy and tissue regeneration**Q. Yu^{*1}; J. Chang¹; C. Wu²

- Shanghai Institute of Ceramics, Chinese Academy of Sciences, State Key Laboratory of High Performance Ceramics and Superfine Microstructure, China
- Shanghai Institute of Ceramics, Chinese Academy of Sciences, Biomaterials and Tissue Engineering Research Center, China

4:50 PM**(BIO-023-2019) A Polydopamine/Bioceramic Multifunctional Composite Hydrogel for Infected Wound Healing**Q. Xu^{*1}; J. Chang²

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

5:10 PM**(BIO-024-2019) Healing of osteoporotic bone defects by micro-/nano-structured calcium phosphate bioceramics**R. Zhao^{*1}; S. Chen¹; B. Yuan¹; X. Chen¹; X. Yang¹; Y. Song¹; H. Tang²; X. Yang¹; X. Zhu¹; X. Zhang¹

- Sichuan University, China
- Capital Medical University, China

8:30 AM**(BIO-025-2019) Therapeutic bioactive glass and the challenge of ion incorporation (Invited)**J. Jones^{*1}

- Imperial College London, Department of Materials, United Kingdom

9:00 AM**(BIO-026-2019) Influence of B for Si Substitution on Properties of Bioactive Phospho-Silicate Glasses (Invited)**D. S. Brauer^{*1}; J. Brandt-Slowik¹; L. van Wüllen¹; J. Massera¹; L. Hupa²

- Friedrich-Schiller-Universität, Otto-Schott-Institut, Germany
- Åbo Akademi University, Johan Gadolin Process Chemistry Centre, Finland
- Tampere University, Faculty of Medical Sciences and Technology, Finland
- Universität Augsburg, Institut für Physik, Germany

9:30 AM**(BIO-027-2019) Alkaline biodegradable implants for osteoporotic bone defects: Importance of microenvironment pH (Invited)**H. Pan^{*1}; W. Liu¹; X. Cui¹

- Shenzhen Institutes of Advanced Technology, Chinese Academy of Science, Center for Human Tissues and Organs Degeneration, China

10:00 AM**Break****Delbert E Day Symposium: Session II**

Room: York A/B

Session Chair: Delia Brauer, Friedrich-Schiller-Universität

10:20 AM**(BIO-028-2019) This Generation Biomaterials: Bioactive Borate Glasses in Clinical Use (Invited)**S. Jung^{*1}

- Mo-Sci Corporation, USA

10:50 AM**(BIO-029-2019) Bioactive Glasses for Regeneration of Large Segmental Bone Defects and Volumetric Muscle Loss (VML) (Invited)**Q. Fu^{*1}; W. Jia²; H. Hu²; A. P. Tomsia³

- Corning Incorporated, USA
- Shanghai Sixth People's Hospital, Shanghai Jiaotong University, Department of Orthopedic Surgery, China
- Lawrence Berkeley National Laboratory, Materials Science Division, USA

11:10 AM**(BIO-030-2019) Controlling the dissolution kinetics of bioactive glasses: The key to tailored glass-based tissue engineering (Invited)**L. Hupa^{*1}

- Åbo Akademi University, Johan Gadolin Process Chemistry Centre, Finland

11:30 AM**(BIO-031-2019) Design and characterization of bioactive glasses doped with tellurium**M. Miola^{*1}; J. Massera²; A. Cochis³; L. Rimondini³; E. Vernè¹

- Politecnico di Torino, DISAT, Italy
- Tampere University, Faculty of Medical Sciences and Technology, Finland
- Università del Piemonte Orientale "A. Avogadro", Italy

Delbert E Day Symposium: Session III

Room: York A/B

Session Chair: Showan Nazhat, McGill University

1:30 PM**(BIO-032-2019) Glasses and glass-ceramics for medical and dental applications (Invited)**W. Hoeland^{*1}

- private Person, retired, Liechtenstein

Tuesday, July 23, 2019**B1: Innovations in Glasses for Healthcare Applications: A Symposium in Honor of Delbert E. Day****Delbert E Day Symposium: Session I**

Room: York A/B

Session Chair: Leena Hupa, Åbo Akademi University

8:20 AM**Introductory remarks**

2:00 PM**(BIO-033-2019) Effect of Mullite Whisker Addition on Properties of Lithium Aluminosilicate (LAS) Glass-Ceramics Prepared for Dental Restoration**Y. Zhang¹; Y. Deng¹; B. Wang¹; J. Yang^{*1}

1. Xi'an Jiaotong University, State Key Laboratory for Mechanical Behavior of Materials, China

2:20 PM**(BIO-034-2019) Biphasic calcium phosphate particles from dissolution-reprecipitation reactions of a borate glass**Y. Shen¹; R. Brow^{*1}

1. Missouri S&T, Materials Science and Engineering, USA

2:40 PM**(BIO-035-2019) Manufacturing Porous Microspheres from Bioactive Glasses for Orthobiologics Applications (Invited)**I. Ahmed^{*1}

1. University of Nottingham, Faculty of Engineering, United Kingdom

3:00 PM**Break****Delbert E Day Symposium: Session IV**

Room: York A/B

Session Chair: Richard Brow, Missouri S&T

3:20 PM**(BIO-036-2019) Bioactive sol-gel derived borate glasses (Invited)**W. C. Lepry¹; E. Rezabeigi¹; S. N. Nazhat^{*1}

1. McGill University, Mining and Materials Engineering, Canada

3:50 PM**(BIO-037-2019) Bioactive Silicon Oxycarbide Glasses with Highly Connected Network**E. Ionescu^{*1}; S. Sen¹; F. Xie¹; G. Mera¹; I. Gonzalo¹; A. Navrotsky¹; A. R. Boccaccini⁴

1. Technical University Darmstadt, Materials Science, Germany
2. University of California, Davis, USA
3. University of California, Davis, Peter A. Rock Thermolab and NEAT ORU, USA
4. University of Erlangen-Nuremberg, Institute of Biomaterials, Germany

4:10 PM**(BIO-038-2019) Effect of TiO₂ on sinter-crystallisations of Nepheline glasses for Dental applications**A. Alzahrani^{*1}

1. College of Dentistry, Taif University, Dental Physical Sciences and Technology Unit, Saudi Arabia

B2: Advanced Additive Manufacturing Technologies for Bio-Applications: Materials, Processes, and Systems**AM Technologies for Bio Applications II**

Room: Trinity IV

Session Chairs: Naoyuki Nomura, Tohoku University; Qiang Fu, Corning Incorporated; Hui-suk Yun, Korea Institute of Materials Science

8:30 AM**(BIO-039-2019) 3D Printing of Bioactive Glasses for Improved Healthcare (Invited)**Q. Fu^{*1}; A. P. Tomsia²

1. Corning Incorporated, USA
2. Lawrence Berkeley National Laboratory, Materials Science Division, USA

9:00 AM**(BIO-040-2019) 3D printing of PLA/Calcium Silicate hybrid filament for load-bearing regenerative medicine**F. Shirazi^{*1}; P. Lotfi²; S. Rahmati²

1. Confederation College, Canada
2. Science and Research University, Islamic Republic of Iran

9:20 AM**(BIO-041-2019) Applying three-dimensional slurry printing technology to fabricating root-analogue implant**H. Hsu^{*1}; S. Lee¹; C. Jiang²

1. National Yang-Ming University, Department of Dentistry, Taiwan
2. National Taipei University of Technology, Mechanical Engineering, Taiwan

9:40 AM**(BIO-042-2019) Low temperature fabrication of self-setting bioceramic scaffolds using material extrusion process**H. Yun^{*1}

1. Korea Institute of Materials Science, Republic of Korea

10:00 AM**Break****10:20 AM****(BIO-043-2019) Introduction on three-dimensional slurry printing technology and its application in digital dentistry (Invited)**C. Jiang^{*1}; S. Lee²

1. National Taipei University of Technology, Mechanical Engineering, Taiwan
2. National Yang-Ming University, School of Dentistry, Taiwan

10:50 AM**(BIO-044-2019) Microstructure and mechanical properties of additively manufactured Zr-1Mo alloy for biomedical applications (Invited)**N. Nomura^{*1}

1. Tohoku University, Graduate School of Engineering, Department of Materials Processing, Japan

11:20 AM**(BIO-045-2019) Load Bearing 3D Printing Bioceramic for Bone Regeneration via Negative Thermo-Responsive Hydrogel Forming**C. Wang^{*1}; Y. Su²; S. Lin²; Y. Wang³; C. Lin¹

1. Kaohsiung Medical University, Department of Medicinal and Applied Chemistry, Taiwan
2. Kaohsiung Medical University, Kaohsiung Medical University Hospital, Taiwan
3. Kaohsiung Medical University, School of Dentistry, Taiwan

11:40 AM**(BIO-046-2019) 3D cell printing of volumetric construct using tissue-derived bioink**Y. Choi^{*1}; H. Yun²; D. Cho³

1. Korea Institute of Materials Science, Engineering Ceramics Research, Republic of Korea
2. Korea Institute of Materials Science, Republic of Korea
3. Pohang University of Science and Technology (POSTECH), Mechanical Engineering, Republic of Korea

12:00 PM**(BIO-047-2019) Nanoclay Impregnated Target Specific Crosslinked Biopolymer for Control Drug Release**S. Sagar Iqbal^{*1}; N. Ehsan²

1. University of the Lahore, Department of Physics, Pakistan
2. University of the Lahore, Department of Chemistry, Pakistan

B3: Clinical Translation of Biomaterials and Biophysical Stimulation**Modern Biomaterials**

Room: Trinity V

Session Chairs: Bikramjit Basu, Indian Institute of Science; Shalini Gupta, Indian Institute of Technology Delhi

11:20 AM**(BIO-048-2019) Bioresorbable Electronics**J. Rogers^{*1}

1. Northwestern University, Materials Science and Engineering, USA

B9: Advances in Production Methods and High-Performance Materials for Dental, Oral and Maxillofacial Applications

High-performance Materials for Dental, Oral, and Maxillofacial Applications

Room: Trinity V

Session Chair: Roger Narayan, NC State University

8:30 AM

(BIO-049-2019) Bone regeneration assisted by highly pure calcite ceramics: Artificial Coral as a new bone augmentation material

S. Umemoto^{*1}; M. Tajika¹; H. Unuma²; T. Furusawa²

1. Shiraishi Central Laboratories CO., LTD., R&D, Japan
2. Yamagata University, Chemistry and Chemical Engineering, Japan

8:50 AM

(BIO-050-2019) Comparison load –bearing capacity of three manufacturing methods of ultra-thin occlusal veneers

A. Ioannidis²; D. Bomze^{*1}; C. Hämmerle²; J. Hüsler²; O. Birrer²; S. Mühlemann²

1. Lithoz GmbH, Austria
2. University of Zurich, Clinic of Fixed and Removable Prosthodontics and Dental Material Science, Switzerland
3. University of Bern, Institute of Mathematical Statistics and Actuarial Science, Switzerland

9:10 AM

(BIO-051-2019) Making Bijels-derived Bicontinuous Structures for Tissue Engineering Applications Using a Newly Developed Technique

J. Li¹; H. Sun¹; M. Wang^{*1}

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

9:30 AM

(BIO-052-2019) Electrocatalytic disinfection of Staphylococcus aureus biofilms using n-type TiO₂ nanotubes

H. Malik^{*1}; K. Carlson¹; S. K. Mohanty²; J. Colombo³

1. University of Utah, Metallurgical Engineering, USA
2. University of Utah, Chemical Engineering, USA
3. University of Utah, Dentistry, USA

B11: Material Needs for Medical Devices

Material needs for Medical Devices I

Room: Trinity V

Session Chairs: Masamoto Tafu, National Institute of Technology, Toyama College; Masanori Kikuchi, National Institute for Materials Science (NIMS)

1:30 PM

(BIO-053-2019) Bouncy 3D printable bioglass for cartilage regeneration (Invited)

J. Jones^{*1}

1. Imperial College London, Department of Materials, United Kingdom

2:00 PM

(BIO-054-2019) Exposure models in biomedical applications (Invited)

D. Saylor^{*1}

1. USFDA, USA

2:30 PM

(BIO-055-2019) Improvement of reactivity and usability of dicalcium phosphate dihydrate (DCPD) for various applications (Invited)

M. Tafu^{*1}; T. Tushima¹

1. National Institute of Technology, Toyama College, Japan

3:00 PM

Break

3:20 PM

(BIO-056-2019) Additive manufacturing as the tool for the production of osteoconductive bioresorbable bone-grafting materials of complex shape (Invited)

P. Evdokimov^{*1}; V. Putlayev¹; A. Garshev¹; E. Klimashina¹; T. Safronova¹; V. Dubrov²; I. Scherbackov²; N. Orlov²; S. Tikhonova²; A. Tikhonov³

1. Lomonosov Moscow State University, Materials Science Department/Chemistry Department, Russian Federation
2. Lomonosov Moscow State University, Faculty of Fundamental Medicine, Russian Federation
3. Lomonosov Moscow State University, Materials Science Department, Russian Federation

3:50 PM

(BIO-057-2019) The improvement of N-doped TiO₂ photocatalyst hydrophobic composite by PTFE addition for antibacterial self-cleaning materials (Invited)

A. H. Ramelan^{*1}; S. Wahyuningih²

1. Sebelas Maret University, Physics, Indonesia
2. Sebelas Maret University, Chemistry, Indonesia

4:20 PM

(BIO-058-2019) Additive manufacturing of materials for medical diagnosis and treatment (Invited)

R. Narayan^{*1}

1. North Carolina State University, USA

Wednesday, July 24, 2019

B5: Nanotechnology in Medicine

Nanotechnology in Medicine

Room: York B

Session Chair: Thomas Webster, Northeastern University

8:30 AM

(BIO-059-2019) Integrated photonic-based sensors for biomedical metrology (Invited)

N. J. Castro^{*2}; Z. Ahmed¹

1. National Institute of Standards and Technology, Thermodynamic Metrology Group, Sensor Sciences Division, USA
2. NIST/University of Maryland, Joint Quantum Institute and Physical Measurements Laboratory, USA

9:00 AM

(BIO-060-2019) Synthesis and characterization of Quantum Dots in Therapeutic and Diagnostic Applications (Invited)

A. Nemat^{*1}; E. Nemat²

1. Sharif University of Technology, Materials Science & engineering, Islamic Republic of Iran
2. Ecole de Technologie Superieure, Mechanical Engineering, Canada

9:30 AM

(BIO-061-2019) Development of magnetite-gold nanoplatforms for photothermal therapy (Invited)

M. Miola^{*1}; C. Multari¹; N. Kostevsek²; C. Ormelli¹; R. Gerbaldo¹; F. Laviano¹; E. Vernè¹

1. Politecnico di Torino, DISAT, Italy
2. Jozef Stefan Institute, Slovenia

10:00 AM

Break

10:20 AM

(BIO-062-2019) Say Goodbye to Hospitals and Hello to Implantable Nano Sensors (Invited)

T. J. Webster^{*1}

1. Northeastern University, Chemical Engineering, USA

10:50 AM

(BIO-063-2019) Precision Biosystems: Levitating Rare Biological Materials to 'Decode' the Fundamentals (Invited)

G. Durmus^{*1}

1. Stanford University, Radiology, USA

11:20 AM

(BIO-064-2019) Engineering Nanostructured Oxides on Magnesium for Biomedical Applications (Invited)H. Liu¹; J. Lin^{*1}

1. University of California, Riverside, Bioengineering, USA

B11: Material Needs for Medical Devices**Material needs for Medical Devices II**

Room: Trinity V

Session Chairs: Hideyuki Kanematsu, National Institute of Technology, Suzuka College, Japan; Srimanta Barui, Indian Institute of Science

8:30 AM

(BIO-065-2019) Oxygen defected nanocerium as highly selective biosensors (Invited)S. Seal^{*1}

1. University of Central Florida, Advanced Materials Processing and Analysis Center, USA

9:00 AM

(BIO-066-2019) 3D inkjet printing of metallic biomaterials with strength reliability and cytocompatibility: Quantitative process strategy for Ti-6Al-4V (Invited)S. Barui^{*1}; A. Panda¹; S. Naskar²; K. R²; S. Basu²; B. Basu¹

1. Indian Institute of Science, Materials Research Center, India
2. Indian Institute of Science, Department of Mechanical Engineering, India
3. Indian Institute of Science, Centre for Biosystems Science and Engineering, India

9:30 AM

(BIO-067-2019) Antibiotics Loading to Hydroxyapatite/Collagen Bone-Like Nanocomposite (Invited)M. Kikuchi^{*1}; S. Oshima¹; K. Ozeki²; Y. Suetsugu¹; M. Honda³

1. National Institute for Materials Science (NIMS), Bioceramics Group, Japan
2. Ibaraki University, Japan
3. Meiji University, Japan

10:00 AM

Break

10:20 AM

(BIO-068-2019) Biofilms formed on implanted materials and the analysis of the components: From the viewpoint of correlation between organic polymers and materials (Invited)H. Kanematsu^{*1}; D. M. Barry²; N. Hirai²; A. Ogawa²; N. Wada¹; T. Kogo¹; D. Kuroda¹

1. National Institute of Technology, Suzuka College, Japan, Materials Science and Engineering, Japan
2. National Institute of Technology, Suzuka College, Chemistry and Biochemistry, Japan
3. Clarkson University, Electrical and Computer Engineering, USA

10:50 AM

(BIO-069-2019) Design, Fabrication and Performance of Multifunctional Scaffolds for Regenerating Complex Human Body Tissues (Invited)M. Wang^{*1}

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

11:20 AM

(BIO-070-2019) Alpha-double-prime Ti-7.5Mo alloy for dental and orthopedic applications (Invited)C. Ju^{*1}; J. Chern Lin¹; Y. Peng¹; Y. Chen²

1. National Cheng-Kung University, Materials Science and Engineering, Taiwan
2. Joy Medical Devices Corp., Taiwan

B13: Zirconia Bioceramics in Metal-free Implant Dentistry**Metal-free Implant Dentistry**

Room: York A

Session Chair: Sammy Noubissi, International Academy of Ceramic Implantology

8:30 AM

(BIO-071-2019) Zirconia Ceramic Implants versus Titanium Dental implants: What do We Know Today? (Invited)S. Noubissi^{*1}

1. International Academy of Ceramic Implantology, USA

9:30 AM

(BIO-072-2019) Review on nano-technology-modified zirconia oral implants (Invited)S. Gupta^{*1}

1. International Academy of Ceramic Implantology, USA

10:30 AM

(BIO-073-2019) One-piece vs two-piece ceramic dental implants: Current indications and clinical suggestions (Invited)A. Borgonovo^{*1}

1. University of Milan, Department of Aesthetic Dentistry, Istituto Stomatologico Italiano, Italy

11:30 AM

Discussion

Thursday, July 25, 2019**B3: Clinical Translation of Biomaterials and Biophysical Stimulation****New Generation Biomaterials**

Room: York A

Session Chairs: Surya Mallapragada, Iowa State University; Bikramjit Basu, Indian Institute of Science

8:30 AM

Introduction

8:40 AM

(BIO-074-2019) Structure / property relationships in Biomaterials at the nanoscaleF. Rosei^{*1}

1. INRS, Canada

Electric Field Induced Tissue Regeneration and Implant Integration

Room: York A

Session Chairs: Shalini Gupta, Indian Institute of Technology Delhi; Federico Rosei, INRS

9:20 AM

(BIO-075-2019) Biomaterials Design to Control Stem Cell FatesS. K. Mallapragada^{*1}

1. Iowa State University, USA

10:00 AM

Break

10:20 AM

(BIO-076-2019) Making a Full Circle: Advancements in Bone Grafts Based on Pure Calcium Phosphates (Invited)

V. Uskokovic*¹

1. University of Illinois, Bioengineering, USA

10:50 AM

(BIO-077-2019) Flexible Electronic Biointerfaces for Stem Cell-based Therapies (Invited)

M. Uz*¹; M. Donta¹; H. Greiman¹; D. S. Sakaguchi¹; S. K. Mallapragada¹

1. Iowa State University, USA

Cell-Material Interactions

Room: York A

Session Chairs: Miho Nakamura, Tokyo Medical and Dental University; Marta Miola, Politecnico di Torino

1:30 PM

(BIO-078-2019) Multifunctionality of piezoelectric materials towards improving cellular and antibacterial response (Invited)

A. K. Dubey*¹

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

2:00 PM

(BIO-079-2019) Dualosome: A liposomal drug delivery platform to co-target cancer and intracellular bacteria in cancer (Invited)

R. Singh¹; C. S. Kumar²; M. Banerjee²; S. Gupta*¹

1. Indian Institute of Technology Delhi, Chemical Engineering, India
2. Indian Institute of Technology Delhi, School of Biological Sciences, India

2:30 PM

(BIO-080-2019) 3D Graphene Foam Scaffolds for Stem Cell-based Peripheral Nerve Regeneration (Invited)

M. Uz*¹; J. Hyung¹; M. Donta¹; H. Greiman¹; A. Naclerio²; P. Cheng²; D. S. Sakaguchi¹; P. Kidambi²; S. K. Mallapragada¹

1. Iowa State University, USA
2. Vanderbilt University, USA

3:00 PM

Break

Tissue Response to Biomaterials

Room: York A

Session Chairs: Tadachika Nakayama, Nagaoka University of Technology; Palani Balaya, National University of Singapore

3:20 PM

(BIO-081-2019) Combined Vitamin and Dynamic Conditioning for Bone-Ligament Regeneration (Invited)

J. Pearson*¹; M. Rahman¹; G. Chiou¹; T. Guda¹; J. L. Ong¹

1. University of Texas at San Antonio, USA

3:50 PM

(BIO-082-2019) Mesoporous bioactive glasses as multifunctional devices for bone regeneration

C. Pontremoli*¹; E. Peretti¹; A. Bari¹; I. Izquierdo-Barba²; M. Vallet-Regí²; C. Vitale-Brovarone¹; S. Fiorilli¹

1. Politecnico di Torino, DISAT, Italy
2. Universidad Complutense Madrid, Spain

4:10 PM

(BIO-083-2019) Electro-mechanical and polarization induced antibacterial response of 45S5 Bioglass-Na_{0.5}K_{0.5}NbO₃ ceramic composites

A. S. Verma*¹; A. K. Dubey¹; D. Kumar¹

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

4:30 PM

(BIO-084-2019) Electrical stimuli mediated stem cell differentiation on conducting piezopolymer for neural patch application

A. K. Panda*¹; R. K. Krishnamurthy¹; A. Gebrekristos²; S. Bose²; B. Basu¹

1. Indian Institute of Science, Materials Research Centre, India
2. Indian Institute of Science, Materials Engineering, India

4:50 PM

(BIO-085-2019) 3D Molecularly Functionalized Cell-Free Biomimetic Scaffolds for Osteochondral Regeneration

J. Li*¹; Q. Yao¹; L. Wang¹; Y. Zhu²; L. Li²

1. Nanjing First Hospital, Nanjing Medical University, Orthopaedics, China
2. Nanjing Tech University, College of Biotechnology and Pharmaceutical Engineering, China

5:10 PM

(BIO-086-2019) Raman and FTIR time-lapse assessment of in situ bacteria-bioceramic interactions

F. Boschetto²; R. M. Bock*²; B. J. McEntire¹; T. Adachi²; E. Marin³; W. Zhu⁴; O. Mazda⁴; B. Bai¹; G. Pezzotti²

1. SINTX Technologies, USA
2. Kyoto Prefectural University of Medicine, Department of Dental Medicine, Japan
3. Kyoto Institute of Technology, Ceramic Physics Laboratory, Japan
4. Osaka University, Department of Medical Engineering for Treatment of Bone and Joint Disorders, Japan
5. Tokyo Medical University, Department of Orthopedic Surgery, Japan
6. Kyoto Prefectural School of Medicine, Department of Immunology, Japan

B10: Point-of-Care Sensors and Diagnostic Devices

Point-of-Care Sensors and Diagnostic Devices

Room: York B

Session Chairs: Pankaj Kumar; Krista Carlson, University of Utah

10:00 AM

(BIO-087-2019) Rapid Diagnosis of Tuberculosis for the Point of Care Use (Invited)

M. Misra*¹; P. Kumar¹; S. Mohanty²

1. University of Nevada, Reno, Chemical and Materials Engineering, USA
2. University of Utah, Chemical Engineering, USA

10:30 AM

(BIO-088-2019) Highly sensitive smartphone-based cortisol detection system for real-time estimation of emotional status using Peltier module

J. Shin*¹; S. Jung¹; H. Jung²; S. Baek¹; J. Kim¹

1. Korea Institute of Science and Technology, Center for Electronic Materials, Republic of Korea
2. Yonsei University, Republic of Korea

10:50 AM

(BIO-089-2019) Engineered Nanostructured Materials for Electrochemical Detection of Volatile Organic Compounds Associated with Pathological Conditions (Invited)

C. Willis¹; A. Tripathy²; Y. Saffary¹; L. McKinnon¹; M. Misra²; S. Mohanty*¹

1. University of Utah, Chemical Engineering, USA
2. University of Nevada, Reno, Chemical and Materials Engineering, USA
3. University of Utah, Bioengineering, USA

11:20 AM

(BIO-090-2019) Detection of Alcohol using One Dimensional Nano-structured Titania

A. Ralls*¹; P. Kumar²; P. Menezes¹; M. Misra²

1. University of Nevada, Reno, Mechanical Engineering, USA
2. University of Nevada, Reno, Materials and Chemical Engineering, USA

B11: Material Needs for Medical Devices

Material needs for Medical Devices III

Room: Trinity V

Session Chairs: Biqiong Chen, Queen's University Belfast; Min Wang, The University of Hong Kong

8:30 AM

(BIO-091-2019) Isolation of Circulating Tumor Cells from Clinical Blood Samples by Charged Nanoparticles (Invited)

D. Shi*¹; Y. Wang²

1. University of Cincinnati, Mechanical and Materials Engineering, USA
2. Tongji University School of Medicine, Shanghai East Hospital, China

9:00 AM

(BIO-092-2019) Cell Fiber-incorporated Electrospun Nanofibrous Scaffolds for Tendon/Ligament Regeneration (Invited)H. Sun¹; H. Li¹; Y. Xu¹; M. Wang*¹

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

9:30 AM

(BIO-093-2019) Tough double network nanocomposite hydrogels for potential soft tissue reconstruction (Invited)B. Chen*¹

1. Queen's University Belfast, United Kingdom

10:00 AM

Break

10:20 AM

(BIO-094-2019) Personalized Wearable Metabolic Rate Monitors (Invited)P. Gouma*¹

1. The Ohio State University, MSE, USA

10:50 AM

(BIO-095-2019) Biomimetic Calcium Phosphorous Titania Nanotubes for an Efficient Biofunctional Implant (Invited)T. Shokuhfar*¹

1. UIC, USA

Material needs for Medical Devices IV

Room: Trinity V

Session Chairs: Chien-Ping Ju, National Cheng-Kung University; Jiin-Huey Chern Lin

1:30 PM

(BIO-096-2019) Antimicrobial-releasing Mesoporous Multimaterials for Load-bearing Implant Applications (Invited)A. Braem*²; C. D'Haeyer²; K. Thevissen¹

1. KULeuven, Centre for Microbial and Plant Genetics, Belgium
2. KU Leuven, Dept. of Materials Engineering, Belgium

2:00 PM

(BIO-097-2019) A fast-healing calcium-based bone substitute material jointly developed by National Cheng-Kung University and Joy Medical Devices Corporation (Invited)J. Chern Lin*¹; C. Ju¹; J. Lee²; P. Lin³; C. Hsu²; B. Yang⁴

1. National Cheng-Kung University, Materials Science and Engineering, Taiwan
2. National Cheng-Kung University Medical College and Hospital, Surgery, Taiwan
3. National Cheng-Kung University Hospital, Orthopedics, Taiwan
4. Joy Medical Devices Corp., Taiwan

2:30 PM

(BIO-098-2019) 3D-printing of Bioceramics for Bone Regeneration Applications (Invited)R. Gadow*¹; S. Esslinger¹; A. Bernstein²

1. Institute for Manufacturing Technologies of Ceramic Components and Composites, University of Stuttgart, Germany
2. Musculoskeletal Research Lab, Germany

3:00 PM

Break

3:20 PM

(BIO-099-2019) Scalably-nanomanufactured atomically-thin chiral semiconductor for human-integrated ubiquitous electronics and smart sensors (Invited)W. Wu*¹

1. Purdue University, School of Industrial Engineering; Birck Nanotechnology Center; Regenstrief Center for Healthcare Engineering, USA

3:50 PM

(BIO-100-2019) Suspension Flame Sprayed Metal Doped Calcium Phosphate Coatings with Antibacterial Properties for Infection Prophylaxis (Invited)R. Gadow*¹; A. Killinger¹; P. Krieg¹; A. Bernstein²

1. Institute for Manufacturing Technologies of Ceramic Components and Composites, University of Stuttgart, Germany
2. University Hospital of Freiburg, Musculoskeletal Research Lab, Germany

4:20 PM

(BIO-101-2019) Design of Biomaterials by Simulation and Experiment: Molecular Recognition, Assembly, and Applications (Invited)H. Heinz*¹

1. University of Colorado-Boulder, USA

4:50 PM

(BIO-102-2019) Better Osteogenesis of Electrically Active Hydroxyapatite-Calcium Titanate Biocomposites in a Rabbit Animal Model (Invited)P. K. Mallik¹; K. Balani*²; B. Basu³

1. Indira Gandhi Institute of Technology Sarang, Metallurgical and Materials Engineering, India
2. IITKanpur, Materials Science and Engineering, India
3. IISc Bangalore, Materials Research Centre, India

Friday, July 26, 2019**B6: Advance Materials and Devices for the Treatment of Brain Disorders****Advanced Materials and Devices for the Treatment of Brain Disorders**

Room: Trinity IV

Session Chair: Tolou Shokuhfar, University of Illinois at Chicago

8:30 AM

(BIO-103-2019) Novel Method in the Treatment of Cerebrospinal Fluid (CSF) Leaks (Invited)T. Shokuhfar¹; M. McClendon¹; S. Ansari¹; S. Stupp¹; A. Shaibani*¹

1. Northwestern University, USA

9:00 AM

(BIO-104-2019) Iron oxide Cage Protein Nanoparticles for Applications in Treatment of Brain Tumor (Invited)T. Shokuhfar*¹; R. Shahbazian Yassar¹

1. UIC, USA

9:30 AM

(BIO-105-2019) Dual hybrid approach for HDPE/UHMWPE nanocomposites towards improved strength and cytocompatibility for orthopedic applicationsS. A. Bhusari¹; V. Sharma*¹; S. Bose²; B. Basu¹

1. Indian Institute of Science, Material Research Centre, India
2. Indian Institute of Science, Materials Engineering, India

9:50 AM

(BIO-106-2019) TAT Functionalized Liposomes as Drug Carriers for the Treatment of Brain Infection DiseasesC. Bartomeu Garcia*¹; T. Webster²; D. Shi¹

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

10:10 AM

(BIO-107-2019) In situ Liquid Cell-TEM Studies of Iron-Oxide Biomaterialization in Bacteria and Proteins (Invited)E. Firlar¹; R. S. Yassar²; S. Narayanan¹; T. Shokuhfar*¹

1. University of Illinois at Chicago, Bioengineering, USA
2. University of Illinois, Department of Mechanical and Industrial Engineering, USA

B11: Material Needs for Medical Devices**Material needs for Medical Devices V**

Room: Trinity V

Session Chairs: Dirk Ortgies, Instituto Ramón y Cajal de Investigación Sanitaria IRYCIS; Andrew Thom, Medtronic; Yusuf Khan, University of Connecticut Health Center

8:30 AM**(BIO-108-2019) Fabrication and Characterization of Photo-crosslinked Alginate based paste for Orthopaedic application (Invited)**K. Maji*¹

1. National Institute of Technology (NIT), India

9:00 AM**(BIO-109-2019) Luminescent nanomaterials for in vivo bioimaging in the frequency and time domain (Invited)**

D. H. Ortgies*¹; M. Tan²; E. Ximendes³; J. Hu⁴; B. del Rosal⁴; E. Martín Rodríguez²; C. Jacinto³; N. Fernandez⁶; G. Chen²; D. Jaque⁴

1. Instituto Ramón y Cajal de Investigación Sanitaria IRYCIS, Spain
2. Harbin Institute of Technology, School of Chemistry and Chemical Engineering, China
3. Universidade Federal de Alagoas, Instituto de Física, Brazil
4. Universidad Autónoma de Madrid, Departamento de Física de Materiales, Spain
5. Universidad Autónoma de Madrid, Departamento de Física Aplicada, Spain
6. Universidad Autónoma de Madrid, Departamento de Fisiología, Spain

9:30 AM**(BIO-110-2019) New Materials for High Reliability Feedthroughs for Implantable Medical Devices (Invited)**A. Thom*¹; B. Tischendorf¹

1. Medtronic, Energy and Component Center, USA

10:00 AM**(BIO-111-2019) Synthesis of customized bioceramic based scaffolds for bone tissue engineering by selective laser melting (Invited)**N. K. Kamboj*¹; I. Hussainova¹; M. A. Rodríguez Barbero²

1. Tallinn University of Technology, Mechanical and Industrial Engineering, Estonia
2. Instituto de Cerámica y Vidrio, CSIC C/ Kelsen, Spain

10:30 AM**Break****10:50 AM****(BIO-112-2019) Microstructure-Electrical Properties Correlation of Pressureless Sintered Al₂O₃-CaTiO₃ Nanocomposite (Invited)**P. K. Mallik*¹; J. K. Sahu¹; S. Mallick¹

1. Indira Gandhi Institute of Technology Sarang, Metallurgical and Materials Engineering, India

11:20 AM**(BIO-113-2019) Mineralization of Cell-Hydrogel Constructs: The Benefits of Ultrasound-derived Acoustic Radiation Force on Bone Repair (Invited)**Y. Khan*¹; F. Assanah³; B. Huey²; K. Grassie³; H. Anderson³

1. University of Connecticut Health Center, Orthopaedic Surgery, USA
2. University of Connecticut, Materials Science and Engineering, USA
3. University of Connecticut, Biomedical Engineering, USA

ANTI HARASSMENT POLICY



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Harassment includes, but is not limited to, offensive verbal comments related to gender, gender identity and expression, sexual orientation, disability, physical appearance, body size, race, national origin, religion, age, marital status, military status, or any other status protected by law; deliberate intimidation; stalking; following; harassing photography or recording; sustained disruption of talks or other events; and inappropriate physical contact. Attendees asked to stop any harassing behavior are expected to comply immediately.

DEFINITION OF SEXUAL HARASSMENT:

Sexual harassment does not refer to occasional compliments or other generally acceptable social behavior. Sexual harassment refers to verbal, physical, and visual conduct of a sexual nature that is unwelcome and offensive to the recipient. By way of example, sexual harassment may include such conduct as sexual flirtations, advances, or propositions; verbal comments or physical actions of a sexual nature; sexually degrading words used to describe an individual; an unwelcome display of sexually suggestive objects or pictures; sexually explicit jokes; and offensive, unwanted physical contact such as patting, pinching, grabbing, groping, or constant brushing against another's body. Attendees asked to stop any sexually harassing behavior are expected to comply immediately.

SCOPE OF POLICY:

This policy applies to all attendees of ACerS meetings, events, and activities, including members, non-members, partnering organizations, volunteers, students, guests, staff, contractors, exhibitors, and all other participants related to ACerS events and activities.

REPORTING AN INCIDENT:

If you are being harassed, notice that someone else is being harassed, or have any other concerns, please contact an ACerS staff member immediately. ACerS staff can be identified by the official staff badge, their name and title. All complaints will be treated seriously and will be investigated promptly.

Names(s) and Contact Information Onsite to Report an Incident:

1. ACerS Executive Director, **Mark Mecklenborg**, ph 614-794-5829 / email: ExecDirector@ceramics.org
2. ACerS President, **Sylvia Johnson**, ph 510-813-8758 / email: ACerSPresident@ceramics.org

DISCIPLINARY ACTION:

All reports of harassment will be directed immediately to the ACerS leadership team who may consult with and engage other ACerS staff, leaders and legal counsel as appropriate. Conference security and/or local law enforcement may be involved, as appropriate based on the specific circumstances. In response to a report of harassment, the ACerS leadership team or ACerS staff will take appropriate action. Such actions range from a verbal warning to ejection from the event without a refund. Repeat offenders may be subject to further disciplinary action, such as being banned from participating in future ACerS conferences or events and/or permanently expelled from ACerS membership.

The full policy can be viewed at: <https://ceramics.org/wp-content/uploads/2018/12/Anti-Harassment-Policy.pdf>



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55 Cs 132.9054 Cesium	56 Ba 137.327 Barium	57 La 138.90547 Lanthanum	58 Ce 140.116 Cerium	59 Pr 140.90768 Praseodymium	60 Nd 144.242 Neodymium	61 Pm 144.91288 Promethium	62 Sm 150.36 Samarium	63 Eu 151.964 Europium	64 Gd 157.25 Gadolinium	65 Tb 158.92535 Terbium	66 Dy 162.5 Dysprosium	67 Ho 164.93032 Holmium	68 Er 167.259 Erbium	69 Tm 168.93421 Thulium	70 Yb 173.054 Ytterbium	71 Lu 174.967 Lutetium	
87 Fr (223) Francium	88 Ra (226) Radium	89 Ac (227) Actinium	90 Th 232.0377 Thorium	91 Pa 231.03688 Protactinium	92 U 238.02891 Uranium	93 Np (237) Neptunium	94 Pu (244) Plutonium	95 Am (243) Americium	96 Cm (247) Curium	97 Bk (247) Berkelium	98 Cf (251) Californium	99 Es (252) Einsteinium	100 Fm (257) Fermium	101 Md (258) Mendelevium	102 No (259) Nobelium	103 Lr (262) Lawrencium	

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