

# 39<sup>TH</sup> INTERNATIONAL CONFERENCE AND EXPOSITION ON ADVANCED CERAMICS AND COMPOSITES

January 25 – 30, 2015

Hilton Daytona Beach Resort and Ocean Center, Daytona Beach, Florida, USA

## Conference Program



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Organized by The American Ceramic Society and  
The American Ceramic Society's Engineering Ceramics Division

The  
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[ceramics.org/icacc2015](http://ceramics.org/icacc2015)

# Welcome

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On behalf of the Engineering Ceramics Division and the American Ceramic Society, I warmly welcome you to the 39th International Conference & Exposition on Advanced Ceramics & Composites (ICACC). ICACC is the most prominent international conference in the area of advanced structural and functional ceramics, composites, and other emerging ceramic materials and technologies. This prestigious conference has been organized by the Engineering Ceramics Division (ECD) and The American Ceramic Society since 1977.

Topical areas at this conference include advanced structural, functional and nanocrystalline ceramics, composites, and other emerging ceramic materials and integration technologies. The technical program of ICACC 2015 consists of thirteen Symposia and six Focused Sessions. The ICACC Exposition, held on Tuesday and Wednesday evenings, will provide a place for attendees to connect with business partners, develop prospects and explore new business opportunities — all in one place at one time. Poster sessions will again be held in conjunction with the Expo.

The well-established symposia at this conference include Mechanical Behavior and Performance of Ceramics and Composites, Advanced Ceramic Coatings, Solid Oxide Fuel Cells, Armor Ceramics, Bioceramics, Nanostructured Materials & Nanotechnology, Advanced Processing & Manufacturing Technologies (APMT), Advanced Materials and Technologies for Energy Generation and Rechargeable Energy Storage, and Porous Ceramics. In addition, two key symposia Materials for Extreme Environments: Ultrahigh Temperature Ceramics and Nano-laminated Ternary Carbides and Nitrides and Advanced Ceramics and Composites for Sustainable Nuclear Energy and Fusion Energy; are back for their fifth years and will continue to build upon past success. The Nuclear and Fusion Energy symposium is co-sponsored by the ACerS Nuclear and Environmental Technology Division. In addition, the symposium entitled Virtual Materials Design and Ceramic Genome will again form part of the strong technical program. We also welcome the addition of a new symposium entitled Industrial Root Technologies for Ceramics and Composites.

ICACC 2015 will include six Focused Sessions on emerging technologies: Geopolymers, and Advanced Ceramic Materials and Processing for Photonics and Energy return for 2015. New focused sessions introduced this year include Materials Diagnostics and Structural Health Monitoring of Ceramic Components and Systems, Additive Manufacturing and 3D Printing Technologies, Single Crystalline Materials for Electrical, Optical and Medical Applications, and Field Assisted Sintering and Related Phenomena at High Temperatures. Building upon the successful interactions and excitement generated in the first three years, the 4th Global Young Investigator Forum (GYIF) will again be organized and facilitated by a group of our young researchers. Finally, we are pleased to announce that the 2nd European Union - USA Engineering Ceramics Summit will again be held at the 2015 ICACC.

Our special thanks go to our sponsors including UBE Industries Ltd., Corning Incorporated, GE Aviation, T.R. Ltd., Furuya Metal Corp., American Elements, A-Tech, KITECH, Mechronics, Jn LTech, and the Army Research Office whose generous support facilitates a more successful conference.

The ECD Executive Committee and volunteer organizers, together with The American Ceramic Society, thank you for joining us in Daytona Beach, Florida for what should be a stimulating and beneficial experience.

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## 2015 Program Chair



**Soshu Kirihara**  
Osaka Univeristy

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## ACerS Engineering Ceramics Division Leadership

**Trustee:** Tatsuki Ohji

**Chair:** Michael Halbig

**Chair-Elect:** Soshu Kiriwara

**Vice Chair/Treasurer:** Andrew Gyekenyesi

**Secretary:** Jingyang Wang



# Schedule At A Glance

	Time	Room
<b>Sunday, January 25, 2015</b>		
Conference registration	2:00 p.m. – 7:00 p.m.	Hilton - Coquina Foyer
Speaker ready room	2:00 p.m. – 7:00 p.m.	Hilton – Manatee
Welcome reception	5:00 p.m. – 7:00 p.m.	Hilton – Coquina Foyer
<b>Monday, January 26, 2015</b>		
Conference registration	7:00 a.m. – 6:00 p.m.	Hilton - Coquina Foyer
Member and publication center	7:00 a.m. – 6:00 p.m.	Hilton - Coquina Foyer
Speaker ready room	8:00 a.m. – 4:00 p.m.	Hilton – Manatee
Companion coffee	8:00 a.m. – 10:00 a.m.	Hilton - Oceanview
Opening awards ceremony & plenary session	8:30 a.m. – 12:00 p.m.	Hilton – Coquina D & E
Coffee break	10:20 a.m. – 10:40 a.m.	Hilton
Lunch on own	12:00 p.m. – 1:20 p.m.	
Concurrent technical sessions	1:30 p.m. – 5:30.m.	Hilton
Coffee break	3:00 p.m. – 3:20 p.m.	Hilton
Student & young professional mixer	7:00 p.m. – 9:00 p.m.	Hilton - Oceanview
<b>Tuesday, January 27, 2015</b>		
Conference registration	7:00 a.m. – 6:00 p.m.	Hilton – Coquina Foyer
Member and publication center	7:00 a.m. – 6:00 p.m.	Hilton – Coquina Foyer
Speaker ready room	8:00 a.m. – 4:00 p.m.	Hilton – Manatee
Concurrent technical sessions	8:00 a.m. – 12:00 p.m.	Hilton
Coffee break	9:40 a.m. – 10:00 a.m.	Hilton
Exhibitor move-in	12:00 p.m. – 4:00 p.m.	Ocean Center
Lunch on own	12:00 p.m. – 1:20 p.m.	
Concurrent technical sessions	1:30 p.m. – 5:20 p.m.	Hilton
Coffee break	3:00 p.m. – 3:20 p.m.	Hilton
Poster session A move-in	3:00 p.m. – 4:30 p.m.	Ocean Center
Exhibits & poster session A, including reception	5:00 p.m. – 8:00 p.m.	Ocean Center
<b>Wednesday, January 28, 2015</b>		
Conference registration	7:30 a.m. – 5:30 p.m.	Hilton – Coquina Foyer
Member and publication center	7:30 a.m. – 5:30 p.m.	Hilton – Coquina Foyer
Speaker ready room	8:00 a.m. – 4:00 p.m.	Hilton – Manatee
Concurrent technical sessions	8:00 a.m. – 12:00 p.m.	Hilton
Coffee break	9:40 a.m. – 10:00 a.m.	Hilton
Lunch on own	12:00 p.m. – 1:20 p.m.	
Concurrent technical sessions	1:30 p.m. – 5:00 p.m.	Hilton
Poster session B move-in	3:00 p.m. – 4:30 p.m.	Ocean Center
Coffee break	3:00 p.m. – 3:20 p.m.	Hilton
Exhibits & poster session B, including reception	5:00 p.m. – 7:30 p.m.	Ocean Center

# Schedule At A Glance

## Thursday, January 29, 2015

Conference registration	7:30 a.m. – 6:00 p.m.	Hilton – Coquina Foyer
Member and publication center	7:30 a.m. – 6:00 p.m.	Hilton – Coquina Foyer
Speaker ready room	8:00 a.m. – 4:00 p.m.	Hilton – Manatee
Concurrent technical sessions	8:00 a.m. – 12:00 p.m.	Hilton
Coffee break	9:40 a.m. – 10:00 a.m.	Hilton
Lunch on own	12:00 p.m. – 1:20 p.m.	
Concurrent technical sessions	1:30 p.m. – 6:00 p.m.	Hilton
Mentorship for young scientists: Developing scientific survival skills	1:30 p.m. – 3:00 p.m.	Hilton – Ponce DeLeon
Coffee break	3:00 p.m. – 3:20 p.m.	Hilton
Mechanical properties of ceramics and glass short course (separate registration fee)	8:00 a.m. – 4:00 p.m.	Hilton – Halifax A

## Friday, January 30, 2015

Conference registration	7:30 a.m. – 12:30 p.m.	Hilton – Coquina Foyer
Concurrent technical sessions	8:00 a.m. – 12:00 p.m.	Hilton
Coffee break	9:40 a.m. – 10:00 a.m.	Hilton
Mechanical properties of ceramics and glass short course (separate registration fee)	8:00 a.m. – 4:00 p.m.	Hilton – Halifax A

## Directions from the Hilton to Ocean Center Arena

To reach the Ocean Center from the Hilton, exit the Hilton through the South Tower Lobby. Turn left on the sidewalk to the crosswalk. Proceed across the street to the Ocean Center entrance.



### Hilton:

Welcome Reception  
Registration  
Technical Sessions  
Member and Publications  
Center  
Short Course

### Ocean Center:

Exhibit & Receptions  
Poster Sessions

# Special Events

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## Welcome Reception

Sunday, January 25

5 p.m. – 7 p.m.

Hilton – Coquina Foyer

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## Global Young Investigator Award

January 25, 1:30 p.m., Coquina C

Title: Nanocrystalline Ceramics: A Thermodynamic Perspective to Enable Design and Control

Ricardo H. R. Castro

Department of Chemical Engineering and Materials Science, University of California, Davis



Ricardo Castro is an associate professor at the Department of Chemical Engineering and Materials Sciences at University of California-Davis and is the lead of the Laboratory of Thermochemistry of Nanoceramics. He has dedicated his career to educate a new generation of materials scientists, being the creator of the Materials Magic Show, an annual event at UC Davis, and many other initiatives to promote ceramics and overall materials topics to the general public.

Castro has a PhD in Metallurgical and Materials Engineering and a Bachelor in Molecular Sciences from the University of São Paulo, Brazil. He has been awarded the Department of Energy Early Career Program award, the National Science Foundation Career Award, the Society of Hispanic Professional Engineering Young Investigator Award, and the 2012 Outstanding Junior Faculty Award by the UC Davis College of Engineering. More recently, Castro was honored as 2013-2014 UC Davis Chancellor's Fellow, and received the Robert L. Coble Award by the American Ceramic Society in 2014.

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## SCHOTT Shot Glass Contest

Tuesday, January 27

6:45 p.m. – 8 p.m.

The Ocean Center, Exhibit Show Floor

Organized by ACerS President's Council of Student Advisors (PCSA)

Don't miss this design contest! Competitors are given one shot glass, donated by SCHOTT, and 15 drinking straws used to build a protective device for their glass. Then, the glasses are dropped from varying levels until the breaking threshold is reached. The glass with the highest successful drop distance wins!

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## Mechanical Properties of Ceramics and Glass Short Course\*

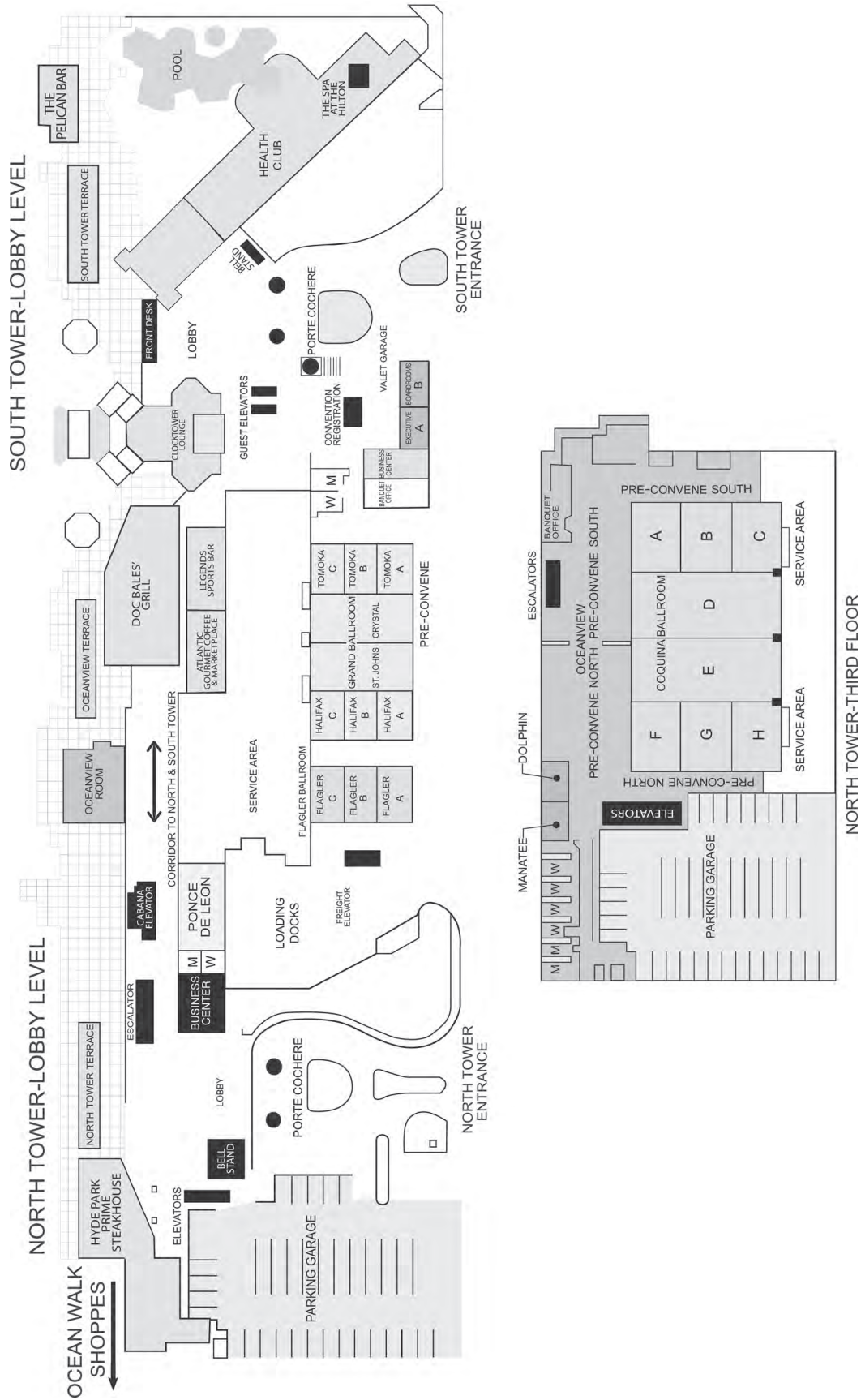
Thursday, January 29 and Friday, January 30

8:00 AM – 5:00 PM

Hilton – Halifax A (South Tower)

\*Separate registration fee

# Hilton Meeting Room Floor Plan



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## Official News Sources



## Media Sponsor





## 2015 James I. Mueller Award

*Title: Materials Selection for the Next Generation Thermal Barrier Coatings*

9:00 AM



**David R. Clarke**

*Extended Tarr Family Professor of Materials, School of Engineering and Applied Sciences, Harvard University*

Clarke holds a Ph.D. in Physics from the University of Cambridge, a BS in Applied Sciences from Sussex University and was awarded a ScD from the University of Cambridge.

Prior to moving to Harvard, he was professor of materials at the University of California, Santa Barbara. Previous positions include being senior manager, IBM Research Division; associate professor, Massachusetts Institute of Technology; group leader, Rockwell International Science Center; and senior scientific officer, The National Physical Laboratory, UK. A member of the National Academy of Engineering since 1999, he is also a fellow of both the American Physical Society and ACerS, and received an Alexander von Humboldt Foundation Senior Scientist Award in 1993. He shared the 2008 Japanese NIMS Award for Recent Breakthroughs in Materials Science for Energy and Environment, is a Distinguished Life Member of ACerS and was recently listed as author of one of the 11 best papers in the 110 years of publications on ceramics and glasses. His long-term interests in materials range from the fundamentals to the applied, from ceramics to metals to semiconductors and polymers. He has published over 450 papers in areas of materials ranging from thermal barrier coatings, to dielectric elastomers to fundamentals of oxidation to microelectronics reliability and the electrical and optical properties of ZnO and GaN.

## 2015 Bridge Building Award

*Title: Chemically Processed Nanostructured Ceramics: Opportunities for Energy and Health Applications*

9:40 AM



**Sanjay Mathur**

*Chair, Institute of Inorganic Chemistry, University of Cologne, Germany*

Mathur's research interests focus on application of nano-materials and advanced ceramics for energy technologies. He holds six patents and has authored/co-authored over 275 original research publications and has edited several books. He is a Titular Member of the International Union of Pure and Applied Chemists (IUPAC) and a member of the ISO Technical Committee on Nanotechnologies. He was given the Global Star Award of the ECD of The American Ceramic Society in 2010. He has organized and chaired several international and national conferences and Symposia. Mathur is also the director of the Institute of Renewable Energy Sources at the Xian Jiao Tong University, China and a World Class University Professor at the Chonbuk University in Korea. He also holds Visiting Professorships at the Central South University, China and the National Institute of Science Education and Research (NISER), India.

## Plenary Speaker

*Title: Regenerative Engineering: The Theory and Practice of a Next Generation Field*

10:40 AM



**Cato T. Laurencin**

*Albert and Wilda Van Dusen Distinguished Endowed Professor of Orthopaedic Surgery and Professor, Chemical, Materials and Biomolecular Engineering, University of Connecticut; Director, Institute for Regenerative Engineering; CEO, Connecticut Institute for Clinical and Translational Science*

Laurencin earned his undergraduate degree in chemical engineering from Princeton University and his medical degree magna cum laude from Harvard Medical School. During medical school, he also earned his Ph.D. in biochemical engineering/biotechnology from Massachusetts Institute of Technology. Laurencin has been named to America's Top Doctors and America's Top Surgeons, and is a Fellow of the American Surgical Association, a Fellow of the American College of Surgeons, and a Fellow of the American Academy of Orthopaedic Surgeons. He is the recipient of the Nicolas Andry Award from the Association of Bone and Joint Surgeons. His work on engineering tissues was honored by Scientific American Magazine as one of the 50 greatest achievements in science in 2007. He received the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring in ceremonies at the White House.

## Plenary Speaker

*Title: Next Generation Diesel Particulate Filter (DPF) Development and Implementation Strategy*

11:20 AM



**Kazushige Ohno**

*Executive Officer, Chief Director of Technology Development and Director, IBIDEN Co., Ltd.*

Ohno holds a PhD in engineering from Waseda University and a MBA from Kenichi Ohmae Graduate School of Business. He has served as the executive officer, chief director of technology development and director at IBIDEN since June 2013. He joined the company in 1991. Ohno's research interests focus on automobile exhaust gas after treatment technology and SiC materials. He has authored/co-authored over 60 original research publications and has been involved in the writing of several books. Ohno holds over 210 patents, including over 130 patents concerning DPF and over 70 patents concerning catalyst substrate. Recently, Ohno has pursued research and development of ceramic composite materials, such as SiC / SiC structure. Their applications are directed towards energy sector, aviation sector, and the semiconductor manufacturing equipment field.

# Technical Sessions By Symposium

Session Title	Date	Time	Location
<b>2nd European Union - USA Engineering Ceramics Summit</b>			
Advanced Ceramic Technologies: Challenges and Future Prospects I	26-Jan-15	1:30 - 5:20 PM	Coquina Salon F
Advanced Ceramic Technologies: Current Status and Future Prospects II	27-Jan-15	8:20 AM - 12:10 PM	Coquina Salon F
Advanced Ceramic Technologies: Current Status and Future Prospects III	27-Jan-15	1:30 - 4:50 PM	Coquina Salon F
Advanced Ceramic Technologies: Current Status and Future Prospects IV	28-Jan-15	8:30 AM - NOON	Coquina Salon F
<b>4th Global Young Investigator Forum</b>			
GYIF Award Lecture	26-Jan-15	1:30 - 3:20 PM	Coquina Salon C
Novel Concepts for Solar Cells	26-Jan-15	3:20 - 5:50 PM	Coquina Salon C
Theoretical Modeling and Applications	27-Jan-15	8:30 - 10:30 AM	Coquina Salon C
Additive Manufacturing	27-Jan-15	10:30 AM - 12:10 PM	Coquina Salon C
Ceramic Composites	27-Jan-15	1:30 - 3:30 PM	Coquina Salon C
Biomaterials and Biophotonics	27-Jan-15	3:30 - 5:30 PM	Coquina Salon C
New Materials for Energy Applications	28-Jan-15	8:30 - 10:30 AM	Coquina Salon C
Mechanical Properties of Ceramics and Composites	28-Jan-15	10:30 AM - 12:10 PM	Coquina Salon C
<b>FS1: Geopolymers, Chemically Bonded Ceramics, Eco-friendly and Sustainable Materials</b>			
Synthesis, Processing and Microstructure, Porosity, Composites I	27-Jan-15	8:30 AM - NOON	Oceanview
Composites II and Conversion to Ceramics I	27-Jan-15	1:30 - 4:50 PM	Oceanview
Conversion to Ceramics II	28-Jan-15	8:30 - 10:20 AM	Oceanview
Novel Applications and Construction Materials I	28-Jan-15	10:20 - 11:40 AM	Oceanview
Construction Materials II	28-Jan-15	1:30 - 5:00 PM	Oceanview
<b>FS2: Advanced Ceramic Materials and Processing for Photonics and Energy</b>			
Solar Cells	28-Jan-15	1:30 - 5:00 PM	Tomoka A*
Glasses I	29-Jan-15	8:30 AM - NOON	Tomoka A*
Glasses II / Synthesis	29-Jan-15	1:30 - 5:30 PM	Tomoka A*
Structure and Applications	30-Jan-15	8:30 - 11:30 AM	Coquina Salon H
<b>FS3: Materials Diagnostics and Structural Health Monitoring of Ceramic Components and Systems</b>			
Materials Diagnostics and Structural Health Monitoring of Ceramic Components and Systems	26-Jan-15	1:30 - 5:00 PM	Coquina Salon B
<b>FS4: Additive Manufacturing and 3D Printing Technologies</b>			
Additive Manufacturing and 3D Printing Technologies I	26-Jan-15	1:30 - 4:30 PM	Coquina Salon G
Additive Manufacturing and 3D Printing Technologies II	27-Jan-15	8:30 - 11:30 AM	Coquina Salon G
<b>FS5: Single Crystal*line Materials for Electrical, Optical and Medical Applications</b>			
Scintillator	26-Jan-15	1:30 - 5:40 PM	Tomoka C*
Semiconductor I	27-Jan-15	8:30 - 11:50 AM	Tomoka C*
Semiconductor II	27-Jan-15	1:30 - 3:20 PM	Tomoka C*
Ferro/piezo-electric I	27-Jan-15	3:20 - 4:50 PM	Tomoka C*
Ferro/piezo-electric II	28-Jan-15	8:30 - 10:20 AM	Tomoka C*
Optical Materials I	28-Jan-15	10:20 - 11:50 AM	Tomoka C*
New Directions I	28-Jan-15	1:30 - 5:00 PM	Tomoka C*
Optical Materials II	29-Jan-15	8:30 AM - 12:10 PM	Tomoka C*
Optical Materials III	29-Jan-15	1:30 - 3:20 PM	Tomoka C*
New Directions II	29-Jan-15	3:20 - 5:20 PM	Tomoka C*
<b>FS6: Field Assisted Sintering and Related Phenomena at High Temperatures</b>			
Flash Sintering Phenomena and Mechanisms	26-Jan-15	1:30 - 5:30 PM	Coquina Salon H
Field Assisted Sintering Phenomena	27-Jan-15	8:30 AM - NOON	Coquina Salon H

\* located in Hilton South Tower

# Technical Sessions By Symposium

Session Title	Date	Time	Location
<b>S1: Mechanical Behavior and Performance of Ceramics &amp; Composites</b>			
Mechanics, Characterization Techniques, and Equipment	26-Jan-15	1:30 - 5:30 PM	Coquina Salon D
Processing - Microstructure - Mechanical Properties Correlation I	27-Jan-15	8:30 AM - 12:10 PM	Coquina Salon D
Processing - Microstructure - Mechanical Properties Correlation II	27-Jan-15	1:30 - 5:00 PM	Coquina Salon D
CMCs	28-Jan-15	8:30 - 11:50 AM	Coquina Salon D
Environmental Effects	28-Jan-15	1:30 - 5:00 PM	Coquina Salon D
Mechanical Behavior of CMCs	29-Jan-15	8:30 AM - NOON	Coquina Salon D
Reliability and Small Scale Testing	29-Jan-15	1:30 - 5:45 PM	Coquina Salon D
Tribology and Wear	30-Jan-15	8:30 AM - NOON	Coquina Salon D
<b>S2: Advanced Ceramic Coatings for Structural, Environmental, and Functional Applications</b>			
Advanced Thermal Barrier Coatings: Processing and Development	27-Jan-15	1:30 - 5:20 PM	Coquina Salon G
Thermal Barrier Coatings: Characterization and NDE Methods	28-Jan-15	8:30 - 10:40 AM	Coquina Salon G
CMAS-related Degradation and Mitigation Strategies I	28-Jan-15	10:40 - 11:50 AM	Coquina Salon G
CMAS-related Degradation and Mitigation Strategies II	28-Jan-15	1:30 - 5:00 PM	Coquina Salon G
Environmental Barrier Coatings I	29-Jan-15	9:00 - 11:50 AM	Coquina Salon G
Environmental Barrier Coatings II	29-Jan-15	1:30 - 3:20 PM	Coquina Salon G
Multifunctional, Corrosion and Wear	29-Jan-15	3:20 - 5:30 PM	Coquina Salon G
Advanced Multifunctional Coatings	30-Jan-15	9:00 - 11:20 AM	Coquina Salon G
<b>S3: 12th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology</b>			
Status and Perspectives of SOFC and SOEC	26-Jan-15	1:30 - 5:20 PM	Crystal*
Materials for SOFC, Reversible (SOFC/SOE) and SOE Operation / Electrode Materials	27-Jan-15	8:00 AM - NOON	Crystal*
Interconnects and Coatings	27-Jan-15	1:30 - 5:00 PM	Crystal*
Surface and Interfacial Reactions	28-Jan-15	8:00 AM - 12:20 PM	Crystal*
Oxygen Ion, Proton and Mixed Conductors	28-Jan-15	1:30 - 4:30 PM	Crystal*
Electrical and Mechanical Reliability / Electrochemical Performance and Stability	29-Jan-15	8:30 AM - NOON	Crystal*
Degradation, Modeling and Simulation / Novel Processing and Design	29-Jan-15	1:30 - 6:10 PM	Crystal*
<b>S4: Armor Ceramics: Challenges and New Developments</b>			
Materials Characterization	26-Jan-15	1:30 - 6:00 PM	Coquina Salon E
Synthesis and Processing I	27-Jan-15	8:30 AM - NOON	Coquina Salon E
Synthesis and Processing II	27-Jan-15	1:20 - 5:20 PM	Coquina Salon E
Modeling / Testing and Evaluation / Quasi-Static and Dynamic Behavior I	28-Jan-15	8:30 AM - NOON	Coquina Salon E
Modeling / Testing and Evaluation / Quasi-Static and Dynamic Behavior II	28-Jan-15	1:20 - 5:00 PM	Coquina Salon E
<b>S5: Next Generation Bioceramics and Biocomposites</b>			
Bioceramics I	28-Jan-15	1:30 - 5:00 PM	Coquina Salon F
Bioceramics II	29-Jan-15	8:30 AM - NOON	Coquina Salon F
Bioceramics III	29-Jan-15	1:30 - 5:20 PM	Coquina Salon F
Bioceramics IV	30-Jan-15	8:30 AM - NOON	Coquina Salon F
<b>S6: Advanced Materials and Technologies for Energy Generation, Conversion, and Rechargeable Energy Storage</b>			
Li-ion Battery	26-Jan-15	1:30 - 5:30 PM	Tomoka A*
Beyond Li-ion Battery: Sodium-ion Battery, Li-S and Li-air battery	27-Jan-15	8:30 AM - 12:10 PM	Tomoka A*
Energy Harvesting and Storage	27-Jan-15	1:30 - 5:10 PM	Tomoka A*
Solid Electrolytes and Characterization	28-Jan-15	8:30 - 11:30 AM	Tomoka A*
<b>S7: 9th International Symposium on Nanostructured Materials: Innovative Synthesis and Processing of Nanostructured, Nanocomposite and Hybrid Functional Materials for Energy, Health and Sustainability</b>			
Nanotoxicity, Drug-delivery and Health Aspects of Engineered Nanostructures	27-Jan-15	8:30 - 10:30 AM	Coquina Salon B

\* located in Hilton South Tower

# Technical Sessions By Symposium

Session Title	Date	Time	Location
Integration of Functional Metal Oxide Nanostructures in Devices	27-Jan-15	10:30 AM - 12:10 PM	Coquina Salon B
One-dimensional Nanostructures for Energy Applications	27-Jan-15	1:30 - 3:20 PM	Coquina Salon B
Nanostructures Thin-films and Composites for Energy Applications	27-Jan-15	3:20 - 5:00 PM	Coquina Salon B
Nanomaterials for Water-splitting I	28-Jan-15	8:30 - 10:30 AM	Coquina Salon B
Nanomaterials for Water-splitting II	28-Jan-15	10:30 AM - 12:20 PM	Coquina Salon B
Nanomaterials for Water-splitting III	28-Jan-15	1:30 - 3:30 PM	Coquina Salon B
Nanomaterials for Solar Energy Harvesting	28-Jan-15	3:30 - 5:40 PM	Coquina Salon B
Solution Synthesis, Functionalization and Assembly of Metal Oxide Nano-materials I	29-Jan-15	8:30 - 10:30 AM	Coquina Salon B
Solution Synthesis, Functionalization and Assembly of Metal Oxide Nano-materials II	29-Jan-15	10:30 AM - 12:10 PM	Coquina Salon B
Solution Synthesis, Functionalization and Assembly of Metal Oxide Nano-materials III	29-Jan-15	1:30 - 3:20 PM	Coquina Salon B
Metal Oxide Nanostructures for Chemical and Biological Sensors	29-Jan-15	3:20 - 5:50 PM	Coquina Salon B

## ***S8: 9th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT9)***

Novel Ceramic Processing I	26-Jan-15	1:30 - 5:20 PM	Coquina Salon A
Novel Ceramic Processing II	27-Jan-15	8:30 AM - 12:10 PM	Coquina Salon A
Novel Ceramic Processing III	27-Jan-15	1:30 - 5:00 PM	Coquina Salon A
Novel Ceramic Processing IV	28-Jan-15	8:30 AM - NOON	Coquina Salon A
Advanced Sintering Technologies	28-Jan-15	1:30 - 5:10 PM	Coquina Salon A
Integration and Joining	29-Jan-15	8:30 AM - NOON	Coquina Salon A
Advanced Composite Manufacturing	29-Jan-15	1:30 - 5:50 PM	Coquina Salon A

## ***S9: Porous Ceramics: Novel Developments and Applications***

Innovations in Processing Methods and Synthesis of Porous Ceramics I	27-Jan-15	1:30 - 3:20 PM	Coquina Salon H
Membranes and High SSA Ceramics I	27-Jan-15	3:20 - 4:50 PM	Coquina Salon H
Membranes and High SSA Ceramics II	28-Jan-15	8:30 - 10:20 AM	Coquina Salon H
Innovations in Processing Methods and Synthesis of Porous Ceramics II	28-Jan-15	10:20 - 11:50 AM	Coquina Salon H
Innovations in Processing Methods and Synthesis of Porous Ceramics III	28-Jan-15	1:30 - 3:20 PM	Coquina Salon H
Innovations in Processing Methods and Synthesis of Porous Ceramics IV	28-Jan-15	3:20 - 5:10 PM	Coquina Salon H
Modeling and Properties of Porous Ceramics	29-Jan-15	8:30 - 10:30 AM	Coquina Salon H
Mechanical Properties of Porous Ceramics	29-Jan-15	10:30 AM - NOON	Coquina Salon H
Applications of Porous Ceramics I	29-Jan-15	1:30 - 3:20 PM	Coquina Salon H
Applications of Porous Ceramics II	29-Jan-15	3:20 - 5:10 PM	Coquina Salon H

## ***S10: Virtual Materials (Computational) Design and Ceramic Genome***

Ceramic Genome and Modeling of Structure and Property I	28-Jan-15	1:30 - 5:00 PM	Coquina Salon C
Ceramic Genome and Modeling of Structure and Property II	29-Jan-15	8:30 AM - NOON	Coquina Salon C
Ceramic Genome and Modeling of Structure and Property III	29-Jan-15	1:30 - 3:20 PM	Coquina Salon C
Integrated Materials Computational Engineering	29-Jan-15	3:20 - 5:30 PM	Coquina Salon C
Modeling Defects and Related Properties	30-Jan-15	8:30 AM - NOON	Coquina Salon C

## ***S11: Advanced Materials and Innovative Processing Ideas for the Production Root Technology***

New Concept & Emerging Technology	29-Jan-15	8:30 - 10:20 AM	Coquina Salon E
Shaping & Thermal Process	29-Jan-15	10:20 AM - 12:10 PM	Coquina Salon E
Coating Process for Low Friction and Energy Solution I	29-Jan-15	1:30 - 3:20 PM	Coquina Salon E
Coating Process for Low Friction and Energy Solution II	29-Jan-15	3:20 - 6:00 PM	Coquina Salon E
Innovative Process Technologies with Enhanced Performances of Products I	30-Jan-15	8:30 - 10:20 AM	Coquina Salon E
Innovative Process Technologies with Enhanced Performances of Products II	30-Jan-15	10:20 AM - NOON	Coquina Salon E



# Technical Sessions By Symposium

Session Title	Date	Time	Location
<b>S12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nano-laminated Ternary Carbides and Nitrides (MAX Phases)</b>			
Materials Design, New Composition and Composite I	26-Jan-15	1:30 - 3:20 PM	Ponce DeLeon
Structural-property Relationships of Existing Systems I	26-Jan-15	3:20 - 5:30 PM	Ponce DeLeon
Structural-property Relationships of Existing Systems II	27-Jan-15	8:30 - 10:20 AM	Ponce DeLeon
Structural Stability under Extreme Environments	27-Jan-15	10:20 AM - 12:10 PM	Ponce DeLeon
Materials Design, New Composition and Composites II	27-Jan-15	1:30 - 3:20 PM	Ponce DeLeon
Methods for Improving Damage Tolerance, Oxidation and Thermal Shock Resistance	27-Jan-15	3:20 - 5:00 PM	Ponce DeLeon
Novel Characterization Methods and Lifetime Assessment	28-Jan-15	8:30 - 10:20 AM	Ponce DeLeon
Novel Processing Methods (Bulk, Coatings and Thin Film)	28-Jan-15	10:20 AM - NOON	Ponce DeLeon
Methods to Improve the Oxidation Resistance and Damage Tolerance	28-Jan-15	1:30 - 3:20 PM	Ponce DeLeon
New Precursors for Powders, Coatings and Matrix or Fibers of Composites	28-Jan-15	3:20 - 5:00 PM	Ponce DeLeon
Structural-property Relationships of Existing Systems III	29-Jan-15	8:30 - 10:20 AM	Ponce DeLeon
Novel Processing Methods	29-Jan-15	10:20 AM - NOON	Ponce DeLeon

## **S13: International Symposium on Advanced Ceramics and Composites for Sustainable Nuclear Energy and Fusion Energy**

Ceramics and Composites Technology for Accident-tolerant LWR Fuels I	26-Jan-15	1:30 - 5:30 PM	Tomoka B*
Ceramics for Advanced Fission Concepts	27-Jan-15	8:30 - 10:20 AM	Tomoka B*
Joining Technology for Nuclear Ceramics I	27-Jan-15	10:20 AM - NOON	Tomoka B*
Joining Technology for Nuclear Ceramics II	27-Jan-15	1:30 - 3:20 PM	Tomoka B*
Accident Tolerant Nuclear Fuels	27-Jan-15	3:20 - 5:10 PM	Tomoka B*
Thermo-structural Ceramics for Nuclear Systems	28-Jan-15	8:30 AM - NOON	Tomoka B*
SiC Composites R&D for Fusion Energy	28-Jan-15	1:30 - 3:20 PM	Tomoka B*
Ceramic and Glass Technology for Nuclear Waste Management	28-Jan-15	3:20 - 5:00 PM	Tomoka B*
Radiation Effects in Ceramics and Composites	29-Jan-15	8:30 AM - NOON	Tomoka B*
Design Properties and Interactions for Nuclear Ceramics	29-Jan-15	1:30 - 5:20 PM	Tomoka B*

\* located in Hilton South Tower

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# Symposia

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## 2015 ICACC Program Chair: Soshu Kirihara, Joining and Welding Institute, Osaka University

### **SYMPOSIUM 1: Mechanical Behavior and Performance of Ceramics & Composites**

Dileep Singh, Argonne National Laboratory, USA ; Jonathan A. Salem, NASA Glenn Research Center, USA; Dietmar Koch, German Aerospace Center, Germany; Laifei Cheng, Northwestern Polytechnical University, China; Shaoming Dong, Shanghai Institute of Ceramics, China; Monica Ferraris, Politecnico di Torino, Italy; Michael Halbig, NASA Glenn Research Center, USA; Juergen Heinrich, TU Clausthal, Clausthal University of Technology, Germany; Yutaka Kagawa, University of Tokyo, Japan; Walter Krenkel, University of Bayreuth, Germany; Andrew Wereszczak, Oak Ridge National Laboratory, USA; Y. Zhou, Harbin Institute of Technology, Harbin, China

### **SYMPOSIUM 2: Advanced Ceramic Coatings for Structural, Environmental, and Functional Applications**

Dongming Zhu, NASA Glenn Research Center, USA; Robert Vaßen, Forschungszentrum Jülich GmbH, Germany; Yutaka Kagawa, University of Tokyo, Japan; Soumendra N. Basu, Boston University, USA; Satoshi Kitaoka, Japan Fine Ceramics Center, Japan; Uwe Schulz, German Aerospace Center, Germany; Rodney W. Trice, Purdue University, USA; Peter Mechnich, German Aerospace Center, Germany; Bryan Harder, NASA Glenn Research Center, USA; Marie-Hélène VIDAL-SETIF, ONERA, France; Kang N. Lee, Rolls-Royce Corporation, USA; Ping Xiao, University of Manchester, UK; Federico Cernuschi, Ricerca sul Sistema Energetico, Italy; Yiguang Wang, Northwestern Polytechnical University, China; Doug Wolfe, Penn State University, USA; Inacio Regiani, Brazilian Technological Institute of Aeronautics-ITA, Brazil

### **SYMPOSIUM 3: 11th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology**

Narottam P. Bansal, NASA Glenn Research Center, USA; Mihails Kusnezoff, Fraunhofer IKTS, Germany; Vincenzo Esposito, DTU Energy Conversion, Denmark; Tatsumi Ishihara, Kyushu University, Japan; Ruey-Yi Lee, Institute of Nuclear Energy Research, Taiwan; Nguyen Q. Minh, Consultant, USA; Mogens Mogensen, Risoe National Laboratory, Denmark; Prabhakar Singh, University of Connecticut, USA; Federico Smeacetto, Politecnico di Torino, Italy; Jeffrey W. Stevenson, Pacific Northwest National Laboratory, USA; Toshio Suzuki, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Sascha Kühn, Ezelleron, Germany

### **SYMPOSIUM 4: Armor Ceramics**

Jerry LaSalvia, ARL, USA; Brian Leavy, ARL, USA; James McCauley, ARL, USA; Sikhanda Satapathy, ARL, USA; David Stepp, ARO, USA; Jeffrey Swab, ARL, USA; Andrew Wereszczak, ORNL, USA; Michael Golt, ARL, USA; Steve Kilczewski, ARL, USA; Robert Pavlacka, ARL, USA; Kristopher Behler, ARL, USA

### **SYMPOSIUM 5: Next Generation Bioceramics and Biocomposites**

Roger Narayan, University of North Carolina, USA; Markus Reiterer, Medtronic, Inc., USA; Marta Cerruti, McGill University, Canada; Chikara Ohtsuki, Nagoya University, Japan; Bikramjit Basu, Indian Institute of Science, India; Akiyoshi Osaka, Okayama University, Japan; Enrica Verné, Politecnico di Torino, Italy

### **SYMPOSIUM 6: Advanced Materials and Technologies for Energy Generation, Conversion, and Rechargeable Energy Storage**

H. T. Lin, Guangdong University, Taiwan; Palani Balaya, National University of Singapore, Singapore; Sean Li, University of New South Wales, Australia; Sujanto Widjaja, Corning Incorporated, USA; Shirley Meng, UC San Diego, USA; Valeria Pralong, CNRS CRISMAT, France; Do Kyung Kim, Korea Advanced Institute of Science and Technology, Korea; Terry Tritt, Clemson University, USA; Kuan-Zong Fung, National Cheng Kung University, Taiwan

### **SYMPOSIUM 7: 9th International Symposium on Nanostructured Materials: Innovative Synthesis and Processing of Nanostructured, Nanocomposite and Hybrid Functional Materials for Energy, Health and Sustainability**

Sanjay Mathur, University of Cologne, Germany; Suprakas Sinha Ray, DST/CSIR- National Centre for Nanomaterials, South Africa; Davide Barreca, INSTM, Padua, Italy; Ashok Kumar, University of South Florida, USA; Marlies van Bael, Hasselt University, Belgium; Dunwei Wang, Boston College, USA; Yoon-Bong Hahn, Chonbuk National University, Korea; Ru-Shi Liu, National Taiwan University, Taiwan; Bala Vaidhyanathan, Loughborough University, UK; Gerardo Goya, University of Zaragoza, Spain

### **SYMPOSIUM 8: 9th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT9)**

Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Mrityunjay Singh, NASA Glenn Research Center, USA; Jerzy Lis, AGH University of Science and Technology, Poland; Eugene Medvedovski, Endurance Technologies Inc., Canada; Richard D. Sisson, Jr., Worcester Polytechnic Institute, USA; Tohru Suzuki, National Institute for Materials Science (NIMS), Japan; Satoshi Tanaka, Nagaoka University of Technology, Japan; Yiquan Wu, Alfred University, USA

### **SYMPOSIUM 9: Porous Ceramics: Novel Developments and Applications**

Paolo Colombo, University of Padova, Italy; James W. Zimmermann, Corning Incorporated, USA; Tobias Fey, University of Erlangen-Nuremberg, Germany; Fabrice Rossignol, CNRS Limoges, France; Manabu Fukushima, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Yuji Iwamoto, Nagoya Institute of Technology, Japan; Alek Pyzik, The Dow Chemical Company, USA; Hutha Sarma, Corning Environmental Technologies, USA; Yuping Zheng, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China

### **SYMPOSIUM 10: Virtual Materials (Computational) Design and Ceramic Genome**

Jingyang Wang, Institute of Metal Research, Chinese Academy of Sciences, China; Brian Good, NASA Glenn Research Center, USA; Jian Luo, University of California, San Diego, USA; Katsuyuki Matsunaga, Nagoya University, Japan; Leonhard Mayrhofer, Fraunhofer IWM, Germany; Paul Rulis, University of Missouri-Kansas City, USA; Hans J. Seifert, University of Karlsruhe, Germany; Gerard L. Vignoles, University of Bordeaux, France; William J. Weber, University of Tennessee, USA

## **SYMPOSIUM 11: Advanced Materials and Innovative Processing Ideas for the Production Root Technology**

Kyoung Il Moon, Korea Institute of Industrial Technology, Korea; Haidoo Kim, KIMS, Korea; Sangmok Lee, Korea Institute of Industrial Technology, Korea; Ali Erdemir, Argonne National Laboratory, USA; Tim Hosenfeldt, Schaeffler Group, German; Wolfgang Diehl, Fraunhofer IST, German; Dileep Singh, Argonne National Laboratory, USA; L. K. Sharma, CSIR, India; Byungkoog Jang, National Institute for Materials Science (NIMS), Japan; Kouichi Yasuda, Tokyo Institute of Technology, Japan

## **SYMPOSIUM 12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nano-laminated Ternary Carbides and Nitrides (MAX Phases)**

Yanchun Zhou, Aerospace Research Institute of Material & Processing Technology, China; Jon Binner, University of Birmingham, UK; Erica L. Corral, University of Arizona, USA; Per Eklund, Linköping University, Sweden; William G. Fahrenholtz, Missouri University of Science and Technology, USA; Greg Hilmas, Missouri University of Science and Technology, USA; Frederic Monteverde, Institute of Science and Technology of Ceramics-CNR, Italy; Miladin Radovic, Texas A&M University, USA; Jochen Schneider, Materials Chemistry, RWTH Aachen, Aachen, Germany; Luc J Vandeperre, Imperial College London, UK; Guo-Jun Zhang, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China

## **SYMPOSIUM 13: International Symposium on Advanced Ceramics and Composites for Sustainable Nuclear Energy and Fusion Energy**

Yutai Katoh, Oak Ridge National Laboratory, USA; Josef Matyáš, Pacific Northwest National Laboratory, USA; Monica Ferraris, Politecnico di Torino, Italy; Kevin Fox, Savannah River National Laboratory, USA; Steve Gonczy, Gateway Materials Technology, USA; Sehila Gonzalez de Vicente, European Fusion Development Agreement, EU; Tatsuya Hinoki, Kyoto University, Japan; Ji-Jung Kai, National Tsing-Hua University, Taiwan ROC; Weon-Ju Kim, Korea Atomic Energy Research Institute, Korea; Takashi Nozawa, Japan Atomic Energy Agency, Japan; Lance Snead, Oak Ridge National Laboratory, USA; Veena Tikare, Sandia National Laboratory, USA; William Weber, University of Tennessee, USA

### **Focused Session 1: Geopolymers, Chemically Bonded Ceramics, Eco-friendly and Sustainable Materials**

Waltraud M. Kriven, University of Illinois at Urbana-Champaign, USA; Kenneth MacKenzie, Victoria University of Wellington, New Zealand; John L. Provis, University of Sheffield, UK; Claus H. Rüschler, Leibniz University of Hannover, Germany; Sylvie Rossignol, GEMH-ENSCI, Limoges, France; Kwesi Sagoe-Crentsil, CSIRO Melbourne, Australia; Hubert Rahier, Vrije Universiteit, Brussel, Belgium; Cengiz Bagci, Hitit University, Turkey

### **Focused Session 2: Advanced Ceramic Materials and Processing for Photonics and Energy**

Alberto Vomiero, CNR – University of Brescia, Italy; Federico Rosei, University du Quebec, Canada; Yasuhiro Tachibana, RMIT University, Australia; Daniel Milanese, Politecnico di Torino, Italy

### **Focused Session 3: Materials Diagnostics and Structural Health Monitoring of Ceramic Components and Systems**

Joerg Opitz, Fraunhofer Institute for Ceramic Technologies and Systems, Germany; Andrew L. Gyekyesi, Ohio Aerospace Institute, NASA Glenn Research Center, USA; Qiwen Zhan, University of Dayton, USA; Mathias Herrmann, Fraunhofer Institute for Ceramic Technologies and Systems, Germany; Klaus-Juergen Wolter, Electronics Packaging Lab (IAVT), Germany; Bernd Koehler, Fraunhofer Institute for Ceramic Technologies and Systems, Germany; Peter Czurratis, PVA TePla Analytical Systems GmbH, Germany; Michael Maisl, Fraunhofer Institute for Nondestructive Testing, Germany; Juergen Schreiber, Nuga Lab, Germany; Viktoriya Lapina, Academy of Science, Belarus

### **Focused Session 4: Additive Manufacturing and 3D Printing Technologies**

Soshu Kirihiro, Osaka University, Japan; Mrityunjay Singh, Ohio Aerospace Institute, NASA Glenn Research Center, USA; Michael Halbig, NASA Glenn Research Center, USA; Nahum Travizky, University Erlangen-Nürnberg, Germany; Junichi Tatami, Yokohama National University, Japan; Johannes Homa, Lithoz GmbH, Austria; Hiroya Abe, Osaka University, Japan

### **Focused Session 5: Single Crystalline Materials for Electrical, Optical and Medical Applications**

Kiyoshi Shimamura, National Institute for Materials Science (NIMS), Japan; Noboru Ichinose, Waseda University, Japan; Robert Feigelson, Stanford University, USA; Richard Moncorgé, National Graduate School of Engineering & Research Center (ENSICAEN), France; Reinhard Uecker, The Leibniz Institute for Crystal Growth (IKZ), Germany; Alain Largeteau, The Institute for Solid State Chemistry Bordeaux, France; Mauro Tonelli, University of Pisa, Italy

### **Focused Session 6: Field Assisted Sintering and Related Phenomena at High Temperatures**

Rishi Raj, University of Colorado at Boulder, USA; Claude Estournes, Université Paul Sabatier, CIRIMAT-LCME, France

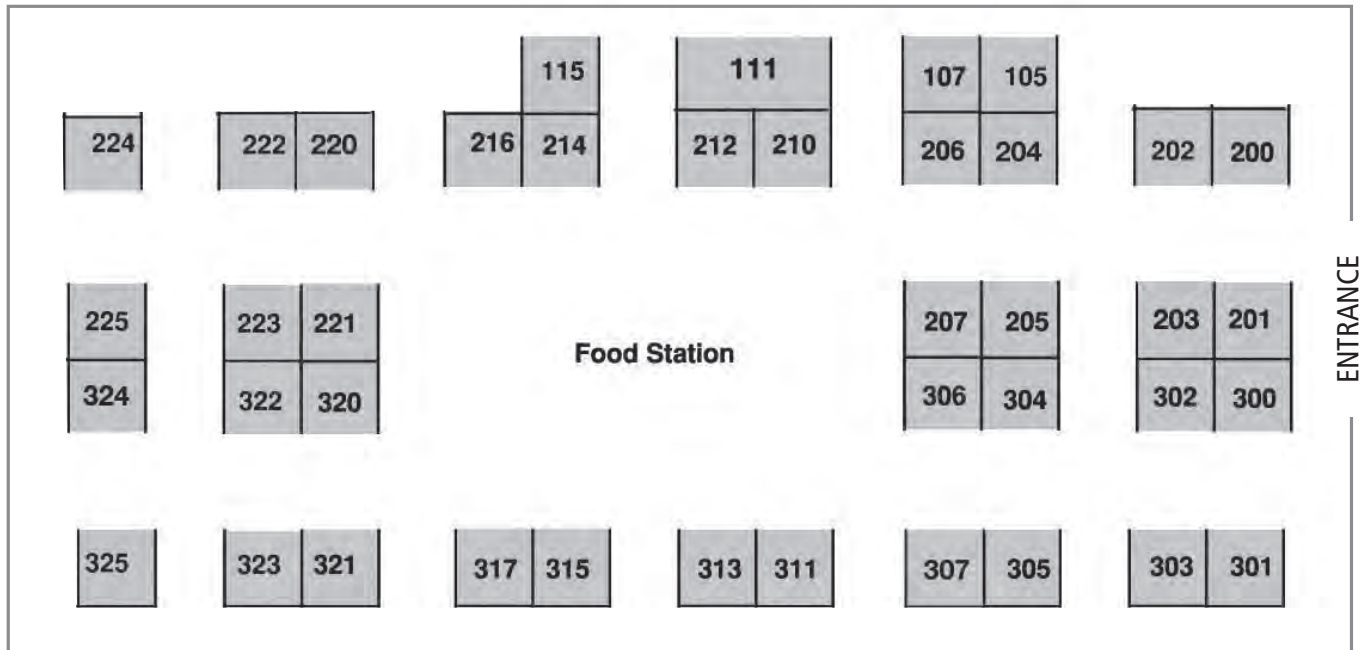
## **2nd European Union - USA Engineering Ceramics Summit**

Sanjay Mathur, University of Cologne, Germany; Mrityunjay Singh, Ohio Aerospace Institute, NASA Glenn Research Center, USA; Monica Ferraris, Polytechnic of Torino, Italy; H. T. Lin, Guandong University, Taiwan; Anja Verena Mudring, Iowa State University, Ames, USA; Girish M. Kale, University of Leeds, UK; Xavier Obrados, Institute of Materials Science of Barcelona; Pavol Sajgalik, Slovak Academy of Sciences, Slovakia; Jerzy Lis, AGH University of Technology, Poland

## **4th Global Young Investigator Forum**

Thomas Fischer, University of Cologne, Germany; Eva Hemmer, Institut National de la Recherche Scientifique (INRS), Canada; Valerie Wiesner, NASA Glenn Research Center, USA; Hugo Ávila, Universidad Autónoma Metropolitana, Mexico; Hutha K. Sarma, Corning, USA; Mahmood Shirooyeh, University of Southern California, USA; Craig Smith, NASA Glenn Research Center, USA; Sara Jäckle, Max Planck Institute for the Science of Light, Germany; Manabu Fukushima, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Alex C. Lee, National Cheng Kung University, Taiwan; Peter W. Olupot, Makerere University, Uganda; Gustavo Costa, NASA Glenn Research Center, USA; Yakup Gonullu, University of Cologne, Germany

# Exhibit Floor Plan & Booth Information



## Exhibitor

Alfred University  
 AVS, Inc.  
 BTU International  
 C-Therm Technologies Ltd.  
 Carbolite, Inc.  
 Centorr Vacuum Industries, Inc.  
 Ceramics Expo  
 CM Furnaces, Inc.  
 Custom Process Service  
 Dorst America  
 Eirich Machines, Inc.  
 ESL ElectroScience  
 Florida Institute of Technology  
 Furuya Metal. Co. Ltd.  
 H.C. Starck North American Trading LLC  
 Haiku Tech, Inc.  
 Harper International  
 Harrop Industries, Inc.  
 Heraeus Thick Film Division  
 Imerys Fused Minerals

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## Exhibitor

Keith Company  
 Linseis Inc.  
 Lithoz  
 MEL Chemicals  
 Microtrac  
 NETZSCH Instruments North America, LLC  
 New Lenox Machine Co. Inc.  
 NIST  
 Oxy-Gon Industries, Inc.  
 Powder Processing & Technology Booth  
 PremaTech Advanced Ceramics  
 PTX-Pentronix - Gasbarre Presses  
 R.D. Webb Company Inc  
 Sonoscan, Inc.  
 Swindell Dressler International  
 TA Instruments  
 TevTech  
 Thermal Wave Imaging  
 Zircar Ceramics, Inc.

## Booth #

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## Oral Presenters

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Adnan, A.	29-Jan	4:50PM	Coquina Salon C	70	Bordia, R.K.	27-Jan	1:30PM	Tomoka B	40
Ahmad, I.	28-Jan	11:30AM	Coquina Salon D	45	Bordia, R.K.	28-Jan	8:30AM	Coquina Salon A	47
Ahn, J.	28-Jan	10:50AM	Tomoka A	47	Bourret, E.	26-Jan	1:30PM	Tomoka C	27
Ajayi, O.	30-Jan	8:30AM	Coquina Salon D	72	Bratcher, M.	26-Jan	4:30PM	Coquina Salon D	23
Akhtar, F.	28-Jan	9:40AM	Coquina Salon H	48	Braun, J.	26-Jan	2:20PM	Tomoka B	26
Al Nasiri, N.	29-Jan	10:50AM	Coquina Salon G	60	Brennan, R.E.	27-Jan	10:20AM	Coquina Salon H	34
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Almansour, A.	29-Jan	11:40AM	Coquina Salon D	60	Bueyuekyazi, M.	27-Jan	2:40PM	Coquina Salon B	38
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Anderson, C.E.	28-Jan	11:00AM	Coquina Salon E	46	Burye, T.	29-Jan	5:30PM	Crystal	67
Appleby, M.P.	29-Jan	10:40AM	Coquina Salon D	59	Byrappa, K.	27-Jan	9:50AM	Coquina Salon B	31
Arai, Y.	29-Jan	2:40PM	Coquina Salon G	66	<b>C</b>				
Araujo, M.D.	26-Jan	2:40PM	Coquina Salon G	27	Cabioch, T.	26-Jan	2:40PM	Ponce DeLeon	25
Artzt, K.	29-Jan	9:20AM	Coquina Salon D	59	Cambier, F.	27-Jan	2:00PM	Coquina Salon F	41
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Asadizanjani, N.	28-Jan	10:00AM	Coquina Salon G	45	Campbell, A.A.	29-Jan	9:20AM	Tomoka B	64
<b>B</b>					Camy, P.	29-Jan	1:30PM	Tomoka C	71
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Bagci, C.	27-Jan	9:30AM	Oceanview	33	Chalisgaonkar, V.	30-Jan	10:40AM	Coquina Salon F	73
Bagci, C.	28-Jan	8:30AM	Oceanview	49	Chandio, A.D.	27-Jan	4:00PM	Coquina Salon G	36
Bai, M.	27-Jan	4:20PM	Coquina Salon G	36	Chang, I.T.	27-Jan	11:20AM	Coquina Salon E	30
Bailakanavar, M.	29-Jan	3:20PM	Coquina Salon D	65	Chanson, C.	28-Jan	9:30AM	Coquina Salon D	44
Bakshi, A.K.	29-Jan	1:30PM	Coquina Salon H	69	Chao, L.	30-Jan	9:20AM	Coquina Salon F	73
Balaya, P.	26-Jan	4:50PM	Tomoka A	25	Chapman, K.	26-Jan	3:20PM	Tomoka A	24
Balmori, H.	26-Jan	4:20PM	Coquina Salon H	28	Chen, C.	29-Jan	11:10AM	Tomoka B	64
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Barbier, T.	27-Jan	3:20PM	Tomoka A	38	Chen, W.	27-Jan	9:50AM	Coquina Salon D	29
Barnett, S.	26-Jan	3:50PM	Crystal	24	Chen, X.	30-Jan	9:00AM	Coquina Salon C	73
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Barsoum, M.W.	28-Jan	10:20AM	Tomoka B	49	Chen, Z.	27-Jan	3:50PM	Tomoka B	40
Bartasyte, A.	27-Jan	10:30AM	Coquina Salon B	31	Chi, C.	27-Jan	10:40AM	Tomoka A	31
Bartsch, M.	28-Jan	9:00AM	Coquina Salon G	45	Ching, W.	28-Jan	1:30PM	Coquina Salon C	55
Basu, S.	27-Jan	10:20AM	Crystal	30	Ching, W.	28-Jan	8:30AM	Ponce DeLeon	48
Basu, S.	29-Jan	9:00AM	Coquina Salon G	60	Chlubny, L.	28-Jan	3:40PM	Ponce DeLeon	55
Baure, G.	28-Jan	3:30PM	Crystal	52	Cho, S.	27-Jan	1:30PM	Oceanview	41
Bausa, L.E.	29-Jan	8:30AM	Tomoka C	65	Cho, S.	27-Jan	10:40AM	Oceanview	33
Beaumont, R.	28-Jan	1:20PM	Coquina Salon E	52	Chothirawat, S.	26-Jan	4:30PM	Coquina Salon A	25
Becker, K.D.	28-Jan	3:50PM	Tomoka C	57	Chou, Y.	27-Jan	2:20PM	Crystal	37
Behler, K.D.	27-Jan	2:00PM	Coquina Salon E	37	Chua, D.H.	30-Jan	8:50AM	Coquina Salon H	74
Behler, K.D.	29-Jan	11:40AM	Coquina Salon A	62	Chung, Y.	27-Jan	2:00PM	Coquina Salon B	38
Benetti, D.	26-Jan	4:20PM	Coquina Salon C	29	Gilla, M.S.	27-Jan	10:10AM	Oceanview	33
Benetti, D.	28-Jan	3:50PM	Tomoka A	57	Cioffi, R.	27-Jan	11:10AM	Oceanview	33
Benitez, R.	26-Jan	4:50PM	Ponce DeLeon	26	Clarke, D.R.	26-Jan	9:00AM	Coquina Salon D	23
Bentzel, G.	26-Jan	2:20PM	Ponce DeLeon	25	Clegg, W.J.	26-Jan	3:20PM	Ponce DeLeon	25
Bentzel, G.	27-Jan	2:40PM	Ponce DeLeon	40	Clegg, W.J.	29-Jan	3:40PM	Coquina Salon D	66
Bentzel, G.	28-Jan	2:20PM	Ponce DeLeon	55	Collins, J.	29-Jan	4:25PM	Coquina Salon D	66
Bermejo, R.	27-Jan	10:50AM	Coquina Salon D	29	Colorado, H.A.	27-Jan	3:10PM	Oceanview	41
Bermejo, R.	27-Jan	8:50AM	Coquina Salon D	29	Colorado, H.A.	28-Jan	3:30PM	Oceanview	56
Bernard, S.	27-Jan	11:20AM	Coquina Salon F	35	Colorado, H.A.	28-Jan	3:50PM	Oceanview	56
Bernardo, E.	27-Jan	9:40AM	Coquina Salon A	32	Conings, B.	26-Jan	3:20PM	Coquina Salon C	29
Bernardo, E.	28-Jan	4:40PM	Coquina Salon F	53	Cooper, R.C.	26-Jan	4:10PM	Coquina Salon D	23
Bernardo, E.	29-Jan	4:30PM	Coquina Salon H	69	Cormack, A.	28-Jan	2:00PM	Coquina Salon F	53
Bertrand, D.J.	28-Jan	3:20PM	Coquina Salon D	51	Costa, G.	29-Jan	11:10AM	Coquina Salon G	60
Besmann, T.M.	27-Jan	3:20PM	Tomoka B	40	Costa, R.	29-Jan	4:30PM	Crystal	67
Besnard, C.	27-Jan	1:20PM	Coquina Salon E	37	Cozzi, A.	28-Jan	3:20PM	Tomoka B	56
Beyoglu, B.	30-Jan	11:00AM	Coquina Salon F	73	Crum, J.V.	28-Jan	3:50PM	Tomoka B	56
Bicer, H.	27-Jan	11:00AM	Coquina Salon H	34	Cui, B.	27-Jan	3:40PM	Ponce DeLeon	40
Bickermann, M.	27-Jan	1:30PM	Tomoka C	41	<b>D</b>				
Biesuz, M.	27-Jan	9:40AM	Coquina Salon H	34	Dahlqvist, M.	26-Jan	1:30PM	Ponce DeLeon	25
Billard, R.	28-Jan	3:50PM	Coquina Salon A	54	Dairiki, K.	30-Jan	8:30AM	Coquina Salon H	74
Bloch, T.	27-Jan	4:00PM	Tomoka A	38	Dancer, C.E.	27-Jan	8:30AM	Coquina Salon D	29
Boakye, E.E.	28-Jan	9:10AM	Coquina Salon D	44	Davis, C.G.	27-Jan	11:50AM	Tomoka A	31
Boda, S.K.	30-Jan	10:20AM	Coquina Salon F	73	Davis, M.J.	28-Jan	11:40AM	Coquina Salon E	46
Bohác, M.	28-Jan	4:10PM	Oceanview	56	Day, D.E.	28-Jan	1:30PM	Coquina Salon F	53

# Presenting Author List

## Oral Presenters

Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
Dehaney-Steven, Z.	28-Jan	3:50PM	Crystal	52	Ghibelli, L.	28-Jan	11:40AM	Coquina Salon F	50
Delmas, C.	26-Jan	1:30PM	Tomoka A	24	Ghidu, M.	28-Jan	11:10AM	Tomoka A	47
Delmas, C.	28-Jan	1:30PM	Tomoka C	57	Ghosh, D.	26-Jan	3:40PM	Coquina Salon B	27
DeLuca, V.	27-Jan	3:40PM	Coquina Salon E	37	Gielis, S.	29-Jan	11:00AM	Coquina Salon B	61
Descrovi, E.	29-Jan	10:20AM	Tomoka A	65	Goebelt, M.	26-Jan	4:00PM	Coquina Salon C	29
Dessein, K.	27-Jan	9:30AM	Tomoka C	34	Goebelt, M.	28-Jan	4:00PM	Coquina Salon B	53
DeVries, M.	28-Jan	3:20PM	Coquina Salon E	52	Goldner, P.	29-Jan	3:20PM	Tomoka C	71
Dhakal, C.	28-Jan	4:10PM	Coquina Salon C	55	Gonczy, S.T.	29-Jan	2:40PM	Tomoka B	70
Diaz-Cano, A.	27-Jan	2:20PM	Coquina Salon E	37	Gonczy, S.T.	29-Jan	3:20PM	Tomoka B	70
Dillon, S.J.	28-Jan	10:20AM	Tomoka A	46	Gönüllü, Y.	28-Jan	2:30PM	Coquina Salon B	53
Dinu, C.	26-Jan	1:30PM	Coquina Salon B	26	Gönüllü, Y.	28-Jan	9:30AM	Coquina Salon C	50
Doan, B.D.	29-Jan	5:10PM	Tomoka A	71	Gonzalez da Vicente, S.	28-Jan	2:10PM	Tomoka B	56
Dominko, R.	27-Jan	11:20AM	Tomoka A	31	Goto, T.	30-Jan	9:30AM	Coquina Salon E	73
Domnich, V.	26-Jan	4:40PM	Coquina Salon E	24	Gower, L.	29-Jan	9:00AM	Coquina Salon F	61
Dong, C.	28-Jan	2:00PM	Coquina Salon B	53	Grady, J.E.	26-Jan	1:30PM	Coquina Salon G	27
Dong, S.	29-Jan	2:00PM	Coquina Salon A	68	Graham-Brady, L.	28-Jan	4:20PM	Coquina Salon E	52
Dubois, S.	26-Jan	4:30PM	Ponce DeLeon	26	Grinfeld, M.	28-Jan	1:40PM	Coquina Salon E	52
Dujardin, C.	26-Jan	5:10PM	Tomoka C	27	Grings Schmidt, C.	28-Jan	4:10PM	Coquina Salon H	54
		<b>E</b>			Grohsmeier, R.J.	29-Jan	10:40AM	Ponce DeLeon	64
Echizenya, K.	28-Jan	9:00AM	Tomoka C	50	Grossin, D.	29-Jan	4:10PM	Coquina Salon F	67
Eils, N.K.	28-Jan	2:40PM	Coquina Salon G	51	Gugushev, C.	29-Jan	3:50PM	Tomoka C	71
Elissalde, C.	27-Jan	11:20AM	Coquina Salon H	34	Günster, J.	27-Jan	4:40PM	Coquina Salon D	36
Eom, J.	27-Jan	9:20AM	Coquina Salon A	32	Günster, J.	27-Jan	8:30AM	Coquina Salon G	33
Epifani, M.	29-Jan	3:20PM	Tomoka A	71	Gupta, A.	28-Jan	5:00PM	Coquina Salon B	54
Epifani, M.	29-Jan	4:30PM	Coquina Salon B	68	Gupta, M.	29-Jan	10:40AM	Crystal	60
Erdemir, A.	29-Jan	1:30PM	Coquina Salon E	70	Gupta, S.	26-Jan	2:00PM	Coquina Salon A	25
Eryilmaz, O.L.	29-Jan	5:10PM	Coquina Salon E	70	Gupta, S.	27-Jan	2:30PM	Coquina Salon F	42
Esposito, L.	29-Jan	10:50AM	Tomoka C	65	Gupta, S.	27-Jan	4:20PM	Coquina Salon A	39
Estournes, C.	27-Jan	8:50AM	Coquina Salon H	34	Gupta, S.	28-Jan	1:30PM	Oceanview	56
Ewsuk, K.	29-Jan	8:30AM	Coquina Salon A	62	Gupta, S.	28-Jan	5:00PM	Ponce DeLeon	55
		<b>F</b>			Gupta, S.	28-Jan	9:30AM	Crystal	45
Fahrenholtz, W.G.	27-Jan	8:30AM	Ponce DeLeon	32	Gyekenyesi, A.	29-Jan	8:50AM	Coquina Salon H	62
Falkowski, P.	26-Jan	3:50PM	Coquina Salon G	27			<b>H</b>		
Fanchini, G.	28-Jan	2:30PM	Tomoka A	56	Haber, R.A.	26-Jan	5:40PM	Coquina Salon E	24
Fateri, M.	27-Jan	11:10AM	Coquina Salon G	34	Hackemann, S.	28-Jan	10:10AM	Coquina Salon D	45
Feigelson, R.S.	26-Jan	2:30PM	Tomoka C	27	Hackemann, S.	29-Jan	10:20AM	Coquina Salon D	59
Fend, T.	29-Jan	3:40PM	Coquina Salon H	69	Hahn, Y.	29-Jan	3:20PM	Coquina Salon B	68
Ferone, C.	28-Jan	4:30PM	Oceanview	56	Halbig, M.C.	29-Jan	9:00AM	Coquina Salon A	62
Ferraris, M.	26-Jan	2:10PM	Coquina Salon D	23	Hammel, E.	27-Jan	2:20PM	Coquina Salon H	39
Ferraris, M.	26-Jan	3:50PM	Coquina Salon F	28	Han, F.	29-Jan	4:50PM	Crystal	67
Ferraris, M.	27-Jan	2:00PM	Tomoka B	40	Han, S.	27-Jan	2:40PM	Crystal	37
Fey, T.	29-Jan	9:30AM	Coquina Salon H	62	Han, S.	29-Jan	4:30PM	Coquina Salon A	69
Fiocco, L.	27-Jan	3:50PM	Coquina Salon C	42	Hanifi, A.	28-Jan	4:30PM	Coquina Salon H	54
Fischer, T.	28-Jan	9:50AM	Coquina Salon C	50	Hapis, S.	26-Jan	2:40PM	Coquina Salon C	29
Fornasiero, P.	28-Jan	8:30AM	Coquina Salon B	47	Hardy, A.	29-Jan	1:30PM	Coquina Salon B	68
Foroughi, P.	27-Jan	11:40AM	Coquina Salon E	30	Harmer, M.	27-Jan	9:30AM	Coquina Salon E	30
Fortunato, E.M.	27-Jan	2:30PM	Tomoka C	41	Harris, A.	28-Jan	11:30AM	Coquina Salon G	45
Foschini, C.R.	27-Jan	11:50AM	Coquina Salon A	32	Härtling, T.	26-Jan	2:00PM	Coquina Salon B	26
Frajkorová, F.	29-Jan	11:40AM	Coquina Salon F	61	Hasegawa, M.	29-Jan	2:00PM	Coquina Salon G	66
Frank, J.M.	26-Jan	2:00PM	Tomoka C	27	Hay, R.	28-Jan	1:30PM	Coquina Salon D	51
Frasnelli, M.	29-Jan	3:30PM	Coquina Salon F	67	Hay, R.	29-Jan	9:40AM	Coquina Salon D	59
French, R.H.	27-Jan	10:50AM	Coquina Salon E	30	He, J.	27-Jan	2:00PM	Tomoka A	38
Fu, Z.	27-Jan	4:00PM	Crystal	37	Healey, A.C.	28-Jan	2:00PM	Coquina Salon E	52
Fujimoto, T.	27-Jan	9:00AM	Tomoka C	34	Hemmer, E.	27-Jan	4:10PM	Coquina Salon C	42
Fujiwara, Y.	28-Jan	2:00PM	Tomoka C	57	Hemmer, E.	27-Jan	9:30AM	Coquina Salon B	31
Fukushima, M.	26-Jan	2:00PM	Coquina Salon C	28	Henager, C.H.	29-Jan	3:40PM	Tomoka B	70
Fukushima, M.	27-Jan	2:40PM	Coquina Salon H	39	Hermansson, L.	28-Jan	4:20PM	Coquina Salon F	53
Funahashi, R.	27-Jan	1:30PM	Tomoka A	38	Hernandez, E.	29-Jan	10:50AM	Tomoka B	64
Funk, J.	26-Jan	5:00PM	Coquina Salon E	24	Hernandez, E.	29-Jan	5:10PM	Coquina Salon C	70
Furube, A.	28-Jan	3:20PM	Tomoka A	57	Hilmas, G.	27-Jan	9:00AM	Ponce DeLeon	32
		<b>G</b>			Hilmas, G.	28-Jan	8:30AM	Tomoka B	49
Gai, F.	29-Jan	11:20AM	Ponce DeLeon	64	Hinoki, T.	29-Jan	2:30PM	Coquina Salon A	68
Gai, F.	29-Jan	8:30AM	Ponce DeLeon	64	Hmood, F.	26-Jan	4:50PM	Coquina Salon A	25
Gao, P.	29-Jan	9:00AM	Crystal	60	Hoffmann, M.J.	27-Jan	1:30PM	Coquina Salon F	41
Gao, Y.	29-Jan	1:30PM	Coquina Salon F	67	Hogan, J.D.	28-Jan	2:20PM	Coquina Salon E	52
Garrison, L.	28-Jan	9:00AM	Tomoka B	49	Honda, S.	29-Jan	10:50AM	Coquina Salon H	62
Gell, M.	27-Jan	1:30PM	Coquina Salon G	36	Honda, S.	29-Jan	9:10AM	Coquina Salon H	62
Gentile, M.	27-Jan	10:40AM	Tomoka B	33	Honma, T.	27-Jan	10:20AM	Tomoka A	31
Gharzouni, A.	27-Jan	8:30AM	Oceanview	33	Horlait, D.	28-Jan	2:00PM	Ponce DeLeon	55
					Hosenfeldt, T.	29-Jan	3:20PM	Coquina Salon E	70
					Hostaša, J.	29-Jan	11:20AM	Tomoka C	65

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Name	Date	Time	Room	Page Number	Name	Date	Time	Room	Page Number
Hotta, M.	27-Jan	10:30AM	Coquina Salon G	34	Kim, D.	27-Jan	9:00AM	Tomoka A	31
Hotta, M.	29-Jan	9:40AM	Coquina Salon A	62	Kim, D.	28-Jan	3:20PM	Coquina Salon H	54
Houta, N.	27-Jan	3:50PM	Oceanview	41	Kim, H.	29-Jan	1:50PM	Tomoka A	71
Hsieh, S.	28-Jan	9:50AM	Coquina Salon B	47	Kim, S.	27-Jan	2:20PM	Coquina Salon G	36
Hsu, C.	27-Jan	4:20PM	Crystal	37	Kim, W.	26-Jan	2:00PM	Tomoka B	26
Hu, B.	27-Jan	10:40AM	Crystal	30	Kim, Y.	29-Jan	4:20PM	Tomoka B	71
Hu, L.	27-Jan	2:00PM	Ponce DeLeon	40	King, D.	28-Jan	9:00AM	Ponce DeLeon	48
Hu, Q.	30-Jan	9:30AM	Coquina Salon C	73	Kirihara, S.	27-Jan	9:20AM	Coquina Salon G	34
Hu, Z.	29-Jan	9:30AM	Tomoka C	65	Kirihara, S.	29-Jan	10:20AM	Coquina Salon E	63
Huang, K.	29-Jan	5:10PM	Coquina Salon B	68	Kirihara, S.	29-Jan	3:20PM	Coquina Salon G	66
Hupa, L.	30-Jan	8:50AM	Coquina Salon F	72	Kitazawa, R.	27-Jan	10:30AM	Coquina Salon C	35
Hurst, J.	29-Jan	4:50PM	Coquina Salon A	69	Klimm, D.	28-Jan	2:30PM	Tomoka C	57
Hwang, C.	27-Jan	3:20PM	Coquina Salon E	37	Koch, D.	28-Jan	10:30AM	Coquina Salon D	45
Hwang, T.	30-Jan	10:50AM	Coquina Salon E	73	Koch, D.	29-Jan	1:55PM	Coquina Salon D	65
					Kochurikhin, V.	29-Jan	2:00PM	Tomoka C	71
		<b>I</b>			Koehler, B.	26-Jan	4:20PM	Coquina Salon B	27
Iijima, M.	27-Jan	1:50PM	Coquina Salon C	42	Koehler, E.	27-Jan	1:50PM	Oceanview	41
Illiberi, A.	28-Jan	3:30PM	Coquina Salon B	53	Koettgen, J.	28-Jan	2:30PM	Crystal	52
Imanaka, N.	27-Jan	10:20AM	Coquina Salon A	32	Koettgen, J.	29-Jan	2:40PM	Crystal	66
Inoue, R.	29-Jan	11:20AM	Coquina Salon D	60	Kondo, A.	29-Jan	3:30PM	Coquina Salon A	68
Ishihara, T.	27-Jan	9:30AM	Crystal	30	Kondo, S.	26-Jan	4:30PM	Tomoka B	26
Islam, R.	28-Jan	2:10PM	Oceanview	56	Kosova, N.V.	26-Jan	2:30PM	Tomoka A	24
Issa, S.	29-Jan	11:50AM	Coquina Salon B	61	Kowalski, B.	27-Jan	3:10PM	Coquina Salon C	42
					Koyanagi, T.	27-Jan	2:20PM	Tomoka B	40
		<b>J</b>			Krause, A.R.	28-Jan	2:00PM	Coquina Salon G	51
Jabbari, M.	29-Jan	11:10AM	Coquina Salon E	63	Krautgasser, C.	28-Jan	4:20PM	Coquina Salon D	51
Jacques, S.	27-Jan	2:00PM	Coquina Salon A	39	Krenkel, W.	26-Jan	3:20PM	Coquina Salon F	28
Jaeckle, S.	26-Jan	3:40PM	Coquina Salon C	29	Kriven, W.M.	28-Jan	9:00AM	Oceanview	49
Jaeckle, S.	28-Jan	4:20PM	Coquina Salon B	53	Krnel, K.	29-Jan	3:50PM	Coquina Salon A	68
Jafari, M.	30-Jan	11:00AM	Coquina Salon G	72	Krogstad, J.A.	27-Jan	3:40PM	Coquina Salon G	36
James, R.B.	26-Jan	4:10PM	Tomoka C	27	Ku, N.	28-Jan	3:50PM	Coquina Salon H	54
Jang, B.	29-Jan	9:20AM	Coquina Salon E	63	Kubota, Y.	29-Jan	8:50AM	Ponce DeLeon	64
Jenkins, M.G.	29-Jan	2:00PM	Tomoka B	70	Kuehn, S.	29-Jan	3:50PM	Crystal	67
Jenkins, M.G.	29-Jan	2:20PM	Tomoka B	70	Kumar, A.	27-Jan	9:50AM	Coquina Salon C	35
Jeong, K.	27-Jan	2:40PM	Coquina Salon A	39	Kumar, R.S.	29-Jan	9:00AM	Coquina Salon D	59
Jha, S.K.	26-Jan	2:20PM	Coquina Salon C	29	Kundu, A.	27-Jan	8:30AM	Coquina Salon E	30
Jha, S.K.	27-Jan	8:30AM	Coquina Salon H	34	Kundu, A.	27-Jan	9:10AM	Coquina Salon E	30
Jiang, C.	28-Jan	2:20PM	Coquina Salon G	51	Kuntawala, J.A.	27-Jan	4:10PM	Tomoka B	40
Jin, C.	30-Jan	11:40AM	Coquina Salon D	72	Kusnezoff, M.	26-Jan	4:20PM	Crystal	24
Jin, L.	26-Jan	4:40PM	Coquina Salon C	29	Kuwelkar, K.A.	26-Jan	4:00PM	Coquina Salon E	24
Jin, L.	29-Jan	2:40PM	Tomoka A	71					
Jirasit, F.	28-Jan	1:50PM	Oceanview	56			<b>L</b>		
Johnsen, B.B.	28-Jan	10:20AM	Coquina Salon E	46	Lai, C.	28-Jan	10:20AM	Ponce DeLeon	48
Johnson, J.A.	29-Jan	1:50PM	Coquina Salon F	67	Lai, Z.	28-Jan	1:30PM	Coquina Salon H	54
Jordan, E.H.	27-Jan	2:00PM	Coquina Salon G	36	Lambrinou, K.	28-Jan	10:50AM	Tomoka B	49
Jordan, E.H.	28-Jan	8:30AM	Coquina Salon G	45	Lamon, J.	28-Jan	2:20PM	Coquina Salon D	51
Joulain, A.	26-Jan	3:50PM	Ponce DeLeon	26	Lamon, J.	29-Jan	8:30AM	Coquina Salon D	59
Joulain, A.	30-Jan	11:00AM	Coquina Salon D	72	Lancien, J.E.	28-Jan	2:20PM	Coquina Salon H	54
Jung, S.B.	28-Jan	4:00PM	Coquina Salon F	53	Lang, M.	28-Jan	9:10AM	Coquina Salon C	50
					Lanning, W.R.	27-Jan	9:10AM	Coquina Salon D	29
		<b>K</b>			Lapina, V.A.	26-Jan	2:20PM	Coquina Salon B	26
Kai, J.	29-Jan	8:30AM	Tomoka B	64	Largeteau, A.	28-Jan	9:30AM	Tomoka C	50
Kakimoto, K.	27-Jan	8:30AM	Tomoka C	34	Larson, N.M.	28-Jan	8:50AM	Coquina Salon D	44
Kale, G.	27-Jan	10:20AM	Coquina Salon F	35	LaSalvia, J.	26-Jan	3:20PM	Coquina Salon E	24
Kamimura, M.	27-Jan	3:30PM	Coquina Salon C	42	Laukkanen, A.	29-Jan	4:30PM	Coquina Salon C	69
Kanamori, K.	27-Jan	1:30PM	Coquina Salon H	39	Laurencin, C.T.	26-Jan	10:40AM	Coquina Salon D	23
Kanezashij, M.	27-Jan	3:50PM	Coquina Salon H	39	Lecomte, G.	27-Jan	2:00PM	Coquina Salon H	39
Kannan, S.	27-Jan	9:30AM	Coquina Salon C	35	Lee, C.A.	26-Jan	2:40PM	Coquina Salon H	28
Kaplan, W.D.	26-Jan	2:00PM	Coquina Salon E	24	Lee, C.A.	28-Jan	10:50AM	Coquina Salon C	51
Karhu, M.	27-Jan	3:40PM	Coquina Salon A	39	Lee, C.A.	30-Jan	9:40AM	Coquina Salon D	72
Karppinen, M.	28-Jan	11:20AM	Coquina Salon B	47	Lee, E.	28-Jan	2:00PM	Coquina Salon H	54
Kartuzov, I.V.	28-Jan	8:30AM	Coquina Salon E	46	Lee, M.	26-Jan	3:50PM	Tomoka B	26
Kata, D.	27-Jan	4:00PM	Coquina Salon D	36	Lee, W.E.	28-Jan	8:30AM	Coquina Salon F	50
Katoh, R.	28-Jan	2:00PM	Tomoka A	56	Lences, Z.	27-Jan	9:00AM	Coquina Salon A	32
Katoh, Y.	27-Jan	11:20AM	Tomoka B	33	Leriche, A.L.	27-Jan	4:20PM	Coquina Salon F	42
Katoh, Y.	28-Jan	1:50PM	Tomoka B	56	Lewinsohn, C.	28-Jan	9:00AM	Coquina Salon A	47
Katoh, Y.	29-Jan	5:00PM	Tomoka B	71	Leysale, J.	29-Jan	10:20AM	Coquina Salon C	63
Key, T.	27-Jan	11:30AM	Coquina Salon D	29	Li, D.	27-Jan	9:20AM	Coquina Salon H	34
Khalifa, H.E.	27-Jan	10:20AM	Tomoka B	33	Li, N.	30-Jan	10:50AM	Coquina Salon C	73
Khanna, A.S.	29-Jan	4:10PM	Coquina Salon G	66	Li, Y.	27-Jan	2:20PM	Coquina Salon A	39
Kim, C.	27-Jan	3:20PM	Crystal	37	Li, Y.	29-Jan	9:00AM	Coquina Salon C	63
Kim, D.	26-Jan	2:40PM	Tomoka B	26	Ligda, J.	28-Jan	3:40PM	Coquina Salon E	52





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Perry, N.H.	29-Jan	8:30AM	Crystal	60	Satapathy, S.	28-Jan	4:00PM	Coquina Salon E	52
Pham, D.	28-Jan	2:00PM	Coquina Salon A	54	Sato, K.	29-Jan	2:00PM	Crystal	66
Pham, D.	29-Jan	9:10AM	Ponce DeLeon	64	Sauder, C.	27-Jan	8:30AM	Tomoka B	33
Piat, R.	28-Jan	4:30PM	Coquina Salon C	55	Savkliyildiz, I.	26-Jan	4:00PM	Coquina Salon H	28
Pienti, L.	29-Jan	10:20AM	Ponce DeLeon	64	Schefold, J.	29-Jan	1:30PM	Crystal	66
Pillai, R.C.	27-Jan	11:10AM	Coquina Salon A	32	Schilm, J.C.	28-Jan	11:20AM	Crystal	46
Pillai, R.C.	28-Jan	3:10PM	Crystal	52	Schlupp, M.V.	29-Jan	3:20PM	Crystal	67
Pinomaa, T.	29-Jan	3:50PM	Coquina Salon C	69	Schmitt, M.P.	27-Jan	3:20PM	Coquina Salon G	36
Pittari, J.J.	28-Jan	11:20AM	Coquina Salon E	46	Schneider, J.M.	26-Jan	4:10PM	Ponce DeLeon	26
Plucknett, K.P.	29-Jan	3:50PM	Coquina Salon G	66	Schneider, J.M.	29-Jan	8:30AM	Coquina Salon E	63
Plucknett, K.P.	30-Jan	10:40AM	Coquina Salon D	72	Schwalter, L.J.	27-Jan	2:00PM	Tomoka C	41
Podjaski, F.	26-Jan	5:00PM	Coquina Salon C	29	Schreiber, J.	26-Jan	4:00PM	Coquina Salon B	27
Poerschke, D.L.	28-Jan	3:20PM	Coquina Salon G	51	Schulz, U.	28-Jan	1:30PM	Coquina Salon G	51
Poerschke, E.K.	28-Jan	4:00PM	Coquina Salon D	51	Schwentenwein, M.	27-Jan	9:40AM	Coquina Salon G	34
Post, E.	29-Jan	11:30AM	Coquina Salon E	63	Seal, S.	29-Jan	9:40AM	Coquina Salon F	61
Prakasam, M.	28-Jan	4:20PM	Tomoka A	57	Sehr, S.	29-Jan	9:50AM	Coquina Salon E	60
Pralong, V.	26-Jan	3:50PM	Tomoka A	25	Seifert, H.J.	29-Jan	1:30PM	Coquina Salon C	69
Prud'homme, E.	28-Jan	2:30PM	Oceanview	56	Sekino, T.	29-Jan	5:10PM	Coquina Salon A	69
Pruneri, V.	29-Jan	9:00AM	Tomoka A	65	Selvamanickam, V.	27-Jan	2:20PM	Coquina Salon B	38
Purgert, R.	27-Jan	11:50AM	Coquina Salon F	35	Serizawa, H.	29-Jan	11:20AM	Coquina Salon A	62
Pyeon, M.	27-Jan	9:10AM	Coquina Salon C	35	Seuba Torreblanca, J.	27-Jan	4:10PM	Coquina Salon H	39
Pyeon, M.	28-Jan	11:00AM	Coquina Salon B	47	Sglavo, V.M.	29-Jan	4:10PM	Coquina Salon H	69
		<b>Q</b>			Shamkin, A.A.	29-Jan	10:30AM	Coquina Salon H	62
Qian, Y.	29-Jan	4:50PM	Coquina Salon G	66	Sharma, S.	27-Jan	4:40PM	Coquina Salon B	38
Quinn, G.D.	26-Jan	3:50PM	Coquina Salon D	23	Sharma, S.C.	29-Jan	9:50AM	Coquina Salon H	62
Quintanilla Morales, M.	27-Jan	5:10PM	Coquina Salon C	42	Shen, S.	28-Jan	11:50AM	Coquina Salon B	47
Quitoriano, N.	29-Jan	10:50AM	Tomoka A	65	Shepard, S.	26-Jan	3:20PM	Coquina Salon B	27
		<b>R</b>			Sherman, A.	29-Jan	4:50PM	Coquina Salon E	70
Radovic, M.	28-Jan	1:30PM	Ponce DeLeon	55	Sherman, A.	30-Jan	10:20AM	Coquina Salon D	72
Raghavan, S.	28-Jan	9:20AM	Coquina Salon G	45	Shimada, H.	29-Jan	11:40AM	Crystal	60
Rahaman, M.N.	29-Jan	10:20AM	Coquina Salon F	61	Shimamura, A.	27-Jan	2:30PM	Coquina Salon C	42
Rahaman, M.N.	29-Jan	11:20AM	Coquina Salon F	61	Shimamura, K.	28-Jan	11:20AM	Tomoka C	50
Rahbek, D.B.	28-Jan	10:40AM	Coquina Salon E	46	Shin, S.	29-Jan	5:40PM	Coquina Salon E	70
Rahier, H.	27-Jan	9:00AM	Oceanview	33	Shirooyeh, M.	26-Jan	4:10PM	Coquina Salon G	27
Raj, R.	26-Jan	1:30PM	Coquina Salon H	28	Shoulders, T.	26-Jan	3:50PM	Tomoka C	27
Ramanath, G.	27-Jan	4:20PM	Tomoka A	38	Shugart, K.	28-Jan	2:40PM	Ponce DeLeon	55
Ramirez, M.O.	28-Jan	3:20PM	Tomoka C	57	Siaj, M.	29-Jan	4:10PM	Coquina Salon B	68
Rao, P.M.	29-Jan	2:20PM	Coquina Salon D	65	Simoes, A.Z.	30-Jan	10:40AM	Coquina Salon G	72
Rechberger, J.	26-Jan	2:30PM	Crystal	23	Simon, U.	27-Jan	8:30AM	Coquina Salon B	31
Reddy, K.	26-Jan	1:30PM	Coquina Salon E	24	Singh, A.K.	29-Jan	4:50PM	Coquina Salon B	68
Rezanka, S.	28-Jan	11:10AM	Coquina Salon G	45	Singh, P.	28-Jan	4:10PM	Crystal	52
Richards, B.T.	29-Jan	10:30AM	Coquina Salon G	60	Sisson, R.D.	27-Jan	3:50PM	Coquina Salon F	42
Richardson, K.C.	29-Jan	8:30AM	Tomoka A	65	Smeacetto, F.	27-Jan	9:40AM	Tomoka A	31
Robinson, P.A.	27-Jan	11:50AM	Coquina Salon D	30	Smeacetto, F.	28-Jan	11:00AM	Crystal	46
Rohani, S.	27-Jan	4:50PM	Coquina Salon C	42	Smialek, J.L.	27-Jan	3:20PM	Ponce DeLeon	40
Rohde, M.	29-Jan	11:00AM	Coquina Salon A	62	Smith, C.	28-Jan	11:10AM	Coquina Salon C	51
Rokebrand, P.P.	27-Jan	4:00PM	Coquina Salon E	37	Snead, L.L.	29-Jan	11:30AM	Tomoka B	64
Roper, D.S.	27-Jan	3:30PM	Oceanview	41	Solarska, R.	28-Jan	9:00AM	Coquina Salon B	47
Rosei, F.	28-Jan	3:20PM	Coquina Salon F	53	Soraru, G.	27-Jan	8:30AM	Coquina Salon A	32
Rosei, F.	29-Jan	10:30AM	Coquina Salon B	61	Soraru, G.	28-Jan	8:30AM	Coquina Salon H	48
Rossignol, S.	28-Jan	10:50AM	Oceanview	49	Sorida, N.	29-Jan	3:50PM	Tomoka A	71
Rueschhoff, L.	27-Jan	11:10AM	Coquina Salon C	35	Sprio, S.	29-Jan	2:30PM	Coquina Salon F	67
Rueschhoff, L.	28-Jan	10:20AM	Coquina Salon A	47	Sridharan, K.	27-Jan	9:30AM	Tomoka B	33
Ruggles-Wrenn, M.	28-Jan	10:50AM	Coquina Salon D	45	Staufer, D.D.	29-Jan	4:05PM	Coquina Salon D	66
Ruggles-Wrenn, M.	28-Jan	2:40PM	Coquina Salon D	51	Stevens, K.T.	26-Jan	3:20PM	Tomoka C	27
Ruggles-Wrenn, M.	29-Jan	9:30AM	Ponce DeLeon	64	Stevenson, J.	26-Jan	3:20PM	Crystal	24
Rulis, P.	29-Jan	2:00PM	Coquina Salon C	69	Stevenson, A.	28-Jan	9:30AM	Oceanview	49
Rüscher, C.H.	28-Jan	10:20AM	Oceanview	49	Stiglich, J.	28-Jan	2:20PM	Coquina Salon F	53
Rüscher, C.H.	28-Jan	3:10PM	Oceanview	56	Stiglich, J.	28-Jan	4:00PM	Ponce DeLeon	55
		<b>S</b>			Stiglich, J.	29-Jan	1:50PM	Coquina Salon H	69
Sajgalik, P.	27-Jan	3:20PM	Coquina Salon F	42	Stoeck, A.	28-Jan	9:10AM	Crystal	45
Sajgalik, P.	28-Jan	1:30PM	Coquina Salon A	54	Subhash, G.	26-Jan	4:20PM	Coquina Salon E	24
Salem, A.	26-Jan	2:20PM	Coquina Salon G	27	Subramanian, V.	29-Jan	2:40PM	Coquina Salon D	65
Salem, J.	26-Jan	1:50PM	Coquina Salon D	23	Suematsu, H.	27-Jan	11:30AM	Coquina Salon A	32
Sampath, A.K.	29-Jan	4:50PM	Coquina Salon F	67	Sumi, H.	28-Jan	10:30AM	Crystal	46
Sankar, K.	27-Jan	2:10PM	Oceanview	41	Sun, J.	30-Jan	11:40AM	Coquina Salon E	74
Sankar, K.	27-Jan	2:30PM	Oceanview	41	Sun, Z.	28-Jan	10:30AM	Coquina Salon B	47
Santiago, D.	27-Jan	1:30PM	Coquina Salon C	42	Sundararajan, G.	28-Jan	10:20AM	Coquina Salon H	48
Sasaki, K.	27-Jan	10:20AM	Tomoka C	34	Suvorov, D.	28-Jan	9:30AM	Coquina Salon F	50
					Suyama, S.	26-Jan	3:20PM	Tomoka B	26
					Suzuki, T.	29-Jan	4:10PM	Crystal	67
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Swab, J.	28-Jan	9:10AM	Coquina Salon E	46	Walker, L.S.	27-Jan	10:40AM	Coquina Salon H	34
Syed Amanulla, S.	29-Jan	5:25PM	Coquina Salon D	66	Walker, L.S.	29-Jan	11:00AM	Ponce DeLeon	64
Szlufarska, I.	29-Jan	9:40AM	Tomoka B	64	Wang, C.	28-Jan	9:30AM	Tomoka A	46
<b>T</b>					Wang, D.	28-Jan	4:30PM	Coquina Salon A	54
Tabacchi, G.	29-Jan	2:30PM	Coquina Salon B	68	Wang, J.	28-Jan	3:20PM	Coquina Salon C	55
Tachibana, Y.	28-Jan	4:40PM	Tomoka A	57	Wang, J.	29-Jan	10:50AM	Coquina Salon C	63
Takahashi, T.	26-Jan	3:10PM	Coquina Salon D	23	Wang, S.	27-Jan	11:00AM	Coquina Salon B	31
Takeda, H.	27-Jan	3:50PM	Tomoka C	41	Wang, X.	27-Jan	1:30PM	Ponce DeLeon	40
Tallman, D.J.	28-Jan	11:20AM	Tomoka B	49	Wang, X.	30-Jan	9:20AM	Coquina Salon G	72
Tamagaki, H.	29-Jan	2:30PM	Coquina Salon E	70	Wang, Y.	29-Jan	1:30PM	Coquina Salon G	66
Tampieri, A.	29-Jan	8:30AM	Coquina Salon F	61	Watts, J.	29-Jan	10:40AM	Coquina Salon A	62
Tanahashi, M.	26-Jan	4:50PM	Tomoka B	26	Weber, W.J.	29-Jan	10:30AM	Tomoka B	64
Tanaka, M.	29-Jan	9:30AM	Coquina Salon G	60	Wei, X.	28-Jan	3:20PM	Ponce DeLeon	55
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Tanaka, S.	29-Jan	11:20AM	Coquina Salon H	62	Westin, G.	29-Jan	8:30AM	Coquina Salon B	61
Tanaka, Y.	29-Jan	2:40PM	Coquina Salon H	69	White, B.	26-Jan	1:30PM	Crystal	23
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Tandon, R.P.	26-Jan	5:10PM	Coquina Salon A	25	Wicks, G.	27-Jan	9:00AM	Coquina Salon F	35
Tao, G.	28-Jan	12:00PM	Crystal	46	Wiesner, V.L.	28-Jan	3:40PM	Coquina Salon G	51
Tao, X.	29-Jan	9:00AM	Tomoka C	65	Williams, T.	28-Jan	8:50AM	Coquina Salon E	46
Tas, C.	29-Jan	3:50PM	Coquina Salon F	67	Wilson, M.	28-Jan	2:00PM	Coquina Salon D	51
Tas, C.	30-Jan	8:30AM	Coquina Salon F	72	Witz, G.	28-Jan	10:40AM	Coquina Salon G	45
Tatami, J.	27-Jan	9:00AM	Coquina Salon G	33	Wolf, C.	26-Jan	4:40PM	Coquina Salon B	27
Tatami, J.	30-Jan	11:10AM	Coquina Salon E	74	Woods, L.M.	27-Jan	2:30PM	Tomoka A	38
Terrani, K.	26-Jan	4:10PM	Tomoka B	26	Woydt, M.	28-Jan	11:20AM	Coquina Salon F	50
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Toda, K.	28-Jan	10:50AM	Tomoka C	50	Wu, Y.	27-Jan	8:50AM	Coquina Salon E	30
Togashi, T.	26-Jan	4:10PM	Tomoka A	25	Wuchina, E.	27-Jan	10:20AM	Ponce DeLeon	32
Toksoy, M.F.	27-Jan	4:20PM	Coquina Salon E	37	Wyrobek, T.	28-Jan	10:20AM	Coquina Salon F	50
Tominaga, Y.	27-Jan	2:50PM	Coquina Salon C	42	<b>X</b>				
Toprak, M.S.	29-Jan	9:30AM	Coquina Salon B	61	Xiang, H.	27-Jan	8:50AM	Coquina Salon C	35
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Tsuda, H.	29-Jan	9:20AM	Coquina Salon A	62	Xu, C.	26-Jan	2:20PM	Coquina Salon A	25
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Uhlmann, F.	28-Jan	10:40AM	Ponce DeLeon	48	Yakaboylu, G.A.	29-Jan	4:30PM	Tomoka A	71
Ürgen, M.	29-Jan	4:20PM	Coquina Salon E	70	Yamashita, S.	28-Jan	8:50AM	Coquina Salon C	50
<b>V</b>					Yancey, J.	27-Jan	10:50AM	Coquina Salon A	32
Vahid Mohammadi, A.	28-Jan	1:30PM	Crystal	52	Yang, C.	28-Jan	9:20AM	Tomoka B	49
Vali, M.	27-Jan	10:50AM	Coquina Salon C	35	Yang, I.	28-Jan	4:40PM	Tomoka C	57
Vanpoucke, D.E.	27-Jan	8:30AM	Coquina Salon C	35	Yang, J.	26-Jan	2:40PM	Coquina Salon A	25
Vanpoucke, D.E.	29-Jan	9:20AM	Coquina Salon C	63	Yang, Y.	26-Jan	4:10PM	Coquina Salon A	25
Vasudevamurthy, G.	26-Jan	5:10PM	Tomoka B	26	Yashiro, K.	28-Jan	8:00AM	Crystal	45
Vasudevamurthy, G.	27-Jan	2:40PM	Tomoka B	40	Yasuda, K.	28-Jan	11:20AM	Coquina Salon A	48
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Vick, M.J.	26-Jan	4:20PM	Coquina Salon F	28	Yin, X.	28-Jan	8:30AM	Coquina Salon D	44
Vignoles, G.L.	26-Jan	2:00PM	Coquina Salon F	28	Yoon, D.	28-Jan	10:20AM	Tomoka C	50
Vignoles, G.L.	29-Jan	11:30AM	Coquina Salon C	63	Yoon, J.	29-Jan	3:50PM	Coquina Salon B	68
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<b>W</b>					Zhang, J.	27-Jan	10:50AM	Coquina Salon G	34
Wade, J.	27-Jan	4:00PM	Ponce DeLeon	40	Zhang, J.	29-Jan	4:40PM	Tomoka B	71
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Zhang, Y.	29-Jan	11:00AM	Coquina Salon F	61	Zhou, Y.	29-Jan	1:30PM	Coquina Salon A	68
Zhang, Y.	30-Jan	11:40AM	Coquina Salon C	73	Zhu, D.	28-Jan	4:20PM	Coquina Salon G	51
Zhang, Y.	30-Jan	8:30AM	Coquina Salon C	73	Zhu, L.	28-Jan	2:10PM	Crystal	52
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Zhao, Q.	30-Jan	9:40AM	Coquina Salon F	73	Zhu, S.X.	26-Jan	2:00PM	Coquina Salon G	27
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## Monday, January 26, 2015

## Plenary Session

## Plenary Session

Room: Coquina Salon D

Session Chairs: Michael Halbig, NASA Glenn Research Center; Soshu Kiriwara, Osaka University

8:30 AM

## Opening Remarks

9:00 AM

**(ICACC-PL-001-2015) Materials Selection for the Next Generation Thermal Barrier Coatings**

D. R. Clarke\*; 1. Harvard University, USA

9:40 AM

**(ICACC-PL-002-2015) Chemically Processed Nanostructured Ceramics: Opportunities for Energy and Health Applications**

S. Mathur\*; 1. University of Cologne, Germany

10:20 AM

## Break

10:40 AM

**(ICACC-PL-003-2015) Regenerative Engineering: The Theory and Practice of a Next Generation Field**

C. T. Laurencin\*; 1. University of Connecticut Health Center, USA

11:20 AM

**(ICACC-PL-004-2015) Next Generation Diesel Particulate Filter (DPF) Development and Implementation Strategy**

K. Ohno\*; 1. IBIDEN, Japan

## S1: Mechanical Behavior and Performance of Ceramics &amp; Composites

## Mechanics, Characterization Techniques, and Equipment

Room: Coquina Salon D

Session Chairs: Rajan Tandon, Sandia National Laboratories; George Quinn, American Dental Association Foundation

1:30 PM

**(ICACC-S1-001-2015) Fracture Toughness of Advanced Structural Ceramics: Applying ASTM C1421**

J. Swab\*; J. Tice\*; A. Wereszczak\*; R. Kraft\*; 1. Weapons &amp; Materials Research Directorate, USA; 2. Oak Ridge National Laboratory, USA; 3. Pennsylvania State University, USA

1:50 PM

**(ICACC-S1-002-2015) Estimation of Stress Intensity Factors associated with Hypervelocity Impact Damage**

J. Salem\*; 1. NASA GRC, USA

2:10 PM

**(ICACC-S1-003-2015) Shear tests on joined materials: a comparison between torsion and ISO 13124**

M. Ferraris\*; M. Salvo\*; A. Ventrella\*; F. Smeacetto\*; S. Rizzo\*; V. Casalegno\*; S. T. Gonczyk\*; C. H. Henager\*; T. Hinoki\*; Y. Katoh\*; 1. Politecnico di Torino, Italy; 2. ORNL, USA; 3. PNNL, USA; 4. IAE, Kyoto University, Japan; 5. Gateway Materials Technology, USA

2:30 PM

**(ICACC-S1-004-2015) Fatigue Crack Growth Characterization of Structural Ceramics using Engineered Crack Arrays**

A. Bujanda\*; J. Collins\*; C. L. Muhlstein\*; 1. Georgia Tech, USA; 2. Penn State, USA

2:50 PM

## Break

3:10 PM

**(ICACC-S1-005-2015) Measurement of fracture toughness of single grain boundary of c-axis oriented Si3N4 ceramics using single edge notched microcantilever beam specimens**

T. Takahashi\*; T. Yahagi\*; J. Tatami\*; S. Tanaka\*; 1. Kanagawa Academy of Science and Technology, Japan; 2. Yokohama National University, Japan; 3. Nagaoka University of Technology, Japan

3:30 PM

**(ICACC-S1-006-2015) Anisotropic fracture toughness quantitative analysis of elephant dentin based on digital image correlation technique**

X. Lu\*; J. Walsh\*; P. Withers\*; 1. University of Manchester, United Kingdom

3:50 PM

**(ICACC-S1-007-2015) On the Applicability of ASTM Standard C 1421 for Fracture Toughness, K<sub>IC</sub>, to Glasses and Dental Restorative Materials**

G. D. Quinn\*; 1. NIST, USA

4:10 PM

**(ICACC-S1-008-2015) The effect of machining on the mechanical properties of porous microcracked cordierite**

R. C. Cooper\*; A. Pandey\*; R. J. Parten\*; E. Lara-Curzio\*; G. Bruno\*; A. Shyam\*; T. R. Watkins\*; 1. Oak Ridge National Laboratory, USA; 2. LG Fuel Cell Systems, USA; 3. Federal Institute for Materials Research and Testing (BAM), Germany

4:30 PM

**(ICACC-S1-009-2015) Improved Adhesive Characterization and Selection Using High Throughput Testing and Materials Informatics**

M. Bratcher\*; M. C. Golt\*; R. Jensen\*; W. Kosik\*; 1. U.S. Army Research Laboratory, USA

4:50 PM

**(ICACC-S1-010-2015) Measurement of Adhesion in Alumina/Glass-Epoxy System Using Spherical Indentation**

R. Tandon\*; 1. Sandia National Lab, USA

5:10 PM

**(ICACC-S1-011-2015) Simplifying the thermal conductivity and thermal expansion characterization of advanced ceramic brake pads**

J. Nickerson\*; M. Ouellette\*; 1. C-Therm Technologies Ltd., Canada

## S3: 12th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology

## Status and Perspectives of SOFC and SOEC

Room: Crystal

Session Chairs: Mihails Kusnezoff, Fraunhofer IKTS; Narottam Bansal, NASA Glenn Research Center

1:30 PM

**(ICACC-S3-001-2015) SECA Program Status - 2015 (Invited)**

B. White\*; 1. Dept. of Energy, USA

2:00 PM

**(ICACC-S3-002-2015) Recent Development of Micro CHP Systems for Household (ENE-FARM) in Japan (Invited)**

Y. Mizutani\*; 1. Toho Gas Co., Ltd., Japan

2:30 PM

**(ICACC-S3-003-2015) AVL SOFC Systems for Stationary and Mobile Applications (Invited)**

J. Rechberger\*; M. Hauth\*; M. Reissig\*; 1. AVL List GmbH, Austria

**3:00 PM****Break****3:20 PM****(ICACC-S3-004-2015) Solid Oxide Fuel Cell Materials Development at PNNL (Invited)**

J. Stevenson\*; Y. Chou; J. Hardy; O. Marina; J. Choi; 1. Pacific Northwest National Laboratory, USA

**3:50 PM****(ICACC-S3-005-2015) High Efficiency Electrical Energy Storage Using Reversible Solid Oxide Cells (Invited)**

S. Barnett\*; 1. Northwestern Univ, USA

**4:20 PM****(ICACC-S3-006-2015) CFY-Stack operation and degradation in fuel cell and electrolysis mode**

M. Kusnezoff\*; S. Megel; N. Trofimenko; V. Sauchuk; A. Michaelis; 1. Fraunhofer IKTS, Germany

**4:40 PM****(ICACC-S3-007-2015) Highly Efficient Solid Oxide Electrolyzer & Sabatier System**

J. A. Olenick\*; V. Venkateswaran; C. Iacomini; T. Curry; 1. ENrG Incorporated, USA; 2. Paragon Space Corporation, USA

**S4: Armor Ceramics: Challenges and New Developments****Materials Characterization**

Room: Coquina Salon E

Session Chair: Vlad Domnich, Rutgers University; Jerry LaSalvia, ARL

**1:30 PM****(ICACC-S4-001-2015) Atomic structure and deformation behaviour of boron-rich solids (Invited)**

K. Reddy\*; P. Liu; A. Hirata; T. Fujita; T. Goto; J. W. McCauley; K. J. Hemker; M. W. Chen; 1. Tohoku University, Japan; 2. Johns Hopkins University, USA; 3. Tohoku University, Japan; 4. U.S. Army Research Laboratory, USA

**2:00 PM****(ICACC-S4-002-2015) Adsorption Transitions and Controlling the Microstructural Evolution of Ceramic Systems (Invited)**

W. D. Kaplan\*; 1. Technion - Israel Institute of Technology, Israel

**2:30 PM****(ICACC-S4-003-2015) 'Seeing' the Atoms in Boron Carbide with Atom Probe Tomography (Invited)**

K. Y. Xie\*; T. Sato; M. F. Toksoy; R. Haber; S. P. Ringer; J. M. Cairney; K. J. Hemker; 1. Johns Hopkins University, USA; 2. The University of Sydney, Australia; 3. The University of Sydney, Australia; 4. Rutgers University, USA

**3:00 PM****Break****3:20 PM****(ICACC-S4-004-2015) Sub-Surface Characterization of the Inelastic Region Underneath Knoop Indents in Boron Carbide**

J. LaSalvia\*; S. D. Walck; V. Domnich; J. Ligda; B. E. Schuster; 1. Army Research Laboratory, USA; 2. Rutgers University, USA

**3:40 PM****(ICACC-S4-005-2015) Improving Fracture Toughness of Alumina with Multi-walled Carbon Nanotube and Alumina Fiber Reinforcements**

J. Lo\*; R. Zhang; B. Shalchi-Amirkhiz; D. Walsh; M. Bolduc; S. Lin; B. Simard; K. Bosnick; M. O'Toole; A. Merati; M. Bielawski; 1. Natural Resources Canada, Canada; 2. Department of National defence, Canada; 3. National Research Council, Canada; 4. National Research Council, Canada; 5. National Research Council, Canada

**4:00 PM****(ICACC-S4-006-2015) Assessing the Carbon Concentration in Boron Carbide: A Combined X-Ray Diffraction and Chemical Analysis**

K. A. Kuwelkar\*; V. Domnich; R. Haber; 1. Rutgers University- New Brunswick, USA

**4:20 PM****(ICACC-S4-007-2015) Determination of Biaxial Residual Stress in Silicon Carbide Using Raman Spectroscopy**

G. Subhash\*; S. Mohammed; 1. University of Florida, USA

**4:40 PM****(ICACC-S4-008-2015) Structural Investigations in the Silicon - Boron Carbide System**

V. Domnich\*; K. A. Kuwelkar; R. A. Haber; P. G. Karandikar; 1. Rutgers Univ, USA; 2. M Cubed Technologies, Inc., USA

**5:00 PM****(ICACC-S4-009-2015) Recent Developments in Direct Sintered SiC Armor Tiles**

J. Funk\*; M. Harrison; R. Campos; 1. Superior Graphite, USA; 2. Superior Graphite, USA

**5:20 PM****(ICACC-S4-010-2015) Characterization of lithium fluoride used to process magnesium aluminate spinel for transparent armor applications**

J. A. Miller\*; M. Dumerac; I. E. Reimanis; 1. Colorado School of Mines, USA; 2. Technische Universitat Darmstadt, Germany

**5:40 PM****(ICACC-S4-011-2015) Discoloration and light absorption in polycrystalline spinel produced by spark plasma sintering**

M. Vu; R. A. Haber\*; 1. Rutgers University, USA

**S6: Advanced Materials and Technologies for Energy Generation, Conversion, and Rechargeable Energy Storage****Li-ion Battery**

Room: Tomoka A

Session Chairs: Palani Balaya, National University of Singapore; Valerie Pralong, CNRS CRISMAT

**1:30 PM****(ICACC-S6-001-2015) Overlithiated layered oxides for energy storage (Invited)**

C. Delmas\*; H. Koga; L. Croguennec; M. Ménétrier; S. Belin; C. Genevois; F. Weill; 1. ICMCB - CNRS, France; 2. Toyota Motor Europe, Belgium; 3. Synchrotron Soleil, France; 4. Rouen University, France

**2:00 PM****(ICACC-S6-002-2015) Mechano-Electrochemical Interactions in Intercalation Electrodes (Invited)**

P. P. Mukherjee\*; C. Chen; P. Barai; 1. Texas A&amp;M University, USA

**2:30 PM****(ICACC-S6-003-2015) Avenue towards the development of new nanostructured composite cathode materials for lithium-ion batteries (Invited)**

N. V. Kosova\*; 1. Institute of Solid State Chemistry and Mechanochemistry, Russian Federation

**3:00 PM****Break****3:20 PM****(ICACC-S6-004-2015) In-situ Characterization of Electrode Materials for Lithium Batteries (Invited)**

K. Chapman\*; P. Chupas; 1. Argonne National Laboratory, USA

**3:50 PM****(ICACC-S6-005-2015) Unique Topotactic Reversible Lithium Insertion between a Crystalline Sodium Iron Hydroxysulfate and an Amorphous Phase**V. Pralong<sup>\*1</sup>; 1. CNRS, France**4:10 PM****(ICACC-S6-006-2015) Variation of iron valence state in lithium iron silicate glasses by annealing in reducing atmosphere and their electrochemical properties**T. Togashi<sup>\*1</sup>; T. Honma<sup>1</sup>; T. Komatsu<sup>1</sup>; 1. Nagaoka University of Technology, Japan**4:30 PM****(ICACC-S6-007-2015) The  $\gamma'$ -V2O5 polymorph : Electrochemical properties and new insight into the Li intercalation mechanism revealed by Raman spectroscopy**R. Baddour-Hadjean<sup>\*2</sup>; M. Smirnov<sup>3</sup>; K. Smirnov<sup>3</sup>; Y. Kazimirov<sup>3</sup>; D. Muller<sup>1</sup>; J. Pereira-Ramos<sup>1</sup>; 1. CNRS, France; 2. Saint Petersburg University, Russian Federation; 3. Frank Laboratory of Neutron Physics, Russian Federation; 4. CNRS, France**4:50 PM****(ICACC-S6-008-2015) Fabrication and optimization of Li-ion battery using LiNi<sub>1/3</sub>Mn<sub>1/3</sub>Co<sub>1/3</sub>O<sub>2</sub> and  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub>**M. Nagarathinam<sup>1</sup>; E. Teo<sup>2</sup>; S. Muntoha<sup>2</sup>; P. Balaya<sup>\*1</sup>; 1. National University of Singapore, Singapore; 2. Republic Polytechnic, Singapore**S8: 9th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT9)****Novel Ceramic Processing I**

Room: Coquina Salon A

Session Chairs: Surojit Gupta, University of North Dakota; Tohru Sekino, Osaka University

**1:30 PM****(ICACC-S8-001-2015) From MAX to MXene - From 3D to 2D (Invited)**M. Ghidui<sup>1</sup>; M. Naguib<sup>1</sup>; M. Lukatskaya<sup>1</sup>; Y. Gogotsi<sup>1</sup>; M. W. Barsoum<sup>\*1</sup>; 1. Drexel University, USA**2:00 PM****(ICACC-S8-002-2015) Effect of Nanolaminate (Ti<sub>3</sub>SiC<sub>2</sub>) additives on the "Soft" Metals**T. Hammann<sup>1</sup>; R. Johnson<sup>1</sup>; S. Gupta<sup>\*1</sup>; 1. University of North Dakota, USA**2:20 PM****(ICACC-S8-003-2015) Effective nano-infiltration to make fully-densified ceramic composites with a high volume fraction of reinforcements**C. Xu<sup>\*1</sup>; J. Yang<sup>1</sup>; 1. Florida State University, USA**2:40 PM****(ICACC-S8-004-2015) Flexible ceramic matrix composite with high strength and conductive by aligned CNTs**J. Yang<sup>\*1</sup>; C. Xu<sup>1</sup>; 1. Florida State University, USA**3:00 PM****Break**

14:50-15:10

**3:20 PM****(ICACC-S8-005-2015) Transparent ceramic chips for solid-state laser applications (Invited)**Y. Wu<sup>\*1</sup>; 1. New York State College of Ceramics at Alfred University, USA**3:50 PM****(ICACC-S8-006-2015) Photoluminescence study of trivalent ion doped CuAlO<sub>2</sub> fibers**Y. Liu<sup>\*2</sup>; Y. Wu<sup>1</sup>; 1. Alfred University, USA; 2. New York State College of Ceramics, USA**4:10 PM****(ICACC-S8-007-2015) Reduction mechanism of Eu<sup>3+</sup> to Eu<sup>2+</sup> in oxide ceramics**Y. Yang<sup>\*1</sup>; Y. Wu<sup>2</sup>; 1. Alfred University, USA; 2. Alfred University, USA**4:30 PM****(ICACC-S8-008-2015) Optoelectronic properties of Zn-based transparent conductive oxide films**S. Chothirawat<sup>\*1</sup>; Y. Wu<sup>1</sup>; 1. Alfred University, USA**4:50 PM****(ICACC-S8-009-2015) Manufacturing, Sintering and Piezoelectric Properties of Laser-fused K<sub>0.5</sub>Na<sub>0.5</sub>NbO<sub>3</sub> Glass Granules**F. Hmood<sup>\*1</sup>; J. J. Heinrich<sup>1</sup>; 1. Clausthal University of Technology, Germany**5:10 PM****(ICACC-S8-010-2015) Effect of Dy<sup>3+</sup> substitution in ferroelectric phase on properties of multiferroic composites**R. P. Tandon<sup>\*1</sup>; 1. University of Delhi, India**S12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nano-laminated Ternary Carbides and Nitrides (MAX Phases)****Materials Design, New Composition and Composite I**

Room: Ponce DeLeon

Session Chair: Jochen Schneider, RWTH Aachen University

**1:30 PM****(ICACC-S12-001-2015) Magnetic properties and stability of Mn<sub>2</sub>GaC and effects of Cr-Mn alloying (Invited)**M. Dahlqvist<sup>\*1</sup>; 1. Linköping University, Sweden**2:00 PM****(ICACC-S12-002-2015) Synthesis and characterization of thin films of Mo<sub>2</sub>GaC MAX phase**R. Meshkian<sup>\*1</sup>; A. Petruhins<sup>1</sup>; ÅRNI. S. Ingason<sup>1</sup>; A. Mockute<sup>1</sup>; M. Dahlqvist<sup>1</sup>; U. B. Arnalds<sup>2</sup>; J. Lu<sup>1</sup>; J. Rosen<sup>1</sup>; 1. Linköping University, Sweden; 2. University of Iceland, Iceland**2:20 PM****(ICACC-S12-003-2015) New Solid Solution MAX Phases: (Ti<sub>0.5</sub>V<sub>0.5</sub>)<sub>3</sub>AlC<sub>2</sub>, (Nb<sub>0.5</sub>V<sub>0.5</sub>)<sub>2</sub>AlC, (Nb<sub>0.5</sub>V<sub>0.5</sub>)<sub>4</sub>AlC<sub>3</sub> and (Nb<sub>0.8</sub>Zr<sub>0.2</sub>)<sub>2</sub>AlC**M. Naguib<sup>1</sup>; G. Bantzel<sup>\*1</sup>; J. Shah<sup>1</sup>; J. Halim<sup>1</sup>; E. N. Caspi<sup>3</sup>; J. Lu<sup>2</sup>; L. Hultman<sup>2</sup>; M. W. Barsoum<sup>1</sup>; 1. Drexel University, USA; 2. Linköping University, Sweden; 3. cNuclear Research Centre-Negev, Israel**2:40 PM****(ICACC-S12-004-2015) (Cr<sub>x</sub>V<sub>1-x</sub>)<sub>n+1</sub>AlC<sub>n</sub> MAX phases solid solutions**T. Cabioch<sup>\*1</sup>; P. Chartier<sup>1</sup>; J. Halim<sup>2</sup>; E. Caspi<sup>3</sup>; 1. University of Poitiers, France; 2. Drexel University, USA; 3. Nuclear Research Centre, Israel**3:00 PM****Break****Structural-property Relationships of Existing Systems I**

Room: Ponce DeLeon

Session Chair: Martin Dahlqvist, Linköping University

**3:20 PM****(ICACC-S12-005-2015) The relevance of kinking in the hysteresis of MAX phases (Invited)**W. J. Clegg<sup>\*1</sup>; N. G. Jones<sup>1</sup>; F. Giuliani<sup>2</sup>; 1. University of Cambridge, United Kingdom; 2. Imperial College, United Kingdom

**3:50 PM**

**(ICACC-S12-006-2015) Plasticity in MAX Phases at low and high temperature: a multiscale experimental approach (Invited)**

A. GUITTON<sup>1</sup>; A. Joulain<sup>2</sup>; L. THILLY<sup>1</sup>; C. TROMAS<sup>1</sup>; 1. Pprime Institute, France

**4:10 PM**

**(ICACC-S12-007-2015) Structure evolution during low temperature growth of nanolaminate thin films**

L. Shang<sup>1</sup>; A. Al Gaban<sup>1</sup>; M. to Baben<sup>1</sup>; J. M. Schneider<sup>2</sup>; 1. RWTH Aachen Univeristy, Germany

**4:30 PM**

**(ICACC-S12-008-2015) Electronic structure and transport properties of Ti<sub>2</sub>Al(CxNy) MAX phase solid solution**

W. Yu<sup>1</sup>; V. Mauchamp<sup>1</sup>; L. Gence<sup>2</sup>; T. Cabioc'h<sup>1</sup>; L. Piraux<sup>2</sup>; D. Magne<sup>1</sup>; V. Gauthier Brunet<sup>1</sup>; S. Dubois<sup>2</sup>; 1. Institut PPRIME, France; 2. Institute of Condensed Matter and Nanosciences, Belgium

**4:50 PM**

**(ICACC-S12-009-2015) Effect of Microstructure on Mechanical Damping in Ti<sub>2</sub>AlC**

R. Benitez<sup>2</sup>; H. Gao<sup>1</sup>; I. Karaman<sup>2</sup>; M. Radovic<sup>2</sup>; 1. Texas A&M University, USA; 2. Texas A&M University, USA

**5:10 PM**

**(ICACC-S12-010-2015) Crystallisation and toughness of Cr<sub>2</sub>AlC and Ti<sub>3</sub>SiC<sub>2</sub> thin films**

V. Vishnyakov<sup>2</sup>; B. Beake<sup>2</sup>; M. Davies<sup>2</sup>; J. Colligon<sup>1</sup>; 1. University of Huddersfield, United Kingdom; 2. Micro Materilas Ltd, United Kingdom

## S13: International Symposium on Advanced Ceramics and Composites for Sustainable Nuclear Energy and Fusion Energy

### Ceramics and Composites Technology for Accident-tolerant LWR Fuels I

Room: Tomoka B

Session Chairs: Yutai Katoh, Oak Ridge National Laboratory; Steven Zinkle, University of Tennessee

**1:30 PM**

**(ICACC-S13-001-2015) Materials Options for Accident Tolerant Fuels in Light Water Reactors (Invited)**

S. J. Zinkle<sup>1</sup>; K. Terrani<sup>2</sup>; L. L. Snead<sup>2</sup>; 1. University of Tennessee, USA; 2. Oak Ridge National Laboratory, USA

**2:00 PM**

**(ICACC-S13-002-2015) Mechanical Behavior and Chemical Compatibility of SiC-Based Ceramics and Composites for Nuclear Applications (Invited)**

W. Kim<sup>1</sup>; D. Kim<sup>1</sup>; H. Lee<sup>1</sup>; J. Park<sup>1</sup>; 1. Korea Atomic Energy Research Institute, Korea (the Republic of)

**2:20 PM**

**(ICACC-S13-003-2015) Chemical compatibility between UO<sub>2</sub> fuel and SiC/SiC structural material**

C. Sauder<sup>1</sup>; J. Braun<sup>2</sup>; F. Balbaud<sup>3</sup>; C. Gueneau<sup>4</sup>; S. Chatain<sup>2</sup>; E. Brackx<sup>2</sup>; 1. DEN/SRMA/LTMEX, France; 2. DEN/SCCME/LM2T, France; 3. DEN/SGCS/LMAC, France; 4. DEN/DADN, France

**2:40 PM**

**(ICACC-S13-004-2015) Effect of thermal shock on microstructure and mechanical properties of SiC triplex tube**

D. Kim<sup>1</sup>; J. Ko<sup>1</sup>; H. Lee<sup>1</sup>; J. Park<sup>1</sup>; W. Kim<sup>1</sup>; 1. Korea Atomic Energy Research Institute, Korea (the Republic of)

**3:00 PM**

Break

**3:20 PM**

**(ICACC-S13-005-2015) Development of SiC composite for light-water reactor accident tolerant fuels (Invited)**

S. Suyama<sup>1</sup>; M. Ukai<sup>1</sup>; M. Uchihashi<sup>1</sup>; H. Heki<sup>1</sup>; K. Okonogi<sup>1</sup>; K. Kakiuchi<sup>1</sup>; 1. Toshiba Corporation, Japan

**3:50 PM**

**(ICACC-S13-006-2015) Effect of sintering additives on the high temperature water vapor oxidation of liquid phase sintered SiC materials for nuclear fuel cladding materials**

M. Lee<sup>1</sup>; S. Kondo<sup>1</sup>; Y. Kawaharada<sup>2</sup>; F. Kano<sup>2</sup>; T. Hinoki<sup>1</sup>; 1. Kyoto university, Japan; 2. Toshiba Corporation, Japan

**4:10 PM**

**(ICACC-S13-007-2015) Hydrothermal Corrosion of SiC-based Materials in LWR Environments**

K. Terrani<sup>1</sup>; Y. Yang<sup>1</sup>; 1. Oak Ridge National Laboratory, USA

**4:30 PM**

**(ICACC-S13-008-2015) Hydrothermal corrosion of ion irradiated SiC**

S. Kondo<sup>1</sup>; M. Lee<sup>1</sup>; T. Hinoki<sup>1</sup>; Y. Hyodo<sup>2</sup>; F. Kano<sup>2</sup>; 1. Kyoto University, Japan; 2. Toshiba, Japan

**4:50 PM**

**(ICACC-S13-009-2015) Prototyping a Channel box**

M. Tanahashi<sup>1</sup>; H. Kato<sup>1</sup>; T. Takagi<sup>1</sup>; S. Kubo<sup>1</sup>; 1. IBIDEN CO., LTD, Japan

**5:10 PM**

**(ICACC-S13-010-2015) Hermetic Sealing of Silicon Carbide using Iron, Chromium, and Aluminum Alloys**

A. Morgan<sup>1</sup>; G. Vasudevamurthy<sup>1</sup>; L. L. Snead<sup>1</sup>; 1. Virginia Commonwealth University, USA; 2. Oak Ridge National Laboratory, USA

## FS3: Materials Diagnostics and Structural Health Monitoring of Ceramic Components and Systems

### Materials Diagnostics and Structural Health Monitoring of Ceramic Components and Systems

Room: Coquina Salon B

Session Chair: Joerg Opitz, Fraunhofer IKTS-MD

**1:30 PM**

**(ICACC-FS3-001-2015) Metal oxide heterogeneous interfaces for robust photocatalysis (Invited)**

C. Dinu<sup>1</sup>; 1. West Virginia University, USA

**2:00 PM**

**(ICACC-FS3-002-2015) Ceramic phosphors for process control and quality assurance**

M. Reitzig<sup>1</sup>; J. Katzmann<sup>1</sup>; F. Gaska<sup>1</sup>; C. Zeh<sup>1</sup>; J. Opitz<sup>2</sup>; K. Wätzig<sup>3</sup>; T. Härtling<sup>1</sup>; 1. Fraunhofer IKTS, Germany; 2. Fraunhofer IKTS, Germany; 3. Fraunhofer IKTS, Germany

**2:20 PM**

**(ICACC-FS3-003-2015) Nanoparticle-based monitoring of surface status**

V. A. Lapina<sup>1</sup>; P. P. Pershukovich<sup>1</sup>; T. Pavich<sup>1</sup>; J. Opitz<sup>2</sup>; 1. Institute of Physics of NAS Belarus, Belarus; 2. Fraunhofer Institute for Ceramic Technologies and System, Germany

**2:40 PM**

**(ICACC-FS3-004-2015) Thermal Diffusivity Measurement of Ceramic Materials with the Flash Method**

M. Thermitus<sup>1</sup>; 1. Netzsch Instruments, USA

**3:00 PM**

Break



**3:20 PM**

**(ICACC-FS3-005-2015) Quantitative Thermographic Characterization of Ceramic-Based Coatings and Structures**  
S. Shepard\*; 1. Thermal Wave Imaging, Inc., USA

**3:40 PM**

**(ICACC-FS3-006-2015) In situ X-ray diffraction reveals grain size dependence of domain wall motion and relation to macroscopic properties in BaTiO<sub>3</sub>**  
D. Ghosh\*; J. L. Jones<sup>2</sup>; 1. Old Dominion University, USA; 2. North Carolina State University, USA

**4:00 PM**

**(ICACC-FS3-007-2015) Material Diagnostics for New Bio-Ceramics**  
J. Schreiber\*; D. Lee<sup>1</sup>; 1. NUGA LAB GmbH, Germany

**4:20 PM**

**(ICACC-FS3-008-2015) Non-Destructive Testing (NDT) for Ceramics and Ceramics for NDT: A short review**  
B. Koehler\*; 1. Fraunhofer IKTS-MD, Germany

**4:40 PM**

**(ICACC-FS3-009-2015) Semi-automated inspection unit for ceramics**  
C. Wolf\*; A. Lehmann<sup>1</sup>; G. Unglaube<sup>1</sup>; 1. Fraunhofer Institute for Ceramic Technologies and Systems - Branch Materials Diagnostics, Germany

## FS4: Additive Manufacturing and 3D Printing Technologies

### Additive Manufacturing and 3D Printing Technologies I

Room: Coquina Salon G

Session Chairs: Junichi Tatami, Yokohama National University; Michael Halbig, NASA Glenn Research Center

**1:30 PM**

**(ICACC-FS4-001-2015) A Fully Nonmetallic Turbine Engine by Additive Manufacturing Technologies (Invited)**  
J. E. Grady\*; 1. NASA Glenn Research Center, USA

**2:00 PM**

**(ICACC-FS4-002-2015) Additive Manufacturing of Silicon Carbide-Based Ceramics by 3-D Printing Technologies**  
S. X. Zhu\*; M. C. Halbig<sup>1</sup>; M. Singh<sup>2</sup>; 1. The Ohio State University, USA; 2. NASA Glenn Research Center, USA; 3. Ohio Aerospace Institute, USA

**2:20 PM**

**(ICACC-FS4-003-2015) 3-D Printing and Characterization of Polymer Composites with Different Reinforcements**  
A. Salem\*; B. Hausmann<sup>1</sup>; N. Wilmoth<sup>2</sup>; G. L. Piper<sup>3</sup>; M. C. Halbig<sup>4</sup>; B. E. Lerch<sup>4</sup>; J. Salem<sup>4</sup>; J. E. Grady<sup>5</sup>; M. Singh<sup>6</sup>; 1. St. Ignatius High School, USA; 2. Vantage Partners, LLC, USA; 3. Jacobs Technology, USA; 4. NASA Glenn Research Center, USA; 5. Ohio Aerospace Institute, USA

**2:40 PM**

**(ICACC-FS4-004-2015) Rheological properties of aqueous based ZrO<sub>2</sub>-slurries for Additive Manufacturing**  
M. D. Araújo\*; C. M. Gomes<sup>2</sup>; G. Steinborn<sup>2</sup>; W. Acchar<sup>1</sup>; J. Günster<sup>2</sup>; 1. Federal University of Rio Grande do Norte, Brazil; 2. Federal Institute for Materials Research and Testing, Germany

**3:00 PM****Break****3:20 PM**

**(ICACC-FS4-005-2015) Controlling the Coffee Stain from Inkjet Printed Drops (Invited)**  
Y. Liu\*; R. Bradley<sup>1</sup>; B. Derby<sup>1</sup>; 1. University of Manchester, United Kingdom

**3:50 PM**

**(ICACC-FS4-006-2015) New water-soluble and water-thinnable organic additives in processing of advanced ceramic materials**  
M. Szafran<sup>1</sup>; P. Falkowski\*; P. Wicinska<sup>1</sup>; 1. Warsaw University of Technology. Faculty of Chemistry, Poland

**4:10 PM**

**(ICACC-FS4-007-2015) Contour Crafting (CC) of Advanced Ceramic Materials**  
M. Shirooyeh\*; M. Vali<sup>1</sup>; P. Torabi<sup>1</sup>; P. W. Rehrig<sup>2</sup>; O. Kwon<sup>2</sup>; B. Khoshnevis<sup>1</sup>; 1. University of Southern California, USA; 2. Saint-Gobain, USA

## FS5: Single Crystalline Materials for Electrical, Optical and Medical Applications

### Scintillator

Room: Tomoka C

Session Chairs: Kiyoshi Shimamura, National Institute for Materials Science; Robert Feigelson, Stanford University

**1:30 PM**

**(ICACC-FS5-001-2015) Discovery, Growth and Characterization of Scintillators (Invited)**  
E. Bourret\*; G. Bizarri<sup>1</sup>; S. E. Derenzo<sup>1</sup>; 1. Lawrence Berkeley National Laboratory, USA

**2:00 PM**

**(ICACC-FS5-002-2015) Co-doping technique in scintillation materials synthesis (Invited)**  
J. M. Frank\*; P. Menge<sup>1</sup>; K. Yang<sup>1</sup>; V. Ouspenski<sup>2</sup>; S. Blahuta<sup>2</sup>; J. Lejay<sup>2</sup>; 1. Saint-Gobain Crystals, USA; 2. Saint-Gobain Recherche, France

**2:30 PM**

**(ICACC-FS5-003-2015) Growth of Halide Single Crystals by the EFG Method (Invited)**  
R. S. Feigelson\*; G. Calvert<sup>1</sup>; A. Yeckel<sup>2</sup>; J. Derby<sup>1</sup>; 1. Stanford University, USA; 2. University of Minnesota, USA

**3:00 PM****Break****3:20 PM**

**(ICACC-FS5-004-2015) Crystal Growth at Northrop Grumman SYNOPTICS (Invited)**  
K. T. Stevens\*; D. Solodovnikov<sup>1</sup>; M. Randles<sup>1</sup>; G. Foundos<sup>1</sup>; 1. Northrop Grumman SYNOPTICS, USA

**3:50 PM**

**(ICACC-FS5-005-2015) Densification of Halide Scintillator Ceramics at Low-Temperature and High-Pressure**  
T. Shoulders\*; B. D. Doan<sup>1</sup>; M. Gascon<sup>2</sup>; G. Bizarri<sup>2</sup>; E. Bourret-Courchesne<sup>2</sup>; R. Gaume<sup>1</sup>; 1. University of Central Florida, USA; 2. Lawrence Berkeley National Laboratory, USA

**4:10 PM**

**(ICACC-FS5-006-2015) Compound Semiconductor X- and Gamma-Ray Radiation Detectors (Invited)**  
R. B. James\*; A. Bolotnikov<sup>1</sup>; G. Camarda<sup>1</sup>; Y. Cui<sup>1</sup>; A. Hossain<sup>1</sup>; U. Roy<sup>1</sup>; G. Yang<sup>1</sup>; W. Lee<sup>2</sup>; K. Kim<sup>3</sup>; 1. Brookhaven National Laboratory, USA; 2. Korea University, Korea (the Republic of)

**4:40 PM**

**(ICACC-FS5-007-2015) (Cd,Mn)Te as a New Material for X - ray and Gamma - ray Detectors (Invited)**  
A. Mycielski\*; M. Witkowska-Baran<sup>1</sup>; D. Kochanowska<sup>1</sup>; A. Szadkowski<sup>1</sup>; B. Witkowska<sup>1</sup>; R. Jakiela<sup>1</sup>; W. Kaliszek<sup>1</sup>; A. Wittlin<sup>1</sup>; W. Knoff<sup>1</sup>; A. Suchocki<sup>1</sup>; P. Nowakowski<sup>1</sup>; K. Korona<sup>2</sup>; E. Kaminska<sup>2</sup>; M. Juchniewicz<sup>2</sup>; M. Lewandowska<sup>2</sup>; M. Rasinski<sup>2</sup>; 1. Institute of Physics Polish Academy of Sciences, Poland; 2. University of Warsaw, Poland; 3. Warsaw University of Technology, Poland; 4. Institute of Electron Technology, Poland

**5:10 PM**

**(ICACC-FS5-008-2015) Shaped Scintillating Materials (Invited)**  
C. Dujardin\*; 1. University Lyon1, France

## FS6: Field Assisted Sintering and Related Phenomena at High Temperatures

### Flash Sintering Phenomena and Mechanisms

Room: Coquina Salon H

Session Chair: Rishi Raj, University of Colorado

**1:30 PM**

#### (ICACC-FS6-001-2015) The Phenomenon of Flash Sintering: Scientific and Technological Implications (Invited)

R. Raj\*; 1. University of Colorado at Boulder, USA

**2:00 PM**

#### (ICACC-FS6-002-2015) Electric field-assisted sintering of zirconia-3 mol% yttria

S. G. Carvalho\*; R. Muccillo\*; E. N. Muccillo\*; 1. Energy and Nuclear Research Institute, Brazil

**2:20 PM**

#### (ICACC-FS6-003-2015) Towards the flash sintering of zirconium diboride

W. A. Paxton\*; H. Bicer\*; T. E. Ozdemir\*; I. Savkliyildiz\*; E. Akdogan\*; Z. Zhong\*; T. Tsakalakos\*; 1. Rutgers, The State University of New Jersey, USA; 2. Brookhaven National Laboratory, USA

**2:40 PM**

#### (ICACC-FS6-004-2015) Microstructural coarsening and electrical conductance at nanoscale of Si<sub>3</sub>N<sub>4</sub>/TiC nanocomposites in spark plasma sintering

C. A. Lee\*; H. Lu\*; H. B. Liu\*; D. Li\*; J. Huang\*; 1. National Cheng Kung University, Taiwan; 2. National Chin-Yi University of Technology, Taiwan; 3. Cheng Shiu University, Taiwan

**3:00 PM**

Break

**3:20 PM**

#### (ICACC-FS6-005-2015) Towards induced flash sintering in a spark plasma sintering furnace

E. Zapata-Solvas\*; D. Gómez-García\*; A. Domínguez-Rodríguez\*; R. I. Todd\*; 1. CSIC-US, Spain; 2. University of Seville, Spain; 3. University of Oxford, United Kingdom

**3:40 PM**

#### (ICACC-FS6-006-2015) Flash Sintering Yttria-stabilized Zirconia (3Y-TZP) and Zirconia-3mol%Yttria Nanocomposites

J. Liu\*; D. Liu\*; Y. Wang\*; L. An\*; 1. Northwestern Polytechnical University, China; 2. University of Central Florida, Orlando, USA

**4:00 PM**

#### (ICACC-FS6-007-2015) Abnormal Lattice Expansion in Sintered 8% Y<sub>2</sub>O<sub>3</sub>-ZrO<sub>2</sub> under Simultaneous Applied Electric and Thermal Fields Using in situ EDXRD Method with an Ultrahigh Energy Synchrotron Probe

I. Savkliyildiz\*; E. Akdogan\*; H. Bicer\*; E. Ozdemir\*; R. Raj\*; Z. Zhong\*; T. Tsakalakos\*; 1. Rutgers University, USA; 2. University of Colorado at Boulder, USA; 3. Brookhaven National Lab, USA

**4:20 PM**

#### (ICACC-FS6-008-2015) Fabrication of Al<sub>2</sub>O<sub>3</sub>-Hydroxiapatite composites by chemical synthesis and SPS

L. Flores-Esperilla\*; L. Tellez-Jurado\*; H. Balmori\*; S. Diaz-de-la-Torre\*; 1. National Polytechnic Institute, Mexico; 2. National Polytechnic Institute, Mexico; 3. National Polytechnic Institute, Mexico

**4:40 PM**

#### (ICACC-FS6-009-2015) Effects of Applied Electric and Thermal Fields on the Oxidation of Titanium Diboride

T. E. Ozdemir\*; I. Savkliyildiz\*; E. Akdogan\*; H. Bicer\*; Z. Zhong\*; T. Tsakalakos\*; 1. Rutgers University, USA; 2. Brookhaven National Laboratory, USA

**5:00 PM**

#### (ICACC-FS6-010-2015) Flash Sintering of Ultrahigh Melting Temperature Covalent Nonoxide Ceramics at Low Temperatures with Low DC Electric Fields (Invited)

T. Tsakalakos\*; H. Bicer\*; K. Akdogan\*; I. Savkliyildiz\*; T. E. Ozdemir\*; W. Paxton\*; A. Choksi\*; J. Zhou\*; Z. Zhong\*; 1. Rutgers University, USA; 2. Brookhaven National Laboratory, USA

## 2nd European Union - USA Engineering Ceramics Summit

### Advanced Ceramic Technologies: Challenges and Future Prospects I

Room: Coquina Salon F

Session Chairs: Mrityunjay Singh, Ohio Aerospace Institute; Gerard Vignoles, University Bordeaux

**1:30 PM**

#### (ICACC-PRECS-001-2015) Advanced Ceramic Materials for Future Aerospace Applications (Invited)

A. Misra\*; 1. NASA Glenn Research Center, USA

**2:00 PM**

#### (ICACC-PRECS-002-2015) Status of CMCs and C/Cs in the EU: markets, research & development, perspectives (Invited)

G. L. Vignoles\*; F. Teyssandier\*; E. Bouillon\*; 1. University Bordeaux, France; 2. CNRS, France; 3. Herakles, Safran Group, France

**2:30 PM**

#### (ICACC-PRECS-003-2015) Industrialization of Ceramics for Aerospace Applications (Invited)

M. Manoharan\*; 1. GE Aviation, USA

**3:00 PM**

Break

**3:20 PM**

#### (ICACC-PRECS-004-2015) Ceramic Matrix Composites Based on Liquid Phase Routes (Invited)

W. Krenkel\*; 1. University of Bayreuth, Germany

**3:50 PM**

#### (ICACC-PRECS-005-2015) Recent development in joining of CMC (Invited)

M. Ferraris\*; 1. Politecnico di Torino, Italy

**4:20 PM**

#### (ICACC-PRECS-006-2015) Cost Effective Ceramics in High Efficiency Microturbines (Invited)

M. J. Vick\*; 1. U.S. Naval Research Laboratory, USA

**4:50 PM**

#### (ICACC-PRECS-007-2015) Advanced Si-based Ceramics for Clean Energy Technologies (Invited)

H. Lin\*; 1. Guangdong University of Technology, China

## 4th Global Young Investigator Forum

### GYIF Award Lecture

Room: Coquina Salon C

Session Chairs: Thomas Fischer, University of Cologne; Eva Hemmer, INRS

**1:30 PM**

#### (ICACC-GYIF-001-2015) Nanocrystalline Ceramics: A Thermodynamic Perspective to Enable Design and Control (Invited)

R. Castro\*; 1. University of California, Davis, USA

**2:00 PM**

#### (ICACC-GYIF-002-2015) Fabrication, morphology control and engineering characteristics of highly porous ceramics with oriented micrometer sized cylindrical cells by gelation and freezing method

M. Fukushima\*; T. Ohji\*; Y. Yoshizawa\*; 1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

**2:20 PM****(ICACC-GYIF-003-2015) Cermet synthesis under electric field**S. K. Jha<sup>\*1</sup>; 1. University of Colorado, Boulder, USA**2:40 PM****(ICACC-GYIF-004-2015) Atomic arrangement of Polymer-Derived Ceramics studied by Pair Distribution Function from Electron Diffraction in TEM (Invited)**S. Hapis<sup>\*1</sup>; H. Kleebe<sup>2</sup>; Y. Gao<sup>2</sup>; R. Riedel<sup>2</sup>; J. Rohrer<sup>2</sup>; X. Mu<sup>4</sup>; P. van Aken<sup>3</sup>; 1. Technical University Darmstadt, Germany; 2. Technical University Darmstadt, Germany; 3. Max Planck Institute, Germany; 4. University of Strasbourg/ CNRS, France**3:00 PM****Break****Novel Concepts for Solar Cells**

Room: Coquina Salon C

Session Chairs: Manabu Fukushima, National Institute of Advanced Industrial Science and Technology (AIST); Stefania Hapis, Technical University Darmstadt

**3:20 PM****(ICACC-GYIF-005-2015) Perovskite solar cells – a tale of fascination (Invited)**B. Conings<sup>\*1</sup>; 1. Hasselt University, Belgium**3:40 PM****(ICACC-GYIF-006-2015) Highly efficient hybrid n-silicon/ PEDOT:PSS solar cells**S. Jaeckle<sup>\*1</sup>; M. Mattiza<sup>1</sup>; M. Goebelt<sup>1</sup>; S. Schmitt<sup>1</sup>; S. Christiansen<sup>2</sup>; 1. Max Planck Institute for the Science of Light, Germany; 2. Helmholtz Center for Materials and Energy, Germany**4:00 PM****(ICACC-GYIF-007-2015) Atomic layer deposition of metal oxides for nanostructured heterojunction solar cells**M. Goebelt<sup>\*1</sup>; M. Latzel<sup>1</sup>; S. Schmitt<sup>1</sup>; S. Christiansen<sup>2</sup>; 1. Max-Planck-Institute for the Science of Light, Germany; 2. Helmholtz Center Berlin for Materials and Energy, Germany**4:20 PM****(ICACC-GYIF-008-2015) Electrochemical Impedance Spectroscopy on Dye Sensitized Solar Cells: characterization case study on Carbon nanotubes / TiO<sub>2</sub> composite systems**D. Benetti<sup>\*1</sup>; K. Dembele<sup>1</sup>; C. Trudeau<sup>1</sup>; S. Cloutier<sup>2</sup>; A. Vomiero<sup>2</sup>; F. Rosei<sup>1</sup>; 1. Institut national de la recherche scientifique, Canada; 2. University of Brescia, Italy; 3. École de technologie supérieure, Canada**4:40 PM****(ICACC-GYIF-009-2015) TiO<sub>2</sub> thick film sensitized with quantum dot through electrochromic deposition**L. Jin<sup>\*1</sup>; H. Zhao<sup>2</sup>; D. Ma<sup>1</sup>; A. Vomiero<sup>2</sup>; F. Rosei<sup>1</sup>; 1. Institut National de la Recherche Scientifique, Canada; 2. CNR-INO SENSOR Lab, Italy**5:00 PM****(ICACC-GYIF-010-2015) Combined Semiconductor Nanostructures for Efficient Solar Water Splitting**F. Podjaski<sup>\*1</sup>; J. Vukajlovic<sup>1</sup>; G. Tutuncuoglu<sup>2</sup>; F. Matteini<sup>2</sup>; H. Potts<sup>2</sup>; E. Alarcon-Llado<sup>2</sup>; V. Lau<sup>1</sup>; B. V. Lotsch<sup>3</sup>; A. Fontcuberta-i-Morrall<sup>2</sup>; 1. Max-Planck-Institute for Solid State Research, Germany; 2. Ecole Polytechnique Fédérale de Lausanne, Switzerland; 3. Ludwig Maximilian University, Germany**5:20 PM****(ICACC-GYIF-011-2015) WSi<sub>2</sub> in Si/Ge composites: processing and thermoelectric properties**J. Mackey<sup>\*1</sup>; A. Sehirlioglu<sup>2</sup>; F. Dynys<sup>3</sup>; 1. University of Akron, USA; 2. Case Western Reserve University, USA; 3. NASA Glenn Research Center, USA**Tuesday, January 27, 2015****S1: Mechanical Behavior and Performance of Ceramics & Composites****Processing - Microstructure - Mechanical Properties Correlation I**

Room: Coquina Salon D

Session Chair: Rajesh Kumar, United Technologies Research Center

**8:30 AM****(ICACC-S1-012-2015) Functionally Graded Alumina-Silicon Carbide Materials for Robust Joints and Wear Resistant Surfaces**C. E. Dancer<sup>\*1</sup>; N. A. Yahya<sup>2</sup>; T. Berndt<sup>4</sup>; C. J. Salter<sup>2</sup>; M. Achintha<sup>5</sup>; J. A. Fernie<sup>6</sup>; G. de Portu<sup>7</sup>; R. I. Todd<sup>1</sup>; 1. University of Warwick, United Kingdom; 2. University of Oxford, United Kingdom; 3. University of Malaya, Malaysia; 4. Otto-von-Guericke-Universität, Germany; 5. University of Oxford, United Kingdom; 6. Ceramics Joining Limited, United Kingdom; 7. ISTE-CNR, Italy**8:50 AM****(ICACC-S1-013-2015) Spatially Tailored Strength and Toughness in Alumina-Based Composites**R. Bermejo<sup>\*1</sup>; Y. Chang<sup>2</sup>; Z. Chlup<sup>3</sup>; O. Sevecek<sup>4</sup>; R. Danzer<sup>1</sup>; G. L. Messing<sup>2</sup>; 1. Montanuniversitaet Leoben, Austria; 2. The Pennsylvania State University, USA; 3. Czech Academy of Science, Czech Republic; 4. Brno University of Technology, Czech Republic**9:10 AM****(ICACC-S1-014-2015) Length Scale Effects on the Toughening of Barium Titanate-Ni Laminate Composites**W. R. Lanning<sup>\*1</sup>; C. L. Muhlstein<sup>1</sup>; 1. Georgia Tech, USA**9:30 AM****(ICACC-S1-015-2015) Application of computational thermodynamics in LSM perovskite thermal cycle shrinkage**A. Karbasi<sup>1</sup>; S. Darvish<sup>1</sup>; M. Mora<sup>1</sup>; Y. Zhong<sup>\*1</sup>; 1. Florida International University, USA**9:50 AM****(ICACC-S1-016-2015) Mechanical Properties, Deformation Mechanisms, and Crystallography of Directionally Solidified WC-W<sub>2</sub>C Eutectoids**W. Chen<sup>\*1</sup>; C. Meredith<sup>1</sup>; E. Dickey<sup>1</sup>; 1. North Carolina State University, USA**10:10 AM****Break****10:30 AM****(ICACC-S1-017-2015) Bio-Inspired Al/Al<sub>2</sub>O<sub>3</sub> Micro-Layered Composites from Anodized Aluminum Foils**G. R. Villalobos<sup>\*1</sup>; S. S. Bayya<sup>1</sup>; W. Kim<sup>1</sup>; C. Baker<sup>1</sup>; R. Goswami<sup>1</sup>; M. P. Hunt<sup>2</sup>; B. M. Sadowski<sup>2</sup>; J. S. Sanghera<sup>1</sup>; 1. US Naval Research Lab, USA; 2. Sotera Defense Solutions, USA; 3. University Research Foundation, USA**10:50 AM****(ICACC-S1-018-2015) Towards Mussels under Stress: A Novel Path to Flaw Tolerant Materials with Enhanced Fracture Resistance**Y. Chang<sup>1</sup>; G. L. Messing<sup>1</sup>; R. Bermejo<sup>\*2</sup>; 1. The Pennsylvania State University, USA; 2. Montanuniversitaet Leoben, Austria**11:10 AM****(ICACC-S1-019-2015) Understanding Microstructure-Mechanical Properties Relations in Ceramic/Carbon Nanotubes Nanocomposites**W. Wu<sup>\*1</sup>; L. Zhang<sup>1</sup>; Y. Liu<sup>1</sup>; N. P. Padture<sup>1</sup>; 1. Brown University, USA**11:30 AM****(ICACC-S1-020-2015) Quantifying Amorphous Content of Seeded and Unseeded Polymer-Derived SiC-Based Ceramic**T. Key<sup>\*1</sup>; I. Wolford<sup>2</sup>; M. O'Malley<sup>2</sup>; K. Keller<sup>1</sup>; C. Carney<sup>2</sup>; M. Cinibulk<sup>2</sup>; 1. UES & AFRL/RXCCM, USA; 2. AFRL/RXCCM, USA

11:50 AM

**(ICACC-S1-021-2015) Fractal Analysis of a Biocompatible Ceramic-Polymer Laminate**

P. A. Robinson\*; J. Mecholsky; C. A. Wilson; 1. University of Florida, USA; 2. Michelin Americas Research and Development Corporation, USA

**S3: 12th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology****Materials for SOFC, Reversible (SOFC/SOE) and SOE Operation / Electrode Materials**

Room: Crystal

Session Chairs: Toshio Suzuki, National Institute of Advanced Industrial Science and Technology; Jeff Stevenson, PNNL

8:00 AM

**(ICACC-S3-008-2015) Reversible Solid Oxide Fuel Cells using Mixed Ionic-Electronic Conducting Electrolytes: Performance and Stability (Invited)**

A. V. Virkar\*; G. Tao; 1. University of Utah, USA; 2. Materials and Systems Research, Inc., USA

8:30 AM

**(ICACC-S3-009-2015) Development of solid oxide cells and stack materials for intermediate temperature SOFC and SOEC applications (Invited)**

D. Montinaro\*; A. Dellai; G. Tiberio; M. Rolland; F. De Genua; 1. SOFCpower SpA, Italy

9:00 AM

**(ICACC-S3-010-2015) Proton-Conducting Solid Oxide Electrolysis Cells (SOECs) with Chemically Stable Electrolytes (Invited)**

E. Traversa\*; L. Bi; 1. King Abdullah University of Science and Technology, Saudi Arabia

9:30 AM

**(ICACC-S3-011-2015) Dopant effects on La<sub>0.4</sub>Ce<sub>0.6</sub>O<sub>2</sub> sintering temperature for anode supported Solid Oxide Fuel Cells using LaGaO<sub>3</sub> electrolyte (Invited)**

K. Hoshi; J. Hong; S. Ida; T. Ishihara\*; 1. Kyushu University, Japan; 2. Kyushu University, Japan

10:00 AM

Break

10:20 AM

**(ICACC-S3-012-2015) Surface Segregation in LSCF: Effect of Atmosphere and Strontium Content**

S. Basu\*; Y. Yu; D. Cetin; H. Luo; K. Ludwig; X. Lin; U. Pal; S. Gopalan; 1. Boston University, USA; 2. Boston University, USA; 3. Boston University, USA

10:40 AM

**(ICACC-S3-013-2015) Durability of Lanthanum Strontium Cobalt Ferrite (LSCF) Cathodes in CO<sub>2</sub> and H<sub>2</sub>O Containing Air**

B. Hu\*; M. K. Mahapatra; V. Sharma; S. Misture; R. Ramprasad; N. Minh; P. Singh; 1. University of Connecticut, USA; 2. University of Connecticut, USA; 3. Alfred University, USA; 4. University of California, San Diego, USA

11:00 AM

**(ICACC-S3-014-2015) A New Curvature Relaxation Technique to Perform Simultaneous, In Situ Oxygen Surface Exchange Coefficient and Stress Measurements on Dense or Porous Films**

J. D. Nicholas\*; Q. Yang; 1. Michigan State University, USA

11:20 AM

**(ICACC-S3-015-2015) Defect equilibria and reaction kinetics of Pr doped ceria thin film by simultaneous *in situ* optical absorption and impedance measurements**

J. Kim; S. R. Bishop; D. Chen; N. H. Perry\*; H. L. Tuller; 1. Massachusetts Institute of Technology, USA

**S4: Armor Ceramics: Challenges and New Developments****Synthesis and Processing I**

Room: Coquina Salon E

Session Chair: Victoria Blair, ORISE; Steven Kilczewski, ARL

8:30 AM

**(ICACC-S4-012-2015) A Decontamination Process for the Fabrication of Transparent Nano-grain Magnesium Aluminate Spinel**

A. Kundu\*; M. P. Harmer; R. P. Vinci; 1. Lehigh University, USA

8:50 AM

**(ICACC-S4-013-2015) Benign processing of complex-shaped transparent ceramics**

Y. Wu\*; 1. New York State College of Ceramics at Alfred University, USA

9:10 AM

**(ICACC-S4-014-2015) Grain Boundary Segregation Behavior of Rare-Earth Dopants in Magnesium Aluminate Spinel**

A. Kundu\*; O. Kosang; Z. Yu; M. P. Harmer; R. P. Vinci; 1. Lehigh University, USA

9:30 AM

**(ICACC-S4-015-2015) Grain Boundary Complexions – Implications to Ceramic Armor Development (Invited)**

M. Harmer\*; 1. Lehigh University, USA

10:00 AM

Break

10:20 AM

**(ICACC-S4-016-2015) Understanding Intergranular Films and Grain Boundary "Phase" Transitions (Invited)**

J. Luo\*; 1. UCSD, USA

10:50 AM

**(ICACC-S4-017-2015) van der Waals Interactions and Hamaker Coefficients: At Atomically Abrupt Grain Boundaries in SrTiO<sub>3</sub> And In Intergranular Films in Re-M-O-N:Si<sub>3</sub>N<sub>4</sub> (Invited)**

R. H. French\*; 1. Case Western Reserve University, USA

11:20 AM

**(ICACC-S4-018-2015) Low Temperature Synthesis of Boron Carbide Powders**

D. Tucker; S. Su; I. T. Chang\*; P. Brown; 1. University of Birmingham, United Kingdom; 2. DSTL, United Kingdom

11:40 AM

**(ICACC-S4-019-2015) Synthesis, Processing, and Fundamental Reaction Mechanism Study for Nanocrystalline Boron Carbide Powders**

P. Foroughi\*; A. Vahid Mohammadi; Z. Cheng; 1. Florida International University, USA



## S6: Advanced Materials and Technologies for Energy Generation, Conversion, and Rechargeable Energy Storage

### Beyond Li-ion Battery: Sodium-ion Battery, Li-S and Li-air battery

Room: Tomoka A

Session Chairs: Claude Delmas, ICMCB -CNRS; Shirley Meng, University of California

**8:30 AM**

#### (ICACC-S6-009-2015) The $\text{Na}_x(\text{Co},\text{Mn})\text{O}_2$ and $\text{Na}_x(\text{Fe},\text{Mn})\text{O}_2$ layered oxides used in Na Batteries : structural transformations and redox processes (Invited)

D. Carlier<sup>\*</sup>; B. Mortemard de Boisse<sup>1</sup>; M. Guignard<sup>1</sup>; A. Wattiaux<sup>1</sup>; J. Cheng<sup>2</sup>; B. Hwang<sup>2</sup>; D. Filimonov<sup>3</sup>; C. Delmas<sup>1</sup>; 1. ICMCB-CNRS, France; 2. NTUST, Taiwan; 3. Lomonosov Moscow State University, Russian Federation

**9:00 AM**

#### (ICACC-S6-010-2015) $\text{Na}_2\text{FeP}_2\text{O}_7$ as a positive electrode material for rechargeable sodium-ion batteries in nonaqueous and aqueous electrolytes

Y. Jung<sup>1</sup>; C. Lim<sup>1</sup>; J. Kim<sup>1</sup>; D. Kim<sup>\*</sup>; 1. KAIST, Korea (the Republic of)

**9:20 AM**

#### (ICACC-S6-011-2015) Electrochemically formed $\alpha'$ - $\text{NaV}_2\text{O}_5$ : A promising zero strain electrode material for rechargeable sodium-based batteries

D. Muller-Bouvet<sup>1</sup>; R. Baddour-Hadjean<sup>1</sup>; M. Tanabe<sup>1</sup>; N. Huynh<sup>1</sup>; J. Pereira-Ramos<sup>\*</sup>; 1. CNRS, UMR7182, France

**9:40 AM**

#### (ICACC-S6-012-2015) Glass-ceramic joining materials for sodium-based battery

F. Smeacetto<sup>\*</sup>; M. Salvo<sup>1</sup>; M. Radaelli<sup>1</sup>; M. Broglia<sup>2</sup>; F. Cernuschi<sup>2</sup>; M. Ferraris<sup>1</sup>; 1. Politecnico di Torino, Italy; 2. RSE SpA, Italy

**10:00 AM**

Break

**10:20 AM**

#### (ICACC-S6-013-2015) Electrical conductivity of $\text{Na}_2\text{O-Nb}_2\text{O}_5\text{-P}_2\text{O}_5$ glass with low melting temperature and fabrication of glass-ceramics composites with NASICON ( $\text{Na}_3\text{Zr}_2\text{Si}_2\text{PO}_{12}$ ) for sodium ion batteries

T. Honma<sup>\*</sup>; M. Okamoto<sup>1</sup>; T. Togashi<sup>1</sup>; K. Shinozaki<sup>1</sup>; T. Komatsu<sup>1</sup>; 1. Nagaoka University of Technology, Japan

**10:40 AM**

#### (ICACC-S6-014-2015) Preparation of Li-stabilized sodium $\beta$ -alumina films by laser CVD

C. Chi<sup>\*</sup>; H. Katsui<sup>1</sup>; T. Goto<sup>1</sup>; 1. Engineering, Japan

**11:00 AM**

#### (ICACC-S6-015-2015) $\text{Na}^{+}$ -conducting glass ceramics for high temperature batteries

D. Wagner<sup>\*</sup>; A. Rost<sup>1</sup>; M. Fritsch<sup>1</sup>; J. C. Schilm<sup>1</sup>; M. Kusnezoff<sup>1</sup>; 1. Fraunhofer Gesellschaft IKTS, Germany

**11:20 AM**

#### (ICACC-S6-016-2015) Factors influencing Li-S battery cycle life – a combined in-situ analytical work (Invited)

R. Dominko<sup>\*</sup>; M. Patel<sup>1</sup>; A. Vizintin<sup>1</sup>; I. Arcon<sup>1</sup>; L. Stievano<sup>3</sup>; G. Aquilanti<sup>4</sup>; 1. National Institute of Chemistry, Slovenia; 2. University of Nova Gorica, Slovenia; 3. ICGM-UMR5253, Université Montpellier II, France; 4. Elettra-Sincrotrone Trieste S.C.p.A., Italy

**11:50 AM**

#### (ICACC-S6-017-2015) Microwave processing for improved ionic conductivity in $\text{LiO}_2\text{-Al}_2\text{O}_3\text{-TiO}_2\text{-P}_2\text{O}_5$ glass ceramics

C. G. Davis<sup>\*</sup>; A. Pertuit<sup>1</sup>; J. C. Nino<sup>1</sup>; 1. University of Florida, USA

## S7: 9th International Symposium on Nanostructured Materials: Innovative Synthesis and Processing of Nanostructured, Nanocomposite and Hybrid Functional Materials for Energy, Health and Sustainability

### Nanotoxicity, Drug-delivery and Health Aspects of Engineered Nanostructures

Room: Coquina Salon B

Session Chairs: Sanjay Mathur, University of Cologne; Ausrine Bartasyte, FEMTO-ST Institute

**8:30 AM**

#### (ICACC-S7-001-2015) Electrical Characterization of Individual Inorganic Nanoparticles (Invited)

U. Simon<sup>\*</sup>; 1. RWTH Aachen University, Germany

**9:00 AM**

#### (ICACC-S7-002-2015) Star Shape Au/Ag with Nano Diamond for the Application in Hyperthermia (Invited)

R. Liu<sup>\*</sup>; S. Hu<sup>2</sup>; 1. University of Taipei, Taiwan; 2. National Taiwan Normal University, Taiwan

**9:30 AM**

#### (ICACC-S7-003-2015) Upconverting Lanthanide-Nanophosphors: New Players in Bioimaging and Energy Conversion Technologies?

E. Hemmer<sup>\*</sup>; M. Quintanilla Morales<sup>1</sup>; S. Rohani<sup>1</sup>; J. Marques<sup>2</sup>; B. S. Richards<sup>3</sup>; F. Légaré<sup>1</sup>; F. Vetrone<sup>1</sup>; 1. INRS, Canada; 2. Heriot-Watt University, United Kingdom; 3. Karlsruhe Institute of Technology, Germany

**9:50 AM**

#### (ICACC-S7-004-2015) Novel Solution Fabrication of Advanced Metal Oxide Nanomaterials for Environmental and Biomedical Applications (Invited)

K. Byrappa<sup>\*</sup>; K. Namratha<sup>1</sup>; 1. University of Mysore, India

**10:10 AM**

Break

### Integration of Functional Metal Oxide Nanostructures in Devices

Room: Coquina Salon B

Session Chairs: Sanjay Mathur, University of Cologne; Ulrich Simon, RWTH Aachen University

**10:30 AM**

#### (ICACC-S7-005-2015) Can $\text{LiNbO}_3$ be an alternative for PZT in vibrational energy harvesters? (Invited)

A. Bartasyte<sup>\*</sup>; M. Rakotondrabe<sup>1</sup>; T. Baron<sup>1</sup>; S. Ballandras<sup>1</sup>; 1. CNRS (UMR 6174) –UFC-ENSMM-UTBM, France; 2. Freq'n'Sys, France

**11:00 AM**

#### (ICACC-S7-006-2015) Atomic Layer Deposited VOx Thin Films for Resistive Switching Application

S. Wang<sup>\*</sup>; T. Singh<sup>1</sup>; N. Aslam<sup>1</sup>; H. Zhang<sup>2</sup>; S. Hoffmann-Eifert<sup>2</sup>; S. Mathur<sup>1</sup>; 1. Inorganic Chemistry, Germany; 2. Forschungszentrum Juelich, Germany

**11:20 AM**

#### (ICACC-S7-007-2015) Constructing Electrochromic Nanocrystal-in-glass Composite Materials from Colloidal Building Units (Invited)

A. Llordés<sup>\*</sup>; T. W. Lee<sup>1</sup>; G. Garcia<sup>1</sup>; D. J. Milliron<sup>2</sup>; 1. Lawrence Berkeley National Laboratory, USA; 2. The University of Texas at Austin, USA

**11:50 AM**

#### (ICACC-S7-008-2015) Novel Group III-Nitride Optochemical Nanosensors (Invited)

J. Teubert<sup>\*</sup>; M. Eickhoff<sup>1</sup>; 1. Justus-Liebig-Universität Giessen, Germany

## S8: 9th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT9)

### Novel Ceramic Processing II

Room: Coquina Salon A

Session Chairs: Zoltan Lences, Institute of Inorganic Chemistry, Slovak Academy of Sciences; Hisayuki Suematsu, Nagaoka University of Technology

**8:30 AM**

#### (ICACC-S8-011-2015) Si-based Functional Ceramics from Pre ceramic Polymers (Invited)

G. Soraru\*; 1. University of Trento, Italy

**9:00 AM**

#### (ICACC-S8-012-2015) Influence of Lanthanoid Dopant and N/O Substitution on the Electronic Structure and Luminescent Properties of Silicon Oxynitride Phosphors (Invited)

Z. Lences\*; M. Hrabalova; I. Ibrahim; L. Benco; P. Sajgalik; 1. Institute of Inorganic Chemistry, Slovak Academy of Sciences, Slovakia

**9:20 AM**

#### (ICACC-S8-013-2015) Effect of Starting Particle Size on Flexural Strength of Crack-Free, Dense SiOC Ceramics

J. Eom\*; Y. Kim; 1. University of Seoul, Korea (the Republic of)

**9:40 AM**

#### (ICACC-S8-014-2015) Glass-ceramic Proppants from Sinter-Crystallization of Waste-derived Glasses

E. Bernardo\*; M. Marangoni; P. Colombo; 1. University of Padova, Italy

**10:00 AM**

**Break**

10:00 - 10:20

**10:20 AM**

#### (ICACC-S8-015-2015) Catalytic Combustion Type Carbon Monoxide Gas Sensor With Novel Oxidation Catalysts (Invited)

N. Imanaka\*; A. Hosoya; S. Tamura; 1. Osaka University, Japan; 2. Osaka University, Japan; 3. Osaka University, Japan

**10:50 AM**

#### (ICACC-S8-016-2015) Continuous Spray Synthesis of Doped-Pyrochlore Oxide Catalysts for Hydrocarbon Reforming

J. Yancey\*; M. Smith; D. Berry; D. Haynes; D. Shekhawat; E. M. Sabolsky; 1. West Virginia University, USA; 2. National Energy Technology Laboratory, USA

**11:10 AM**

#### (ICACC-S8-017-2015) Refractory Oxide/Silicide based Sensors for High Temperature Harsh Environmental Applications

E. M. Sabolsky; K. Sabolsky; R. C. Pillai\*; G. A. Yakaboylu; S. Chockalingam; B. Armour; A. Teter; M. Palmisiano; 1. West Virginia University, USA; 2. ANH Refractories Company Technology Center, USA

**11:30 AM**

#### (ICACC-S8-018-2015) A Hydrophilic Treatment of Polypropylene Film for Particle Induced X-ray Analysis of Human Blood

H. Suematsu\*; S. Takahashi; M. Fujita; T. Kikuchi; T. Sasaki; Y. Oguri; T. Suzuki; T. Nakayama; K. Niihara; 1. Nagaoka University of Technology, Japan; 2. National Hospital Organization, Japan; 3. Nagaoka University of Technology, Japan; 4. Nagaoka University of Technology, Japan; 5. Tokyo Institute of Technology, Japan

**11:50 AM**

#### (ICACC-S8-019-2015) Electrical properties of textured CaCu<sub>3</sub>Ti<sub>4</sub>O<sub>12</sub> thin films with non-linear resistivity deposited by RF Sputtering

C. R. Foschini\*; A. Z. Simoes; R. Tararam; C. O. Paiva-Santos; E. Longo; 1. UNESP, Brazil; 2. UNESP, Brazil; 3. UNESP, Brazil

## S12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nano-laminated Ternary Carbides and Nitrides (MAX Phases)

### Structural-property Relationships of Existing Systems II

Room: Ponce DeLeon

Session Chair: Eric Wuchina, Office of Naval Research

**8:30 AM**

#### (ICACC-S12-011-2015) Thermal Properties of Zirconium Dioxide Ceramics (Invited)

W. G. Fahrenholtz\*; G. Hilmas; 1. Missouri University of S & T, USA

**9:00 AM**

#### (ICACC-S12-012-2015) Electron and Phonon Contributions to the Thermal Conductivity of ZrB<sub>2</sub>

G. J. Harrington; G. Hilmas\*; W. G. Fahrenholtz; 1. Missouri University of Science and Technology, USA

**9:20 AM**

#### (ICACC-S12-013-2015) Phase Stability in Tantalum Carbides and its Relationship to Microstructure and Mechanical Behavior

G. B. Thompson\*; X. Yu; C. R. Weinberger; 1. University of Alabama, USA; 2. Drexel University, USA

**9:40 AM**

#### (ICACC-S12-014-2015) Thermal Properties of ZrB<sub>2</sub>-HfB<sub>2</sub> Solid Solutions

J. Lonergan\*; D. McClane; W. G. Fahrenholtz; G. Hilmas; 1. Missouri University of Science and Technology, USA

**10:00 AM**

**Break**

## Structural Stability under Extreme Environments

Room: Ponce DeLeon

Session Chair: Greg Hilmas, Missouri University of Science and Technology

**10:20 AM**

#### (ICACC-S12-015-2015) High-Temperature Materials for Hypersonic Applications (Invited)

E. Wuchina\*; 1. Office of Naval Research, USA

**10:50 AM**

#### (ICACC-S12-016-2015) High temperature mechanical properties of UHTCs: Present and future perspectives

E. Zapata-Solvas\*; D. Gómez-García; D. D. Jayaseelan; A. Dominguez-Rodríguez; W. E. Lee; 1. CSIC-US, Spain; 2. University of Seville, Spain; 3. Imperial College London, United Kingdom

**11:10 AM**

#### (ICACC-S12-017-2015) General trends in electronic structure, stability, chemical bonding and mechanical properties of ultrahigh temperature ceramics TMB<sub>2</sub> (TM=transition metal)

Y. Zhou\*; H. Xiang; Z. Feng; Z. Li; 1. Aerospace Research Institute of Materials & Processing Technology, China

**11:30 AM**

#### (ICACC-S12-018-2015) Protections against oxidation by UHTC deposition and/or infiltration on Carbon/ Carbon composites

A. Allemand\*; C. VERDON; O. SZWEDEK; Y. LE PETITCORPS; T. PIQUERO; 1. CEA, France; 2. LCTS, France

**11:50 AM**

#### (ICACC-S12-019-2015) A Diffusion-Based Oxidation Model for Cracking In UHT Ceramics

K. Nikbin\*; 1. ICL, United Kingdom

## S13: International Symposium on Advanced Ceramics and Composites for Sustainable Nuclear Energy and Fusion Energy

### Ceramics for Advanced Fission Concepts

Room: Tomoka B

Session Chair: Lance Snead, Oak Ridge National Lab

**8:30 AM**

#### (ICACC-S13-011-2015) Mechanical Behaviour of SiC/SiC composites after immersion in a Sodium environment at 550°C and up to 2000h (Invited)

C. Sauder<sup>\*</sup>; J. Braun<sup>1</sup>; F. Balbaud<sup>2</sup>; F. Rouillard<sup>3</sup>; C. Gueneau<sup>4</sup>; 1. DEN/SRMA/LTMEX, France; 2. DEN/DADN, France; 3. DEN/DPC/SCCME/LECNA, France; 4. DEN/DPC/SCCME/LM2T, France

**9:00 AM**

#### (ICACC-S13-012-2015) SiC-SiC Composite Technology Needs and Developments for the Energy Multiplier Module Reactor, EM2 (Invited)

C. A. Back<sup>\*</sup>; C. P. Deck<sup>1</sup>; H. E. Khalifa<sup>1</sup>; G. M. Jacobsen<sup>1</sup>; J. Opperman<sup>1</sup>; O. Izhvanov<sup>1</sup>; J. Sheeder<sup>1</sup>; J. Zhang<sup>1</sup>; H. B. Chen<sup>1</sup>; 1. General Atomics, USA

**9:30 AM**

#### (ICACC-S13-013-2015) Corrosion of Materials in Molten LiF-BeF<sub>2</sub> (FLiBe) Salt for Fluoride Salt-Cooled High Temperature Reactor (Invited)

K. Sridharan<sup>\*</sup>; G. Cao<sup>1</sup>; G. Zheng<sup>1</sup>; M. Anderson<sup>1</sup>; 1. University of Wisconsin, USA

**10:00 AM**

Break

## Joining Technology for Nuclear Ceramics I

Room: Tomoka B

Session Chair: Christina Back, General Atomics

**10:20 AM**

#### (ICACC-S13-014-2015) Recent Progress in Development and Testing of Low Activation, Radiation Tolerant Joints for Ceramic Accident Tolerant Fuel Cladding

H. E. Khalifa<sup>\*</sup>; G. M. Jacobsen<sup>1</sup>; C. A. Back<sup>1</sup>; 1. General Atomics, USA

**10:40 AM**

#### (ICACC-S13-015-2015) Properties of Al<sub>2</sub>O<sub>3</sub> – CaO glass joints of silicon carbide tubes

M. Gentile<sup>\*</sup>; T. Abram<sup>1</sup>; 1. The University of Manchester, United Kingdom

**11:00 AM**

#### (ICACC-S13-016-2015) Brazing of SiCf/SiCm composite plates

E. Jacques<sup>\*</sup>; L. Maillé<sup>\*</sup>; Y. Lepetitcorps<sup>1</sup>; C. Lorrette<sup>2</sup>; 1. Laboratoire des Composites Thermostructuraux, France; 2. CEA Saclay, France

**11:20 AM**

#### (ICACC-S13-017-2015) Evaluating Ceramic Joints in Annular Geometries: Preliminary Test Design and Analysis

Y. Katoh<sup>\*</sup>; T. Koyanagi<sup>1</sup>; J. Kiggans<sup>1</sup>; 1. Oak Ridge National Laboratory, USA

**11:40 AM**

#### (ICACC-S13-018-2015) He Irradiation on Glass Ceramics for Nuclear Applications

V. Casalegno<sup>\*</sup>; L. Gozzelino<sup>1</sup>; T. Moskalewicz<sup>2</sup>; R. Gerbaldo<sup>1</sup>; G. Ghigo<sup>1</sup>; S. Rizzo<sup>1</sup>; F. Laviano<sup>1</sup>; M. Ferraris<sup>1</sup>; 1. Politecnico di Torino, Italy; 2. AGH University of Science and Technology, Poland

## FS1: Geopolymers, Chemically Bonded Ceramics, Eco-friendly and Sustainable Materials

### Synthesis, Processing and Microstructure, Porosity, Composites I

Room: Oceanview

Session Chairs: Waltraud Kriven, University of Illinois at Urbana-Champaign; Claus Rüscher, LUH

**8:30 AM**

#### (ICACC-FS1-001-2015) Effect of the reactivity of the alkaline solution on geopolymer formation (Invited)

S. Rossignol<sup>1</sup>; A. Gharzouni<sup>\*</sup>; E. Joussein<sup>1</sup>; 1. SPCTS, France

**9:00 AM**

#### (ICACC-FS1-002-2015) Plant ashes as activator for alkali activation (Invited)

H. Rahier<sup>\*</sup>; A. Peys<sup>2</sup>; B. Blanpain<sup>2</sup>; Y. Pontikes<sup>2</sup>; 1. Vrije Universiteit Brussel, Belgium; 2. KU Leuven, Belgium

**9:30 AM**

#### (ICACC-FS1-003-2015) Use of Diatomite as Fumed Silica Alternative in a Geopolymer Formulation

C. Bagci<sup>\*</sup>; W. M. Kriven<sup>2</sup>; 1. Hitit University, Turkey; 2. University of Illinois at Urbana-Champaign, USA

**9:50 AM**

Break

**10:10 AM**

#### (ICACC-FS1-004-2015) Effect of triglyceride source on the physical properties of geopolymer foams obtained by the saponification / peroxide / gelcasting combined route (Invited)

M. S. Cilla<sup>\*</sup>; M. R. Morelli<sup>2</sup>; P. Colombo<sup>2</sup>; M. D. Innocentini<sup>2</sup>; 1. Federal University of São Carlos, Brazil; 2. Federal University of São Carlos, Brazil; 3. University of Padova, Italy; 4. University of Ribeirão Preto, Brazil

**10:40 AM**

#### (ICACC-FS1-005-2015) Effect of fiber length on dynamic and static mechanical properties of milled, carbon fiber-reinforced, potassium geopolymer composite (Invited)

S. Cho<sup>\*</sup>; R. D. Schmidt<sup>2</sup>; E. D. Case<sup>2</sup>; W. M. Kriven<sup>2</sup>; 1. University of Illinois at Urbana-Champaign, USA; 2. Michigan State University, USA; 3. University of Illinois at Urbana-Champaign, USA

**11:10 AM**

#### (ICACC-FS1-006-2015) Alkaline solubility evaluation of raw materials as geopolymerization preliminary step (Invited)

R. Cioffi<sup>\*</sup>; B. Liguori<sup>1</sup>; 1. University Parthenope, Italy

## FS4: Additive Manufacturing and 3D Printing Technologies

### Additive Manufacturing and 3D Printing Technologies II

Room: Coquina Salon G

Session Chairs: Soshu Kirihara, Osaka University; Jens Günster, BAM

**8:30 AM**

#### (ICACC-FS4-008-2015) Dense powder beds for powder-based additive manufacturing of ceramics (Invited)

J. Günster<sup>\*</sup>; C. M. Gomes<sup>1</sup>; T. Mühler<sup>2</sup>; A. Zocca<sup>3</sup>; J. G. Heinrich<sup>2</sup>; 1. BAM, Germany; 2. TU Clausthal, Germany; 3. Università di Padova, Italy

**9:00 AM**

#### (ICACC-FS4-009-2015) Fabrication of three-dimensional ceramic microstructure using a plastic mold prepared by stereolithography

J. Tatami<sup>\*</sup>; S. Maruo<sup>1</sup>; 1. Yokohama National University, Japan

9:20 AM

**(ICACC-FS4-010-2015) Fabrication of Micro Ceramics Components by Nanoparticles Paste Stereolithography**

S. Kirihara\*; 1. Osaka University, Japan

9:40 AM

**(ICACC-FS4-011-2015) New Materials for Additive Manufacturing of High-Performance Ceramics (Invited)**

M. Schwentenwein\*; J. Homa\*; 1. Lithoz GmbH, Austria

10:10 AM

Break

10:30 AM

**(ICACC-FS4-012-2015) Fabrication of alumina bulk by powder layer stacking process**

M. Hotta\*; N. Kondo\*; T. Ohji\*; 1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

10:50 AM

**(ICACC-FS4-013-2015) Ceramics 3D Printing by Selective Inhibition Sintering**

J. Zhang\*; B. Khoshnevis\*; 1. University of Southern California, USA

11:10 AM

**(ICACC-FS4-014-2015) Additive Manufacturing of drainage segments for cooling system of crucible melting furnaces**

M. Fateri\*; A. Gebhardt\*; G. Renflet\*; 1. FH Aachen, Germany

**FS5: Single Crystalline Materials for Electrical, Optical and Medical Applications****Semiconductor I**

Room: Tomoka C

Session Chairs: Leo Schowalter, Crystal IS; Matthias Bickermann, Leibniz Institute for Crystal Growth (IKZ) Berlin

8:30 AM

**(ICACC-FS5-009-2015) SiC crystal growth of electrical and optical devices (Invited)**

K. Kakimoto\*; 1. Kyushu University, Japan

9:00 AM

**(ICACC-FS5-010-2015) Recent progress in SiC single crystal wafers for power electronic device applications (Invited)**

T. Fujimoto\*; 1. Nippon Steel &amp; Sumitomo Metal Corp., Japan

9:30 AM

**(ICACC-FS5-011-2015) Germanium: From the first application of Czochralski crystal growth to the foundation of high-efficiency multi-junction solar cells (Invited)**

B. Depuydt\*; K. Dessein\*; 1. Umicore, Belgium

10:00 AM

Break

10:20 AM

**(ICACC-FS5-012-2015) Homoepitaxial growth on single-crystal  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> substrates by molecular beam epitaxy (Invited)**

K. Sasaki\*; M. Higashiwaki\*; A. Kuramata\*; S. Yamakoshi\*; 1. Tamura corporation, Japan; 2. National Institute of Information and Communications Technology, Japan

10:50 AM

**(ICACC-FS5-013-2015) Halide Vapor Phase Epitaxy of  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> (Invited)**

Y. Oshima\*; E. G. Villora\*; K. Shimamura\*; 1. National Institute for Materials Science, Japan

11:20 AM

**(ICACC-FS5-014-2015) Recent progress of GaN substrates manufactured by VAS method (Invited)**

T. Yoshida\*; T. Suzuki\*; T. Kitamura\*; Y. Abe\*; H. Fujikura\*; M. Shibata\*; T. Saito\*; 1. Hitachi Metals, Ltd., Japan

**FS6: Field Assisted Sintering and Related Phenomena at High Temperatures****Field Assisted Sintering Phenomena**

Room: Coquina Salon H

Session Chair: Thomas Tsakalakos, Rutgers University

8:30 AM

**(ICACC-FS6-011-2015) Effect of electric field on kinetics of chemical reaction**

S. K. Jha\*; R. Raj\*; 1. University of Colorado, Boulder, USA

8:50 AM

**(ICACC-FS6-012-2015) Carbon nanotube (CNT)-copper composites: Powder, Spark Plasma Sintering, microstructure and mechanical properties (Invited)**

C. Estournes\*; C. ARNAUD\*; C. GUIDERDONI\*; G. CHEVALLIER\*; D. MONCEAU\*; J. HUEZ\*; D. MESGUICH\*; A. WEIBEL\*; A. PEIGNEY\*; F. LECOULTURIER\*; C. LAURENT\*; 1. CIRIMAT, France; 2. LNCMI, France; 3. PNF2/CNRS, France; 4. CIRIMAT, France

9:20 AM

**(ICACC-FS6-013-2015) Sintering by intense thermal radiation (SITR): a combinational study of temperature distribution by simulation and experiments**

D. Li\*; Z. Shen\*; 1. Stockholm University, Sweden

9:40 AM

**(ICACC-FS6-014-2015) Field Assisted Sintering of alumina-silica based materials**

M. Biesuz\*; V. Sglavo\*; 1. University of Trento, Italy

10:00 AM

Break

10:20 AM

**(ICACC-FS6-015-2015) Multi and Single-Mode Microwave Sintering for Field-Enhanced Texturing of Alumina**

R. E. Brennan\*; R. Pavlacka\*; C. Weiss Brennan\*; C. G. Fountzoulas\*; 1. US Army Research Laboratory, USA

10:40 AM

**(ICACC-FS6-016-2015) High Performance Tooling Materials for High Pressure and High Temperature Direct Current/Spark Plasma Sintering of Bulk Nano-Crystalline Materials**

L. S. Walker\*; 1. GT Advanced Technology, USA

11:00 AM

**(ICACC-FS6-017-2015) In situ time resolved EDXRD study on field assisted densification of Boron Carbide**

H. Bicer\*; E. K. Akdogan\*; B. Visser\*; I. Savkliyildiz\*; T. E. Ozdemir\*; W. A. Paxton\*; Z. Zhong\*; T. Tsakalakos\*; 1. Rutgers, The State University of New Jersey, USA; 2. University of Groningen, Netherlands; 3. Brookhaven National Laboratory, USA

11:20 AM

**(ICACC-FS6-018-2015) Combining wet chemistry synthesis routes and Spark Plasma Sintering to perform ferroelectric nanostructured ceramics**

C. Elissalde\*; G. PHILIPPOT\*; M. ALBINO\*; R. EPHERE\*; R. BERTHELOT\*; U. CHUNG\*; G. CHEVALLIER\*; A. WEIBEL\*; A. PEIGNEY\*; J. MAJIMEL\*; B. BASLY\*; S. MORNET\*; C. AYMONIER\*; M. MAGLIONE\*; C. ESTOURNES\*; 1. Université Bordeaux- ICMCB-CNRS, France; 2. Université Paul Sabatier- CIRIMAT-LCMIE, France



11:40 AM

**(ICACC-FS6-019-2015) Hybrid SPS-Hot Press Sintering of WC-based Hardmetals**P. A. Olubambi\*; T. G. Langa<sup>1</sup>; G. T. Motsi<sup>1</sup>; 1. Tshwane University of Technology, South Africa**2nd European Union - USA Engineering Ceramics Summit****Advanced Ceramic Technologies: Current Status and Future Prospects II**

Room: Coquina Salon F

Session Chairs: Girish Kale, University of Leeds; Alexander Michaelis, Fraunhofer IKTS

8:30 AM

**(ICACC-PRECS-008-2015) Future potential of advanced ceramics and contribution of Fraunhofer for technology transfer to industry (Invited)**

A. Michaelis\*; 1. Fraunhofer IKTS, Germany

9:00 AM

**(ICACC-PRECS-009-2015) Tiny Bubbles: Porous Wall Hollow Glass Microspheres (PWHGMs) in Energy, Environmental Remediation, Defense and Medicine (Invited)**

G. Wicks\*; 1. Wicks Consulting Services, LLC, USA

9:30 AM

**(ICACC-PRECS-010-2015) Metal Oxide Semiconductors for Energy Harvesting Applications (Invited)**

S. Mathur\*; 1. University of Cologne, Germany

10:00 AM

Break

10:20 AM

**(ICACC-PRECS-011-2015) Phase transformation and ac-electrical conductivity of  $\text{Ho}_2(\text{Zr}_x\text{Ti}_{1-x})_2\text{O}_7$  solid solution series (Invited)**G. Kale\*; M. Shafique<sup>2</sup>; S. Mudenda<sup>1</sup>; D. O'Carroll<sup>1</sup>; Y. Iqbal<sup>2</sup>; R. Ubcic<sup>3</sup>; 1. University of Leeds, United Kingdom; 2. University of Peshawar, Pakistan; 3. Boise State University, USA

10:50 AM

**(ICACC-PRECS-012-2015) Ceramics in Electrochemical Energy Conversion, Energy Storage and Fuel Synthesis (Invited)**

A. V. Virkar\*; 1. University of Utah, USA

11:20 AM

**(ICACC-PRECS-013-2015) Metal-Supported Polymer-Derived Ceramics for Hydrogen Generation (Invited)**S. Bernard\*; C. Salameh<sup>1</sup>; U. B. Demirci<sup>1</sup>; P. Miele<sup>1</sup>; 1. European Membrane Institute, France

11:50 AM

**(ICACC-PRECS-014-2015) Wettability and reactivity of refractory oxides in contact with liquid Ni alloys**R. Purgert\*; J. Sobczak<sup>2</sup>; N. Sobczak<sup>3</sup>; R. Asthana<sup>4</sup>; R. Nowak<sup>2</sup>; M. Homa<sup>2</sup>; G. Bruzda<sup>2</sup>; B. Korpala<sup>2</sup>; 1. Energy Industries of Ohio, USA; 2. Foundry Research Institute, Poland; 3. Motor Transport Institute, Poland; 4. University of Wisconsin-Stout, USA**4th Global Young Investigator Forum****Theoretical Modeling and Applications**

Room: Coquina Salon C

Session Chairs: Rumi Kitazawa, Japan Aerospace Exploration Agency; Mahmood Shirooyeh, University of Southern California

8:30 AM

**(ICACC-GYIF-012-2015) Computational Materials Science: Where Theory meets Experiment (Invited)**

D. E. Vanpoucke\*; 1. Ghent University, Belgium

8:50 AM

**(ICACC-GYIF-013-2015) Dynamical and Dielectric Properties of MP207 (M = Ti, Zr, and Hf): A First-Principles Investigation**H. Xiang\*; Y. Zhou<sup>1</sup>; Z. Feng<sup>1</sup>; 1. Aerospace Research Institute of Materials and Processing Technology, China

9:10 AM

**(ICACC-GYIF-014-2015) Synthesis of hollow silica spheres via sol-gel process in water-in-oil microemulsion medium and encapsulation of organic/inorganic materials with one-pot synthesis**M. Pyeon\*; T. Hwang<sup>2</sup>; S. Mathur<sup>1</sup>; 1. University of Cologne, Germany; 2. Korea Institute of Industrial Technology, Korea (the Republic of)

9:30 AM

**(ICACC-GYIF-015-2015) Feasibility of Sintering Carbide Ceramic by SPS technique under Pressureless Sintering Conditions**S. Kannan\*; S. J.K.<sup>1</sup>; M. T.S.R.Ch<sup>1</sup>; S. C<sup>1</sup>; H. R.C.<sup>1</sup>; 1. BHABHA ATOMIC RESEARCH CENTRE, India

9:50 AM

**(ICACC-GYIF-016-2015) Size dependent strain relaxation in GaN nanorods fabricated using Ni nanomasking and reactive ion etching: A top-down approach**A. Kumar\*; M. Latzel<sup>2</sup>; M. Heimann<sup>2</sup>; G. Sarau<sup>2</sup>; S. Christiansen<sup>2</sup>; V. Kumar<sup>1</sup>; R. Singh<sup>1</sup>; 1. Indian Institute of Technology Delhi, India; 2. Max Plank Institute for Science of Light, Germany

10:10 AM

Break

**Additive Manufacturing**

Room: Coquina Salon C

Session Chairs: Danny Vanpoucke, Ghent University; Valerie Wiesner, NASA Glenn Research Center

10:30 AM

**(ICACC-GYIF-017-2015) Engineering application of Menger sponge**

R. Kitazawa\*; 1. Japan Aerospace Exploration Agency, Japan

10:50 AM

**(ICACC-GYIF-018-2015) Characteristics of a Zirconia Ceramic Processed by the Additive Manufacturing Method of Contour Crafting (CC)**M. Vali\*; M. Shirooyeh<sup>1</sup>; A. Mansourighasri<sup>1</sup>; P. W. Rehrig<sup>2</sup>; O. Kwon<sup>2</sup>; B. Khoshnevis<sup>1</sup>; 1. University of Southern California, USA; 2. Saint-Gobain, USA

11:10 AM

**(ICACC-GYIF-019-2015) 3D Printing of Ceramic Suspension Gels (CeraSGels) to Produce Ceramic Components with Near-Net Shape Geometries**L. Rueschhoff\*; A. Diaz-Cano<sup>1</sup>; M. Michie<sup>1</sup>; V. L. Wiesner<sup>2</sup>; J. P. Youngblood<sup>1</sup>; R. W. Trice<sup>1</sup>; 1. Purdue University, USA; 2. NASA Glenn Research Center, USA

## S1: Mechanical Behavior and Performance of Ceramics & Composites

### Processing - Microstructure - Mechanical Properties Correlation II

Room: Coquina Salon D

Session Chair: Yanchun Zhou, Institute of Metal Research

**1:30 PM**

#### (ICACC-S1-022-2015) Theoretical Prediction and Experimental Investigation on the Thermal and Mechanical Properties of Bulk $\text{Yb}_2\text{SiO}_5$ and $\beta\text{-Yb}_2\text{Si}_2\text{O}_7$ (Invited)

Y. Zhou<sup>\*1</sup>; H. Xiang<sup>1</sup>; 1. Institute of Metal Research, China

**2:00 PM**

#### (ICACC-S1-023-2015) Comparative study on MAX-phase coatings produced by different thermal spray methods

D. Manitsas<sup>\*1</sup>; N. Markocsan<sup>1</sup>; C. Lyphout<sup>1</sup>; S. Björklund<sup>1</sup>; N. Curry<sup>1</sup>; 1. University West, Sweden

**2:20 PM**

#### (ICACC-S1-024-2015) Phase Transformation Study on $\beta$ -eucryptite

Y. Chen<sup>\*1</sup>; I. E. Reimanis<sup>1</sup>; 1. Colorado School of Mines, USA

**2:40 PM**

#### (ICACC-S1-025-2015) FIB milled micro-cantilever beams: A fracture toughness study of VACNT/ amorphous silicon nitride composites

S. Vasudevan<sup>\*1</sup>; A. Kothari<sup>1</sup>; X. Liang<sup>1</sup>; P. Loya<sup>2</sup>; Y. Yang<sup>2</sup>; J. Lou<sup>2</sup>; B. W. Sheldon<sup>1</sup>; 1. Brown University, USA; 2. Rice University, USA

**3:00 PM**

Break

**3:20 PM**

#### (ICACC-S1-026-2015) Graphene Oxide/Carbon Nanotube Hybrid Reinforced Alumina Nanocomposites with Improved Properties

B. Yazdani<sup>\*1</sup>; F. Xu<sup>2</sup>; Y. Xia<sup>1</sup>; Y. Zhu<sup>1</sup>; 1. University of Exeter, United Kingdom; 2. The University of Nottingham, United Kingdom

**3:40 PM**

#### (ICACC-S1-027-2015) Growth of SiC nanowires in porous substrates by low pressure CVI

Y. Liu<sup>\*1</sup>; J. Men<sup>2</sup>; L. Cheng<sup>2</sup>; Z. Shen<sup>1</sup>; L. Zhang<sup>2</sup>; 1. Stockholm University, Sweden; 2. Northwestern Polytechnical University, China

**4:00 PM**

#### (ICACC-S1-028-2015) Anisotropy of high thermal conductive AlN-graphen nanocomposites

D. Kata<sup>\*1</sup>; P. Rutkowski<sup>1</sup>; L. Jerzy<sup>1</sup>; 1. AGH University of Science and Technology, Poland

**4:20 PM**

#### (ICACC-S1-029-2015) Mechanical and optical behavior of non-stoichiometric magnesium aluminate spinel due to varied annealing times during processing

J. A. Miller<sup>\*1</sup>; I. E. Reimanis<sup>1</sup>; W. Miao<sup>2</sup>; 1. Colorado School of Mines, USA; 2. Corning Incorporated, USA

**4:40 PM**

#### (ICACC-S1-030-2015) Strategies for Laser Powered Heat Engines utilizing Refractories for Energy Conversion

J. Günster<sup>\*1</sup>; J. Lüchtenborg<sup>2</sup>; T. Mühler<sup>2</sup>; J. Melcher<sup>3</sup>; 1. BAM, Germany; 2. TU Clausthal, Germany; 3. German Aerospace Center DLR, Germany

## S2: Advanced Ceramic Coatings for Structural, Environmental, and Functional Applications

### Advanced Thermal Barrier Coatings: Processing and Development

Room: Coquina Salon G

Session Chairs: Douglas Wolfe, Pennsylvania State University; Eric Jordan, Birla Carbon

**1:30 PM**

#### (ICACC-S2-001-2015) Development and Commercialization of Solution Precursor Plasma Spray Thermal Barrier Coatings (Invited)

M. Gell<sup>\*1</sup>; E. H. Jordan<sup>1</sup>; J. Roth<sup>1</sup>; R. Kumar<sup>1</sup>; B. Nair<sup>2</sup>; J. Wang<sup>2</sup>; 1. University of Connecticut, USA; 2. HiFunda LLC, USA

**2:00 PM**

#### (ICACC-S2-002-2015) TBC Life Prediction in the Face of Non simple temperature time histories

E. H. Jordan<sup>\*1</sup>; N. Patel<sup>1</sup>; 1. University of Connecticut, USA

**2:20 PM**

#### (ICACC-S2-003-2015) Change in Structure and Thermal Conductivity of $(\text{La}_{1-x}\text{Gd}_x)_2\text{Zr}_2\text{O}_7$ TBCs Fabricated by Suspension Plasma Spray after Heat Treatment

S. Kim<sup>\*1</sup>; C. KWON<sup>1</sup>; Y. OH<sup>1</sup>; S. LEE<sup>1</sup>; H. KIM<sup>1</sup>; B. JANG<sup>2</sup>; 1. Korea Institute of Ceramic Engineering and Technology, Korea (the Republic of); 2. National Institute of Materials Science, Japan

**2:40 PM**

#### (ICACC-S2-004-2015) Engineered Multilayered Multimaterial Thermal Barrier Coatings for Enhanced Durability and Functionality

V. Viswanathan<sup>\*1</sup>; G. Dwivedi<sup>1</sup>; S. Sampath<sup>1</sup>; 1. Center for Thermal Spray Research, Stony Brook University, USA

**3:00 PM**

Break

**3:20 PM**

#### (ICACC-S2-005-2015) Enhancing Toughness of Thermal Barrier Coating (TBC) Materials via Lattice Modification and Secondary Phases

M. P. Schmitt<sup>\*1</sup>; A. K. Rai<sup>2</sup>; R. Bhattacharya<sup>3</sup>; D. Zhu<sup>4</sup>; D. E. Wolfe<sup>2</sup>; 1. The Pennsylvania State University, USA; 2. The Pennsylvania State University, USA; 3. UES Inc., USA; 4. NASA Glenn Research Center, USA

**3:40 PM**

#### (ICACC-S2-006-2015) Enhancing the contribution of ferroelastic toughening via morphological synergy

J. A. Krogstad<sup>\*1</sup>; 1. University of Illinois Urbana Champaign, USA

**4:00 PM**

#### (ICACC-S2-007-2015) Isothermal Oxidation of $\beta\text{NiAl}$ Bond Coat Deposited onto CMSX-4 Superalloy for Thermal Barrier Applications

A. D. Chandio<sup>\*1</sup>; X. Zhao<sup>2</sup>; Y. Chen<sup>1</sup>; P. Xiao<sup>1</sup>; 1. The University of Manchester, United Kingdom; 2. Shanghai Jiao Tong University, China

**4:20 PM**

#### (ICACC-S2-008-2015) Atomic Scale Observations of Oxide in Thermal Barrier Coatings

M. Bai<sup>\*1</sup>; Y. Chen<sup>1</sup>; A. D. Chandio<sup>1</sup>; P. Xiao<sup>1</sup>; 1. University of Manchester, United Kingdom

### S3: 12th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology

#### Interconnects and Coatings

Room: Crystal

Session Chairs: Prabhakar Singh; Scott Barnett, Northwestern University

**1:30 PM**

#### (ICACC-S3-016-2015) Chemical and microstructural investigations for chromium transport in intermediate temperature solid oxide electrolysis cells (Invited)

U. F. Vogt\*; J. Kim<sup>1</sup>; A. Brevet<sup>2</sup>; C. Rado<sup>2</sup>; K. Couturier<sup>2</sup>; F. Lefebvre-Joud<sup>2</sup>; A. Zuetzel<sup>3</sup>; 1. Empa, Switzerland; 2. CEA, France; 3. EPFL, Switzerland

**2:00 PM**

#### (ICACC-S3-017-2015) Electrical and Microstructural Evolutions of La<sub>0.67</sub>Sr<sub>0.33</sub>MnO<sub>3</sub> Coated Ferritic Stainless Steels after Long-term Aging at 800°C

C. Liu\*; P. Yang<sup>1</sup>; W. Shong<sup>1</sup>; R. Lee<sup>1</sup>; J. Wu<sup>1</sup>; 1. Institute of Nuclear Energy Research, Taiwan

**2:20 PM**

#### (ICACC-S3-018-2015) Long-term Validation of Surface Treatment of AISI441 Interconnect for SOFC Applications in a Generic Stack Fixture Test

Y. Chou\*; J. Choi<sup>1</sup>; J. Stevenson<sup>1</sup>; E. Stephens<sup>1</sup>; 1. Pacific Northwest National Lab, USA

**2:40 PM**

#### (ICACC-S3-019-2015) Process Dependent Microstructure and Electrical/Protective Performances of Plasma Sprayed MCO Coatings in SOFCs

S. Han\*; R. Seshadri<sup>1</sup>; Y. Chen<sup>1</sup>; R. Gambino<sup>1</sup>; S. Sampath<sup>1</sup>; 1. Stony Brook University, USA

**3:00 PM**

Break

**3:20 PM**

#### (ICACC-S3-020-2015) Development of Cost-Effective YSZ Coating Methods for SOFC Interconnects

C. Kim\*; R. K. Brow<sup>2</sup>; F. Dogan<sup>2</sup>; 1. MO-SCI Corporation, USA; 2. Missouri University of Science and Technology, USA

**3:40 PM**

#### (ICACC-S3-021-2015) NTN Composite Interconnect for SOFC

A. Malakhov\*; S. McPhail<sup>2</sup>; S. Somov<sup>1</sup>; 1. Solid Cell Inc, USA; 2. ENEA, Italy

**4:00 PM**

#### (ICACC-S3-022-2015) Sintering, Mechanical, Electrical and Oxidation Properties of Ceramic Intermetallic TiC-Ti<sub>3</sub>Al Composites from Nano-TiC Particles

Z. Fu\*; K. Mondal<sup>1</sup>; R. Koc<sup>1</sup>; 1. Southern Illinois University Carbondale, USA

**4:20 PM**

#### (ICACC-S3-023-2015) Advanced metallic alloy design for SOFC interconnect application

C. Hsu\*; A. Yeh<sup>2</sup>; 1. National Tsing Hua University, Taiwan; 2. National Tsing Hua University, Taiwan

### S4: Armor Ceramics: Challenges and New Developments

#### Synthesis and Processing II

Room: Coquina Salon E

Session Chair: Kris Behler, ARL; Jerry LaSalvia, ARL

**1:20 PM**

#### (ICACC-S4-020-2015) Bulk Silicon doped Boron Carbide

C. Besnard\*; P. Brown<sup>2</sup>; F. Giuliani<sup>3</sup>; L. J. Vandeperre<sup>1</sup>; 1. Imperial College London, United Kingdom; 2. Defence Science and Technology Laboratory Porton Down, United Kingdom; 3. Imperial College London, United Kingdom

**1:40 PM**

#### (ICACC-S4-021-2015) Synthesis and Processing of Boron-Rich Boron Carbide

T. Munhollon\*; R. Haber<sup>1</sup>; W. Rafaniello<sup>1</sup>; 1. Rutgers University, USA

**2:00 PM**

#### (ICACC-S4-022-2015) Densification and Microstructure of Boron Carbide with Al- and Si-Based Additives

K. D. Behler\*; D. A. Manoukian<sup>1</sup>; A. Z. Hutchinson<sup>1</sup>; J. LaSalvia<sup>1</sup>; 1. U.S. Army Research Laboratory, USA

**2:20 PM**

#### (ICACC-S4-023-2015) Optimization of Water Based Boron Carbide Suspensions Gels for Room-Temperature Injection Molding to Produce Complex-shaped Armor Components

A. Diaz-Cano\*; J. P. Youngblood<sup>1</sup>; R. W. Trice<sup>1</sup>; 1. Purdue University, USA

**2:40 PM**

#### (ICACC-S4-024-2015) Synthesis and Crystallization Behavior of Amorphous Boron Nitride

M. Ornek\*; C. Hwang<sup>1</sup>; R. A. Haber<sup>1</sup>; 1. Rutgers University, USA

**3:00 PM**

Break

**3:20 PM**

#### (ICACC-S4-025-2015) c-BN seeding effect on the phase transition of $\alpha$ -BN(OC) compounds

C. Hwang\*; M. Ornek<sup>1</sup>; V. Domnich<sup>1</sup>; W. Mayo<sup>2</sup>; S. Miller<sup>2</sup>; R. Haber<sup>1</sup>; K. Reddy<sup>3</sup>; K. Hemker<sup>3</sup>; 1. Rutgers University, USA; 2. H&M Analytical Services, Inc., USA; 3. Johns Hopkins University, USA

**3:40 PM**

#### (ICACC-S4-026-2015) Influence of Powder Oxygen Content on Silicon Carbide Microstructure and Properties

V. DeLucca\*; R. A. Haber<sup>1</sup>; 1. Rutgers University, USA

**4:00 PM**

#### (ICACC-S4-027-2015) An investigation of Fe-B-C composites produced using spark plasma sintering

P. P. Rokebrand\*; I. Sigalas<sup>1</sup>; M. Herrmann<sup>2</sup>; 1. University of the Witwatersrand, South Africa; 2. Fraunhofer - Institute of Ceramic Technologies and Systems (IKTS), Germany

**4:20 PM**

#### (ICACC-S4-028-2015) Densification of Boron Carbide by SPS and Comparison Properties with Hot Pressed Boron Carbide

M. F. Toksoy\*; R. A. Haber<sup>1</sup>; W. Rafaniello<sup>1</sup>; 1. Rutgers University, USA

**4:40 PM**

#### (ICACC-S4-029-2015) Synthesis and spark plasma sintering of tantalum carbide/boride powder

B. Mehdikhani\*; G. Borhani<sup>1</sup>; S. Bakhshi<sup>1</sup>; 1. Malek-e-ashtar University of Technology, Iran (the Islamic Republic of)

## S6: Advanced Materials and Technologies for Energy Generation, Conversion, and Rechargeable Energy Storage

### Energy Harvesting and Storage

Room: Tomoka A

Session Chairs: Hua-Tay Lin, Guangdong University of Technology; Ryoji Funahashi, National Institute of Advanced Industrial Science & Technology

**1:30 PM**

#### (ICACC-S6-018-2015) Development and application of oxide and silicide thermoelectric modules (Invited)

R. Funahashi<sup>\*</sup>; Y. Matsumura<sup>1</sup>; R. O. Suzuki<sup>2</sup>; S. Katsuyama<sup>3</sup>; T. Takeuchi<sup>1</sup>; E. Combe<sup>1</sup>; T. Barbier<sup>1</sup>; 1. National Institute of Advanced Industrial Science & Technology, Japan; 2. Hokkaido University, Japan; 3. Osaka University, Japan

**2:00 PM**

#### (ICACC-S6-019-2015) Quest for Higher Performance Thermoelectric Materials via Defect Engineering (Invited)

J. He<sup>\*</sup>; T. M. Tritt<sup>1</sup>; 1. Clemson University, USA

**2:30 PM**

#### (ICACC-S6-020-2015) Novel Materials for Thermoelectric Applications via Collaborative Theoretical and Experimental Studies (Invited)

L. M. Woods<sup>\*</sup>; G. Nolas<sup>1</sup>; 1. University of South Florida, USA

**3:00 PM**

Break

**3:20 PM**

#### (ICACC-S6-021-2015) Thermoelectric and structural modifications induced by the cation substitution on the new thermoelectric system Mn<sub>3-x</sub>CrxSi<sub>4</sub>Al<sub>2</sub>

T. Barbier<sup>\*</sup>; R. Funahashi<sup>1</sup>; E. Combe<sup>1</sup>; R. O. Suzuki<sup>2</sup>; E. Guilmeau<sup>3</sup>; T. Takeuchi<sup>1</sup>; 1. AIST, Japan; 2. Hokkaido University, Japan; 3. CRISMAT, France

**3:40 PM**

#### (ICACC-S6-022-2015) Bandgap Engineering of Fe-doped (Bi<sub>1/2</sub>Na<sub>1/2</sub>)TiO<sub>3</sub>-0.06BaTiO<sub>3</sub> ferroelectric ceramics for photovoltaic applications

L. Chen<sup>\*</sup>; J. Hart<sup>1</sup>; S. Li<sup>1</sup>; D. Y. Wang<sup>1</sup>; 1. University of New South Wales, Australia

**4:00 PM**

#### (ICACC-S6-023-2015) The CuO/Co<sub>3</sub>O<sub>4</sub> system as thermochemical storage material

T. Block<sup>\*</sup>; H. Simon<sup>1</sup>; M. Schmücker<sup>1</sup>; 1. DLR, Germany

**4:20 PM**

#### (ICACC-S6-024-2015) Realizing high thermoelectric figure of merit bulk nanomaterials through directed nanostructure synthesis, assembly and doping (Invited)

G. Ramanath<sup>\*</sup>; R. J. Mehta<sup>1</sup>; D. Devender<sup>1</sup>; T. Cardinal<sup>1</sup>; A. Gaul<sup>2</sup>; T. Borca-Tasciuc<sup>2</sup>; 1. Rensselaer Polytechnic Institute, USA; 2. Rensselaer Polytechnic Institute, USA

## S7: 9th International Symposium on Nanostructured Materials: Innovative Synthesis and Processing of Nanostructured, Nanocomposite and Hybrid Functional Materials for Energy, Health and Sustainability

### One-dimensional Nanostructures for Energy Applications

Room: Coquina Salon B

Session Chairs: Alberto Vomiero, Institute of Metal Research; Alessandro Martucci, Università di Padova

**1:30 PM**

#### (ICACC-S7-009-2015) Physicochemical Interplay in Electrode Processing for Energy Storage (Invited)

P. P. Mukherjee<sup>\*</sup>; Z. Liu<sup>1</sup>; 1. Texas A&M University, USA

**2:00 PM**

#### (ICACC-S7-010-2015) Synthesis and characterization of silicon nitride nanowires

Y. Chung<sup>\*</sup>; J. Koo<sup>2</sup>; S. Kim<sup>2</sup>; E. Chi<sup>2</sup>; J. Hahn<sup>2</sup>; C. Park<sup>1</sup>; 1. Seoul National University, Korea (the Republic of); 2. OCI company Ltd., Korea (the Republic of)

**2:20 PM**

#### (ICACC-S7-011-2015) Enhanced critical currents by flux pinning by 1D nanostructures in superconducting tapes

V. Selvamanickam<sup>\*</sup>; 1. University of Houston, USA

**2:40 PM**

#### (ICACC-S7-012-2015) Electrospinning of Composite Nanofibers and Their Applications

M. Bueyuekyazi<sup>\*</sup>; R. Mueller<sup>1</sup>; S. Mathur<sup>1</sup>; 1. University of Cologne, Germany

**3:00 PM**

Break

### Nanostructures Thin-films and Composites for Energy Applications

Room: Coquina Salon B

Session Chairs: Partha Mukherjee, Texas A&M University; Venkat Selvamanickam, University of Houston

**3:20 PM**

#### (ICACC-S7-013-2015) Synthesis and characterization of ZnO nanostructures/graphene oxide composites and its application in devices (Invited)

H. P. Nogueira<sup>1</sup>; N. V. Dias<sup>1</sup>; N. T. Azana<sup>1</sup>; P. J. Shieh<sup>1</sup>; T. Mazon<sup>\*</sup>; 1. Center for Information Technology Renato Archer, Brazil

**3:50 PM**

#### (ICACC-S7-014-2015) Exciton dynamics in quantum dots / metal oxide semiconductor composites

A. Vomiero<sup>\*</sup>; 1. CNR, Italy

**4:10 PM**

#### (ICACC-S7-015-2015) Nanostructured thin films from nanocrystalline inks (Invited)

A. Martucci<sup>\*</sup>; 1. Università di Padova, Italy

**4:40 PM**

#### (ICACC-S7-016-2015) ZnO/WO<sub>3</sub> Bi-layered Thin Films for Efficient Solar Water Splitting

S. Sharma<sup>\*</sup>; B. Kumari<sup>1</sup>; A. Verma<sup>1</sup>; V. R. Satsangi<sup>2</sup>; S. D. Kaura<sup>1</sup>; R. Shrivastav<sup>1</sup>; 1. Dayalbagh Educational Institute, India; 2. Dayalbagh Educational Institute, India



## S8: 9th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT9)

### Novel Ceramic Processing III

Room: Coquina Salon A

Session Chairs: Eugene Medvedovski, Endurance Technologies Inc.; Yiquan Wu, Alfred University

**1:30 PM**

#### (ICACC-S8-020-2015) Colloidal processing of ceramic oxides containing carbon nanodispersoids (Invited)

A. Rincón<sup>1</sup>; V. Carrillo<sup>1</sup>; A. S. Chinelatto<sup>2</sup>; M. Nieto<sup>1</sup>; R. Moreno<sup>\*</sup>; 1. Institute of Ceramics and Glass-CSIC, Spain; 2. Universidade Estadual de Ponta Grossa, Brazil

**2:00 PM**

#### (ICACC-S8-021-2015) Consolidation and conversion of powders by RCVI

O. Ledain<sup>1</sup>; S. Jacques<sup>\*</sup>; L. Maille<sup>2</sup>; 1. CNRS, France; 2. University of Bordeaux, France

**2:20 PM**

#### (ICACC-S8-022-2015) Spectroscopic properties of (Mn,Nd) co-doped zinc sulfide powder

Y. Li<sup>\*</sup>; Y. Wu<sup>1</sup>; 1. Alfred University, USA

**2:40 PM**

#### (ICACC-S8-023-2015) Fabrication of Si<sub>3</sub>N<sub>4</sub> ceramics by post-reaction sintering using Si-Y<sub>2</sub>O<sub>3</sub>-Al<sub>2</sub>O<sub>3</sub> nanocomposite particles prepared by mechanical treatment

K. Jeong<sup>\*</sup>; J. Tatami<sup>1</sup>; M. Iijima<sup>1</sup>; T. Takahashi<sup>2</sup>; 1. Yokohama National University, Japan; 2. Kanagawa Academy of Science and Technology, Japan

**3:00 PM**

**Break**

15:00 - 15:20

**3:20 PM**

#### (ICACC-S8-024-2015) Synthesis of superconducting MgB<sub>2</sub> nanopowder

N. Bansal<sup>\*</sup>; J. Goldsby<sup>1</sup>; R. B. Rogers<sup>1</sup>; M. A. Susner<sup>2</sup>; M. D. Sumpston<sup>2</sup>; 1. NASA Glenn Research Center, USA; 2. The Ohio State University, USA

**3:40 PM**

#### (ICACC-S8-025-2015) Synthesis of nano structural WC-Co powders from water soluble precursors: effects of tungsten source and synthesis atmosphere on chemical and phase structure evolutions

U. Kanerva<sup>1</sup>; M. Karhu<sup>\*</sup>; J. Lagerbom<sup>1</sup>; A. Kronlöf<sup>1</sup>; E. Turunen<sup>1</sup>; 1. VTT, Finland

**4:00 PM**

#### (ICACC-S8-026-2015) Facile Hydrothermal Synthesis of Sub-10 nm Ultrafine BaTiO<sub>3</sub> Nanopowder

C. Baek<sup>\*</sup>; S. Moon<sup>1</sup>; K. Park<sup>1</sup>; C. Choi<sup>2</sup>; D. Kim<sup>1</sup>; 1. Korea Advanced Institute of Science and Technology, Korea (the Republic of); 2. Samsung Electro-Mechanics, Korea (the Republic of)

**4:20 PM**

#### (ICACC-S8-027-2015) Novel Ti<sub>3</sub>SiC<sub>2</sub> Reinforced Metal Matrix Multifunctional Materials

R. Johnson<sup>1</sup>; T. Hammann<sup>1</sup>; S. Gupta<sup>\*</sup>; 1. University of North Dakota, USA

**4:40 PM**

#### (ICACC-S8-028-2015) Synthesis of high purity SiC powders by a carbothermal reduction using a SiO<sub>2</sub>-C hybrid precursor fabricated by a sol-gel process

M. Youm<sup>\*</sup>; S. Youn<sup>1</sup>; S. Park<sup>1</sup>; 1. Korea Institute of Science and Technology, Korea (the Republic of)

## S9: Porous Ceramics: Novel Developments and Applications

### Innovations in Processing Methods and Synthesis of Porous Ceramics I

Room: Coquina Salon H

Session Chair: Paolo Colombo, University of Padova

**1:30 PM**

#### (ICACC-S9-001-2015) Monolithic porous silsesquioxanes and ceramic derivatives from sol-gel chemistry and carbothermal reduction (Invited)

K. Kanamori<sup>\*</sup>; 1. Kyoto University, Japan

**2:00 PM**

#### (ICACC-S9-002-2015) Microcapsules from pickering emulsions stabilized by clay particles

G. Lecomte<sup>\*2</sup>; V. Niknam<sup>2</sup>; A. Aimable<sup>3</sup>; M. Bienia<sup>3</sup>; D. Kpogbemabou<sup>2</sup>; J. Robert-Arnouil<sup>1</sup>; A. Lajmi<sup>2</sup>; 1. ENSCI, France; 2. ENSCI, France; 3. ENSCI, France

**2:20 PM**

#### (ICACC-S9-003-2015) Fabrication of ceramic preforms with channels aligned in multiple directions

E. Hammel<sup>\*</sup>; O. I. Okoli<sup>1</sup>; 1. Florida State University, USA

**2:40 PM**

#### (ICACC-S9-004-2015) Effect of microstructure on thermal conductivity and compressive strength of thermal insulators prepared by gelation freezing method

M. Fukushima<sup>\*</sup>; T. Ohji<sup>1</sup>; Y. Yoshizawa<sup>1</sup>; 1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

**3:00 PM**

**Break**

### Membranes and High SSA Ceramics I

Room: Coquina Salon H

Session Chair: Gian Domenico Soraru, University of Trento

**3:20 PM**

#### (ICACC-S9-005-2015) Design of pores in inorganic membranes for efficient separation of liquids and gases (Invited)

I. Voigt<sup>\*</sup>; 1. Fraunhofer Institute for Ceramic Technology and Systems IKTS, Germany

**3:50 PM**

#### (ICACC-S9-006-2015) Thermally stable organosilica membranes derived by in-situ hydrosilylation for gas separation at high temperatures

M. Kanazashi<sup>\*</sup>; H. Sazaki<sup>1</sup>; H. Nagasawa<sup>1</sup>; T. Yoshioka<sup>1</sup>; T. Tsuru<sup>1</sup>; 1. Hiroshima University, Japan

**4:10 PM**

#### (ICACC-S9-007-2015) Improved OTM mechanical properties controlling pore architecture

J. Seuba Torreblanca<sup>\*</sup>; C. Guizard<sup>1</sup>; A. J. Stevenson<sup>2</sup>; 1. CNRS, France; 2. Saint Gobain, France

**4:30 PM**

#### (ICACC-S9-008-2015) Synthesis and characterization of amorphous silica-based inorganic-organic hybrid materials for CO<sub>2</sub>-selective ceramic-based porous membranes

Z. Mouline<sup>\*</sup>; K. ASAI<sup>1</sup>; T. ONISHI<sup>1</sup>; Y. DAIKO<sup>1</sup>; S. Honda<sup>1</sup>; Y. Iwamoto<sup>1</sup>; 1. Nagoya Institute of Technology, Japan

## S12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nano-laminated Ternary Carbides and Nitrides (MAX Phases)

### Materials Design, New Composition and Composites II

Room: Ponce DeLeon

Session Chair: Bai Cui, University of Nebraska–Lincoln

**1:30 PM**

#### (ICACC-S12-020-2015) A novel Ti<sub>3</sub>AlC<sub>2</sub>-derived composite with unexpectedly excellent wear resistance and anomalous flexural strength (Invited)

X. Wang\*; H. Zhang<sup>1</sup>; Z. Li<sup>1</sup>; M. Liu<sup>1</sup>; Y. Zhou<sup>2</sup>; 1. Institute of Metal Research, China; 2. Science and Technology of Advanced Functional Composite Laboratory, ARIMPT, China

**2:00 PM**

#### (ICACC-S12-021-2015) An Infiltration Approach for Producing High-Performance Metal/MAX Phase Composites with Customizable Microstructures

L. Hu\*; M. O'Neil<sup>2</sup>; V. Erturun<sup>3</sup>; R. Benitez<sup>2</sup>; G. Proust<sup>4</sup>; I. Karaman<sup>1</sup>; M. Radovic<sup>1</sup>; 1. Texas A&M University, USA; 2. Texas A&M University, USA; 3. Erciyes University, Turkey; 4. University of Sydney, Australia

**2:20 PM**

#### (ICACC-S12-022-2015) Structure characterization, formation mechanism and thermal stability of (Cr<sub>2</sub>/3Ti<sub>1</sub>/3)AlC<sub>2</sub>

Z. Liu\*; M. Li<sup>1</sup>; Y. Qian<sup>1</sup>; J. Wang<sup>1</sup>; E. Wu<sup>1</sup>; L. Zheng<sup>1</sup>; 1. Institute of Metal Research, China

**2:40 PM**

#### (ICACC-S12-023-2015) Interaction of selected MAX Phases with pyrolytic carbon and silicon carbide

G. Bentzel\*; M. W. Barsoum<sup>1</sup>; 1. Drexel University, USA

**3:00 PM**

Break

## Methods for Improving Damage Tolerance, Oxidation and Thermal Shock Resistance

Room: Ponce DeLeon

Session Chair: William Fahrenholtz, Missouri University of S & T

**3:20 PM**

#### (ICACC-S12-024-2015) Alumina-Forming MAX Phases in Turbine Material Systems (Invited)

J. L. Smialek\*; B. J. Harder<sup>1</sup>; A. Garg<sup>1</sup>; J. A. Nesbitt<sup>1</sup>; 1. NASA Glenn Research Center, USA

**3:40 PM**

#### (ICACC-S12-025-2015) Stress Generation in Oxide Scale during High-Temperature Oxidation of Ti<sub>2</sub>AlC Ceramics

B. Cui\*; W. E. Lee<sup>2</sup>; 1. University of Nebraska–Lincoln, USA; 2. Imperial College London, United Kingdom

**4:00 PM**

#### (ICACC-S12-026-2015) Contact Damage Characterisation of Composite Zirconium Diboride Ceramics using Vickers Indentation, Hertzian Indentation and Drop-Weight Testing

J. Wade\*; M. Xiang<sup>1</sup>; H. Wu<sup>1</sup>; H. Liu<sup>2</sup>; J. Liu<sup>2</sup>; G. Zhang<sup>2</sup>; 1. Loughborough University, United Kingdom; 2. Shanghai Institute of Ceramics, China

**4:20 PM**

#### (ICACC-S12-027-2015) Effect of hyperthermal, plasma, and thermal oxygen beams on oxidation behavior of ultra-high temperature ceramics at low temperatures

M. Miller-Oana\*; W. Pinc<sup>1</sup>; L. Walker<sup>1</sup>; V. Murray<sup>2</sup>; T. Woodburn<sup>2</sup>; T. Minton<sup>2</sup>; E. L. Corral<sup>1</sup>; 1. University of Arizona, USA; 2. Montana State University, USA

**4:40 PM**

#### (ICACC-S12-028-2015) Dynamic non-equilibrium thermal gravimetric analysis of the isothermal oxidation behavior of ultra-high temperature ceramics

M. Miller-Oana\*; L. S. Walker<sup>1</sup>; E. Corral<sup>1</sup>; 1. University of Arizona, USA

## S13: International Symposium on Advanced Ceramics and Composites for Sustainable Nuclear Energy and Fusion Energy

### Joining Technology for Nuclear Ceramics II

Room: Tomoka B

Session Chair: Charles Henager, Pacific Northwest National Lab

**1:30 PM**

#### (ICACC-S13-019-2015) Precursor Derived Composite Ceramic Joints for Ceramics and Ceramic Matrix Composites (Invited)

R. K. Bordia\*; M. M. Stackpoole<sup>2</sup>; K. Wang<sup>3</sup>; 1. Clemson University, USA; 2. NASA Ames Research Center, USA; 3. University of Washington, USA

**2:00 PM**

#### (ICACC-S13-020-2015) Pressure-less joining of silicon carbide based components (Invited)

M. Ferraris\*; M. Salvo<sup>1</sup>; V. Casalegno<sup>1</sup>; S. Rizzo<sup>1</sup>; M. Reece<sup>2</sup>; S. Grasso<sup>2</sup>; P. Tatarko<sup>2</sup>; 1. Politecnico di Torino, Italy; 2. Nanoforce Technology, United Kingdom

**2:20 PM**

#### (ICACC-S13-021-2015) Silicon carbide joints formed by pressureless transient eutectic-phase process

T. Koyanagi\*; J. Kiggans<sup>1</sup>; Y. Katoh<sup>1</sup>; 1. Oak Ridge National Laboratory, USA

**2:40 PM**

#### (ICACC-S13-022-2015) Reactive Surface Wetting Method For Joining Select Fusion Candidate Materials

G. Vasudevamurthy\*; Y. H. Abdelmoaty<sup>1</sup>; C. Massey<sup>1</sup>; A. Morgan<sup>1</sup>; 1. Virginia Commonwealth University, USA

**3:00 PM**

Break

## Accident Tolerant Nuclear Fuels

Room: Tomoka B

Session Chair: Gokul Vasudevamurthy, Virginia Commonwealth University

**3:20 PM**

#### (ICACC-S13-023-2015) Compatibility in Advanced/Accident Tolerant Nuclear Fuels (Invited)

T. M. Besmann\*; S. Voit<sup>2</sup>; 1. Oak Ridge National Laboratory, USA; 2. Oak Ridge National Laboratory, USA

**3:50 PM**

#### (ICACC-S13-024-2015) Enhanced Thermal Conductivity of Uranium Dioxide-Diamond Composite Fuel

Z. Chen\*; G. Subhash<sup>1</sup>; J. S. Tulenko<sup>2</sup>; 1. University of Florida, USA; 2. University of Florida, USA

**4:10 PM**

#### (ICACC-S13-025-2015) Batch Processing of Accident Tolerant Composite UO<sub>2</sub> Fuel Fabricated by Spark Plasma Sintering

J. A. Kuntawala\*; G. Subhash<sup>2</sup>; J. S. Tulenko<sup>1</sup>; 1. University of Florida, USA; 2. University of Florida, USA

**4:30 PM**

#### (ICACC-S13-026-2015) Structural and Mechanical Properties of Multiphase Oxide Ceramics as Model Composites for Nuclear Fuel

M. Mecartney\*; 1. UC Irvine, USA

4:50 PM

**(ICACC-S13-027-2015) Evaluation of Novel Composite Nuclear Fuels for Light Water Reactor Applications**

J. T. White\*; A. T. Nelson; J. T. Dunwoody; D. D. Byler; K. J. McClellan; 1. Los Alamos National Laboratory, USA

**FS1: Geopolymers, Chemically Bonded Ceramics, Eco-friendly and Sustainable Materials****Composites II and Conversion to Ceramics I**

Room: Oceanview

Session Chairs: Henry Colorado, Universidad de Antioquia; Dinesh Medpelli, Arizona State University

1:30 PM

**(ICACC-FS1-007-2015) Microstructures, mechanical properties and electrical and thermal conductivities of graphene nanoplatelet-reinforced, potassium geopolymer**

S. Cho\*; T. A. Carlson; C. Marsh; W. M. Kriven; 1. University of Illinois at Urbana-Champaign, USA; 2. US Army Engineering Research and Development Center (ERDC) – Construction Engineering Research Laboratory (CERL), USA; 3. University of Illinois at Urbana-Champaign, USA

1:50 PM

**(ICACC-FS1-008-2015) Ceramic Felt Reinforced Geopolymer Composites**

E. Koehler\*; W. M. Kriven; 1. University of Illinois at Urbana Champaign, USA

2:10 PM

**(ICACC-FS1-009-2015) Green Composite: Potassium Geopolymer Reinforced with Curaua Fibers**

K. Sankar\*; W. M. Kriven; 1. University of Illinois at Urbana-Champaign, USA

2:30 PM

**(ICACC-FS1-010-2015) Green Composite: Sodium Geopolymer Reinforced with Malva Fibers**

K. Sankar\*; W. M. Kriven; R. K. Vieira; 1. University of Illinois at Urbana-Champaign, USA; 2. Federal University of the Amazonas, Brazil

2:50 PM

Break

3:10 PM

**(ICACC-FS1-011-2015) Portland Cement-reinforced with luffa fibers**

H. A. Colorado\*; S. A. Colorado; J. M. Velez; 1. Universidad de Antioquia, Colombia; 2. Instituto Tecnológico Metropolitano, Colombia; 3. Universidad Nacional de Colombia, Colombia

3:30 PM

**(ICACC-FS1-012-2015) Sodium Geopolymer Reinforced with Cordgrass Fibers**

D. S. Roper\*; K. Sankar; J. Crawford; D. Lee; W. M. Kriven; 1. University of Illinois at Urbana-Champaign, USA; 2. University of Illinois at Urbana-Champaign, USA; 3. University of Illinois at Urbana-Champaign, USA

3:50 PM

**(ICACC-FS1-013-2015) Influence of halloysite nanotubes on the microstructure and mechanical resistance of textured ceramic substrates shaped by tape-casting (Invited)**

N. Houta\*; G. Lecomte; N. Tessier-Doyen; C. Peyratout; 1. GEMH-CEC, France

**FS5: Single Crystalline Materials for Electrical, Optical and Medical Applications****Semiconductor II**

Room: Tomoka C

Session Chair: Koichi Kakimoto, RIAM

1:30 PM

**(ICACC-FS5-015-2015) Preparation and properties of bulk aluminum nitride (AlN) crystals and substrates (Invited)**

M. Bickermann\*; 1. Leibniz Institute for Crystal Growth (IKZ) Berlin, Germany

2:00 PM

**(ICACC-FS5-016-2015) Development of single-crystal AlN for high performance, ultraviolet (UVC) LEDs (Invited)**

L. J. Schowalter\*; 1. Crystal IS, USA

2:30 PM

**(ICACC-FS5-017-2015) New Challenges for Transparent Conducting and Semiconducting Oxides (Invited)**

E. M. Fortunato\*; R. F. Martins; 1. FCT-UNL, Portugal

3:00 PM

Break

**Ferro/piezo-electric I**

Room: Tomoka C

Session Chair: Mario Maglione, ICMCB-CNRS

3:20 PM

**(ICACC-FS5-018-2015) Materials Design for Enhancing Piezoelectric Properties of High-Quality Bi-based Ferroelectric Single Crystals (Invited)**

Y. Noguchi\*; M. Ogino; K. Hirano; Y. Kitanaka; M. Miyayama; Y. Yoshida; T. Ishigaki; 1. The University of Tokyo, Japan; 2. Ibaraki University, Japan

3:50 PM

**(ICACC-FS5-019-2015) Piezoelectric single crystals excluding polar axis for high temperature sensor application (Invited)**

H. Takeda\*; K. YOSHIDA; M. HAGIWARA; T. HOSHINA; S. FUJIHARA; T. TSURUMI; 1. Tokyo Institute of Technology, Japan; 2. Keio University, Japan

4:20 PM

**(ICACC-FS5-020-2015) Application of Langasite Family Crystals in Piezoelectric Devices (Invited)**

A. Medvedev\*; S. Sakharov; A. Zabelin; O. Buzanov; V. Alenkov; 1. OAO "Fomos-Materials", Russian Federation

**2nd European Union - USA Engineering Ceramics Summit****Advanced Ceramic Technologies: Current Status and Future Prospects III**

Room: Coquina Salon F

Session Chairs: Pavol Sajgalik, Institute of Inorganic Chemistry; Surojit Gupta, University of North Dakota

1:30 PM

**(ICACC-PRECS-015-2015) Advanced Ceramics for Automotive Industry (Invited)**

M. J. Hoffmann\*; 1. Karlsruhe Institute of Technology (KIT), Germany

2:00 PM

**(ICACC-PRECS-016-2015) Processing of graded ceramic-metal composites for functional applications (Invited)**

F. Cambier\*; D. Hautcoeur; S. Hocquet; Y. Lorguilloux; A. L. Leriche; B. Nait-Ali; D. Smith; M. Gonon; V. Lardot; 1. Belgian Ceramic Research Centre, Belgium; 2. University of Valenciennes, France; 3. UMONS, Belgium; 4. ENSCI - University of Limoges, France

**2:30 PM****(ICACC-PRECS-017-2015) Developing novel strategies for enhancing materials education**

S. Gupta\*<sup>1</sup>; D. Bose<sup>2</sup>; M. Cavalli<sup>1</sup>; 1. University of North Dakota, USA; 2. Boise State University, USA

**3:00 PM****Break****3:20 PM****(ICACC-PRECS-018-2015) GB chemistry of silicon nitride based nano-composites – implications to mechanical, tribological and chemical properties (Invited)**

P. Sajgalik\*<sup>1</sup>; M. Hnatko<sup>1</sup>; Z. Lences<sup>1</sup>; M. Gall<sup>1</sup>; J. Dusza<sup>1</sup>; P. Tatarko<sup>1</sup>; Z. Chlup<sup>2</sup>; 1. Institute of Inorganic Chemistry, Slovakia; 2. Institute of Physics of Materials, Czech Republic

**3:50 PM****(ICACC-PRECS-019-2015) Resilience, Sustainability and Robustness in Ceramic Processing (Invited)**

R. D. Sisson\*<sup>1</sup>; 1. WPI, USA

**4:20 PM****(ICACC-PRECS-020-2015) Influence of porous scaffolds structure on their mechanical properties and cell colonization ability (Invited)**

A. L. Leriche\*<sup>1</sup>; J. Hornez<sup>1</sup>; F. Bouchart<sup>1</sup>; E. Meurice<sup>1</sup>; D. Hautcoeur<sup>2</sup>; V. Lardot<sup>2</sup>; F. Cambier<sup>2</sup>; 1. University of Valenciennes, France; 2. Belgian Ceramic Research Centre, Belgium

**4th Global Young Investigator Forum****Ceramic Composites**

Room: Coquina Salon C

Session Chair: Marta Quintanilla Morales, Institut National de la Recherche Scientifique

**1:30 PM****(ICACC-GYIF-020-2015) Effect of Surface Modification of Boron Nitride Nanomaterials in the Preparation of Nanocomposites**

D. Santiago\*<sup>1</sup>; C. Puleo<sup>1</sup>; J. Hurst<sup>1</sup>; C. Hung<sup>1</sup>; M. Lebron-Colon<sup>1</sup>; 1. NASA Glenn Research Center, USA

**1:50 PM****(ICACC-GYIF-021-2015) Polyethyleneimine Functionalized with Oleic Acid as Polymer Dispersants for Non-aqueous Si3N4 Suspensions**

M. Iijima\*<sup>1</sup>; N. Okamura<sup>1</sup>; S. Sueyasu<sup>1</sup>; J. Tatami<sup>1</sup>; 1. Yokohama National University, Japan

**2:10 PM****(ICACC-GYIF-022-2015) Structure and ionic conductivity of Meixnerite modified with mono butyl ether ethylene glycol (mbeeg)**

M. J. Paulo\*<sup>1</sup>; E. Tchomgui<sup>1</sup>; A. Benyounes<sup>1</sup>; S. Ntais<sup>1</sup>; A. Tavares<sup>1</sup>; 1. INRS, Canada

**2:30 PM****(ICACC-GYIF-023-2015) Effects of type and amount of silicon nitride filler on thermal conductivities of epoxy resin/silicon nitride composites**

A. Shimamura\*<sup>1</sup>; Y. Hotta<sup>1</sup>; N. Kondo<sup>1</sup>; H. Hyuga<sup>1</sup>; K. Hirao<sup>1</sup>; 1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

**2:50 PM****(ICACC-GYIF-024-2015) Exfoliation of Laminated h-BN Particles by Wet-Jet Milling**

Y. Tominaga\*<sup>1</sup>; D. Shimamoto<sup>1</sup>; K. Sato<sup>1</sup>; Y. Imai<sup>1</sup>; Y. Hotta<sup>1</sup>; 1. National Institute of Advanced Industrial Science and Technology, Japan

**3:10 PM****(ICACC-GYIF-025-2015) Structure-property-processing relationships in modified BiScO3 – PbTiO3**

B. Kowalski\*<sup>1</sup>; A. Sehirlioglu<sup>1</sup>; 1. Case Western Reserve University, USA

**Biomaterials and Biophotonics**

Room: Coquina Salon C

Session Chairs: Diana Santiago, NASA Glenn Research Center; Maria Paulo, INRS

**3:30 PM****(ICACC-GYIF-026-2015) Biofunctional polymer modification on ceramic nanophosphors for near-infrared biophotonics (Invited)**

M. Kamimura\*<sup>1</sup>; K. Soga<sup>1</sup>; 1. Tokyo University of Science, Japan

**3:50 PM****(ICACC-GYIF-027-2015) Highly Porous Wollastonite-Hydroxyapatite Scaffolds For Bone Ingrowth From Pre-ceramic Polymers**

L. Fiocco\*<sup>1</sup>; E. Bernardo<sup>1</sup>; S. Li<sup>2</sup>; P. Colombo<sup>1</sup>; J. R. Jones<sup>2</sup>; 1. University of Padova, Italy; 2. Imperial College, United Kingdom

**4:10 PM****(ICACC-GYIF-028-2015) Lanthanide-doped NaGdF<sub>4</sub> Nanoparticles as Promising Probes for Nanothermometry**

E. Hemmer\*<sup>1</sup>; F. Légaré<sup>1</sup>; F. Vetrone<sup>1</sup>; 1. INRS, Canada

**4:30 PM****(ICACC-GYIF-029-2015) Growth of graphene and Ag nanoparticles doped TiO<sub>2</sub>**

M. Barberio<sup>1</sup>; S. Veltri\*<sup>1</sup>; F. Stranges<sup>1</sup>; F. Xu<sup>1</sup>; P. Antici<sup>2</sup>; 1. University of Calabria, Italy; 2. INRS-EMT, Canada

**4:50 PM****(ICACC-GYIF-030-2015) Coupling of gold nanorods with upconverting nanoparticles: heat releasing and temperature monitoring**

S. Rohani\*<sup>1</sup>; 1. INRS, Canada

**5:10 PM****(ICACC-GYIF-031-2015) How dark is the dark side of lanthanide-based upconversion: quantum yield and possibilities of enhancement (Invited)**

M. Quintanilla Morales\*<sup>1</sup>; S. Rohani<sup>1</sup>; J. Marques-Hueso<sup>2</sup>; E. Hemmer<sup>1</sup>; B. Richards<sup>3</sup>; L. Razzari<sup>1</sup>; F. Vetrone<sup>1</sup>; 1. Institut National de la Recherche Scientifique, Canada; 2. Heriot Watt University, United Kingdom; 3. Karlsruhe Institute of Technology, Germany

**Posters****Session A**

Room: Ocean Center Arena

**5:30 PM****(ICACC-PRECS-P001-2015) A Study of the CuAlO<sub>2</sub> - Pt Interface After High Temperature Electrical Measurements**

S. Mudenda\*<sup>1</sup>; G. Kale<sup>1</sup>; Y. S. Hara<sup>1</sup>; 1. University of Leeds, United Kingdom

**(ICACC-S1-P002-2015) Porous Graphite From Pitches in Sandwich Composite Construction: Manufacturing and Mechanical Characterization**

H. Hosseini\*<sup>1</sup>; S. Ghaffarian<sup>2</sup>; M. Teymouriz<sup>3</sup>; A. Moeini<sup>3</sup>; 1. University of Missouri- Columbia, USA; 2. Amirkabir University of Technology (Tehran Polytechnic), Iran (the Islamic Republic of); 3. National Iranian Oil Company, Research Institute of Petroleum Industry, Iran (the Islamic Republic of)

**(ICACC-S1-P003-2015) Electrical resistance and acoustic emission during fatigue testing of SiC/SiC composites**

Z. Han\*<sup>1</sup>; E. Maillet<sup>1</sup>; G. N. Morscher<sup>1</sup>; 1. University of Akron, USA

**(ICACC-S1-P004-2015) International Standards for Properties and Performance of Advanced Ceramics**

M. G. Jenkins\*<sup>1</sup>; J. Salem<sup>2</sup>; J. Helfinstine<sup>3</sup>; G. D. Quinn<sup>3</sup>; S. T. Gonczyk<sup>5</sup>; 1. Bothell Engineering and Science Technologies, Inc., USA; 2. NASA Glenn Research Center, USA; 3. Corning Inc Retiree & Consultant, USA; 4. Government Retiree & Consultant, NIST, USA; 5. Gateway Materials Technology, Inc, USA

**(ICACC-S1-P005-2015) Mechanical Properties of Bioceramics**

M. Umair Farrukh\*<sup>1</sup>; K. Ghauri<sup>1</sup>; 1. UET Lahore, Pakistan



**(ICACC-S1-P006-2015) Ceramic Matrix Composites: Effect of Defects on Fatigue and Nondestructive Evaluation**

G. Ojard<sup>\*</sup>; I. Smyth<sup>2</sup>; N. Magdefrau<sup>3</sup>; U. Santhosh<sup>3</sup>; J. Ahmad<sup>3</sup>; Y. Gowayes<sup>3</sup>; 1. United Technologies Research Center, USA; 2. Pratt & Whitney, USA; 3. Structural Analytics, USA; 4. Auburn University, USA

**(ICACC-S1-P007-2015) Ceramic Matrix Composites: Residual Testing After Intermediate Temperature Oxidation**

G. Ojard<sup>\*</sup>; I. Smyth<sup>2</sup>; U. Santhosh<sup>3</sup>; Y. Gowayes<sup>4</sup>; D. Jarmon<sup>1</sup>; 1. United Technologies Research Center, USA; 2. Pratt & Whitney, USA; 3. Structural Analytics, USA; 4. Auburn University, USA

**(ICACC-S1-P008-2015) Effect of Particle Loading on Properties, Damping, and Wear of Al/SiC MMCs**

S. Salamone<sup>\*</sup>; B. Givens<sup>1</sup>; K. Kremer<sup>1</sup>; M. Aghajanian<sup>1</sup>; 1. M Cubed Technologies, Inc., USA

**(ICACC-S1-P009-2015) Temperature Dependence of Electrical Resistivity Measurements of SiC/SiC MiniComposites**

A. Almansour<sup>\*</sup>; E. Maillat<sup>1</sup>; G. N. Morscher<sup>1</sup>; 1. The University of Akron, USA

**(ICACC-S1-P010-2015) Mechanical Strength and Thermal Conductivity of Reaction-bonded Silicon Carbides with a Variety of Casing Processes**

S. Kim<sup>\*</sup>; Y. OH<sup>1</sup>; S. LEE<sup>1</sup>; Y. HAN<sup>1</sup>; H. SHIN<sup>2</sup>; Y. KIM<sup>2</sup>; 1. Korea Institute of Ceramic Engineering and Technology, Korea (the Republic of); 2. Inocera Inc., Korea (the Republic of)

**(ICACC-S1-P011-2015) The influence of particle size and sintering temperature on sinterability of SiC powders prepared from solar cell wafer sludge**

Y. Kim<sup>\*</sup>; H. Shin<sup>1</sup>; B. Yoon<sup>1</sup>; 1. Inocera inc., Korea (the Republic of)

**(ICACC-S1-P012-2015) Diffusion bonded oxide ceramics via mixed hydride nano powders**

N. Hosseinabadi<sup>\*</sup>; H. Dehghanian<sup>2</sup>; 1. I. Azad University, Shiraz branch, Iran (the Islamic Republic of); 2. Shiraz University, Iran (the Islamic Republic of)

**(ICACC-S1-P013-2015) Mechanical properties of sealants and cells**

J. Wei<sup>\*</sup>; G. Pećanac<sup>1</sup>; J. Malzbender<sup>1</sup>; 1. Forschungszentrum Jülich GmbH, Germany

**(ICACC-S1-P014-2015) Preparation and mechanical properties of YSZ/MnZn ferrite composites**

Z. Qu<sup>\*</sup>; Q. Wang<sup>1</sup>; L. Zhang<sup>1</sup>; C. Han<sup>1</sup>; 1. Beijing University of Technology, China

**(ICACC-S1-P015-2015) Experimental Demonstration for Continuum Damage Mechanics Model of SiC/SiC Composites Using Digital Image Correlation Technique under UV light**

R. Maeno<sup>1</sup>; T. Ogasawara<sup>2</sup>; S. Ogihara<sup>\*</sup>; 1. Tokyo University of Science, Japan; 2. Japan Aerospace Exploration Agency, Japan

**(ICACC-S1-P016-2015) Thermal stability of steel/titanium carbide composites**

A. Miriyev<sup>\*</sup>; N. Frage<sup>1</sup>; 1. Ben-Gurion University of the Negev, Israel

**(ICACC-S1-P017-2015) Novel Application of the Fractal Method in the Ceramic Composites Surface Flaws Characterization**

A. Terzić<sup>1</sup>; Z. Radojević<sup>1</sup>; M. Arsenović<sup>1</sup>; V. Mitić<sup>2</sup>; S. Pašalić<sup>3</sup>; 1. Institute for Material Testing, Serbia; 2. Institute of Technical Sciences, Serbian Academy of Science and Art, Serbia; 3. Ministry of Education, Science and Technological Development, Serbia

**(ICACC-S1-P018-2015) FTIR spectroscopy of sodium silicate glasses containing iron oxide**

B. Mehdikhani<sup>\*</sup>; 1. Standard Research Institute, Iran (the Islamic Republic of)

**(ICACC-S1-P019-2015) Ceramic nano pigment prepared by mechanochemical; Fe-Cr-Ti-(Al<sub>2</sub>O<sub>3</sub>)**

B. Mehdikhani<sup>\*</sup>; 1. Standard Research Institute, Iran (the Islamic Republic of)

**(ICACC-S1-P020-2015) Mechanical properties of tantalum carbide-boride**

B. Mehdikhani<sup>\*</sup>; S. Bakhshi<sup>1</sup>; G. Borhani<sup>1</sup>; 1. Malek-e-ashtar University of Technology, Iran (the Islamic Republic of)

**(ICACC-S1-P021-2015) Unlocking the Mystery Behind the Oldest Fort in the United States Using Compression and Impact Experiments**

G. Subhash<sup>\*</sup>; S. Subhash<sup>\*</sup>; 1. University of Florida, USA

**(ICACC-S1-P022-2015) Ti-Based Ceramic Composite Processing using Hybrid Centrifugal Thermite Assisted Technique**

R. Mahmoodian<sup>\*</sup>; M. Bin Abd Shukor<sup>1</sup>; M. Hassan<sup>1</sup>; 1. University of Malaya, Malaysia

**(ICACC-S4-P023-2015) Measuring the Equibiaxial Flexure Strength of Soda-Lime Silicate Glass: Further Experimental Results**

S. Kilczewski<sup>\*</sup>; P. Patel<sup>1</sup>; T. Talladay<sup>2</sup>; J. Swab<sup>1</sup>; L. Gilde<sup>1</sup>; 1. Army Research Laboratory, USA; 2. TARDEC, USA

**(ICACC-S4-P024-2015) Preparation, characterization and development of TiB<sub>2</sub> hard ceramic materials**

A. M. Celik<sup>\*</sup>; 1. Rutgers University, USA

**(ICACC-S4-P025-2015) Incorporation of silicon in boron carbide for the mitigation of high pressure amorphization**

A. M. Etzold<sup>\*</sup>; R. Haber<sup>1</sup>; W. Rafaniello<sup>1</sup>; T. Munhollon<sup>1</sup>; Y. Gao<sup>1</sup>; 1. Rutgers University, USA

**(ICACC-S4-P026-2015) The application of computational thermodynamics in the sintering of B<sub>4</sub>C**

Y. Zhong<sup>\*</sup>; 1. Florida International University, USA

**(ICACC-S4-P027-2015) Reaction Bonded SiC/Diamond Composites: Properties and Impact Behavior in High Strain Rate Applications**

S. Salamone<sup>\*</sup>; M. Aghajanian<sup>1</sup>; S. Horner<sup>2</sup>; J. Zheng<sup>2</sup>; 1. M Cubed Technology, Inc., USA; 2. US Army, USA

**(ICACC-S4-P028-2015) Synthesis and Processing of Nanostructured BN and BN/Ti Composites**

R. S. Horvath<sup>\*</sup>; B. Bear<sup>1</sup>; S. Tse<sup>1</sup>; O. Voronov<sup>1</sup>; J. Al Sharab<sup>1</sup>; 1. Rutgers University, USA

**(ICACC-S4-P029-2015) Nano-crystalline boron carbide powder synthesized via carbothermal reduction reaction**

S. M. El-Sheikh<sup>\*</sup>; Y. M. Ahmed<sup>1</sup>; E. M. Ewais<sup>1</sup>; A. A. Abd-Allah<sup>1</sup>; S. A. Sayed<sup>1</sup>; 1. Central Metallurgical Research and Development Institute, CMRDI, Egypt; 2. Faculty of Science, Helwan University, Egypt

**(ICACC-S4-P030-2015) Synthesis of Complex Microstructures for Mesoscale Finite-Element Analysis Using the Potts Model**

M. C. Golt<sup>\*</sup>; 1. TKC Global, USA

**(ICACC-S4-P031-2015) Liquid phase sintering of silicon carbide ceramics with the addition of alumina and yttria**

H. Lee<sup>\*</sup>; G. Kim<sup>1</sup>; K. Oh<sup>1</sup>; B. Kim<sup>2</sup>; T. Chung<sup>1</sup>; 1. Andong National University, Korea (the Republic of); 2. Wonik QnC, Korea (the Republic of)

**(ICACC-S4-P032-2015) Developing damage-resistant ceramics by mimicking natural materials**

P. Sellappan<sup>\*</sup>; W. M. Kriven<sup>1</sup>; 1. University of Illinois at Urbana-Champaign, USA

**(ICACC-S4-P033-2015) Predicting the Light Transmittance of Multi-layer Transparent Armor**

B. S. Aldinger<sup>\*</sup>; 1. Ibis Tek, LLC, USA

**(ICACC-S4-P034-2015) Limits of accelerating numerical analysis study of the failure mechanism of ceramics during low velocity impact used in protective systems**

C. G. Fountzoulas<sup>\*</sup>; R. E. Brennan<sup>1</sup>; 1. U.S. Army Research Laboratory, USA

**(ICACC-S4-P035-2015) Identification of Cleavage Planes of Single-Crystal Silicon Carbide Using Single and Sequential Knoop Indentations**

C. Kunka<sup>\*</sup>; A. Trachet<sup>2</sup>; G. Subhash<sup>1</sup>; 1. University of Florida, USA; 2. University of Florida, USA

**(ICACC-S4-P036-2015) Evaluation of Flaws in Composite Materials Using a Microwave Interference Scanning System**

W. H. Green<sup>\*</sup>; J. M. Gardner<sup>1</sup>; 1. U.S. Army Research Laboratory, USA

**(ICACC-S4-P037-2015) Investigation of the Kinetic Energy Characterization of Advanced Ceramics**

T. L. Jones<sup>\*</sup>; 1. U.S. Army Research Laboratory, USA

**(ICACC-S4-P038-2015) Operator Training and Performance Measurement for Nondestructive Testing of Ceramic Armor**

K. Schmidt<sup>\*</sup>; J. R. Little<sup>1</sup>; W. H. Green<sup>2</sup>; L. P. Franks<sup>3</sup>; W. A. Ellingson<sup>3</sup>; 1. Evisive, Inc., USA; 2. US Army Research Laboratory, USA; 3. US Army Armored Brigade Combat Team, USA; 4. ERC Company, USA

**(ICACC-S4-P039-2015) Fracture Cone Formation in Brittle Materials due To Normal and Oblique Impact**

B. Aydelotte<sup>\*</sup>; B. E. Schuster<sup>1</sup>; 1. U.S. Army Research Laboratory, USA

**(ICACC-S6-P040-2015) Na<sub>2</sub>Mn<sub>2</sub>O<sub>7</sub>, glass-ceramics cathode for sodium-ion batteries**

M. Tanabe<sup>\*</sup>; T. Togashi<sup>1</sup>; K. Shinozaki<sup>1</sup>; T. Honma<sup>1</sup>; T. Komatsu<sup>1</sup>; 1. Nagaoka University of Technology, Japan

**(ICACC-S6-P041-2015) A New Phenomenon in Sodium Batteries: Voltage Step Due to Solvent Interaction**

A. Rudola<sup>\*</sup>; P. Balaya<sup>\*</sup>; 1. National University of Singapore (NUS), Singapore

**(ICACC-S6-P042-2015) Synthesis and electrochemical performance of nanostructured NaVPO<sub>4</sub>F for sodium storage**

M. Law<sup>\*</sup>; P. Balaya<sup>\*</sup>; 1. National University of Singapore, Singapore

**(ICACC-S6-P043-2015) Synthesis and properties of LiMn<sub>1-x</sub>(Ni, Co)<sub>x</sub>BO<sub>3</sub> as an cathode material for Li-ion batteries**

H. Lee<sup>\*</sup>; J. Park<sup>1</sup>; T. Chung<sup>1</sup>; 1. Andong National University, Korea (the Republic of)

**(ICACC-S9-P044-2015) Quasistatic and high-strain rate response of lightweight ceramics fabricated from hollow glass microspheres**

D. Ghosh<sup>\*</sup>; G. Ravichandran<sup>2</sup>; R. D. Conner<sup>3</sup>; 1. Old Dominion University, USA; 2. California Institute of Technology, USA; 3. California State University, USA

**(ICACC-S9-P045-2015) Kaolinite foams stabilized by strontium aluminate for high temperature application**

E. Bartonickova<sup>\*</sup>; P. Ptacek<sup>1</sup>; R. Novotny<sup>1</sup>; J. Masilko<sup>1</sup>; M. Bohac<sup>1</sup>; F. Frajkorova<sup>1</sup>; J. Havlica<sup>1</sup>; 1. Brno University of Technology, Czech Republic

**(ICACC-S9-P046-2015) Preparation of high temperature stable Si-O-C Aerogels for foundry applications**

E. H. Meyer<sup>\*</sup>; L. Ratke<sup>1</sup>; B. Milow<sup>1</sup>; 1. German Aerospace Center, Germany

**(ICACC-S9-P047-2015) Fabrication and characterization of high strength lightweight ablator using porous carbon materials**

Y. Kubota<sup>\*</sup>; S. Sasaki<sup>1</sup>; Y. Kogo<sup>\*</sup>; T. Aoki<sup>1</sup>; T. Ogasawara<sup>1</sup>; Y. Ishida<sup>2</sup>; 1. Tokyo University of Science, Japan; 2. Japan Aerospace Exploration Agency (JAXA), Japan

**(ICACC-S12-P048-2015) Tantalum carbide for application as ultra high temperature**

B. Mehdikhani<sup>\*</sup>; G. Borhani<sup>1</sup>; S. Bakhshi<sup>1</sup>; 1. Malek-e-ashtar University of Technology, Iran (the Islamic Republic of)

**(ICACC-S12-P049-2015) High temperature oxyacetylene torch testing and oxidation behavior of graphite, ZrB<sub>2</sub>, and ZrB<sub>2</sub>-SiC at temperatures greater than 1500°C under oxygen rich testing environments**

M. Packard<sup>\*</sup>; P. K. Neff<sup>1</sup>; M. Miller-Oana<sup>1</sup>; E. L. Corral<sup>1</sup>; 1. University of Arizona, USA

**(ICACC-S12-P050-2015) Reactions between Ti<sub>2</sub>AlC, B<sub>4</sub>C and Al and Phase Equilibria at 1000 °C in the Quaternary Al-Ti-B-C System**

M. T. Agne<sup>\*</sup>; B. Anasori<sup>1</sup>; M. W. Barsoum<sup>1</sup>; 1. Drexel University, USA

**(ICACC-S12-P051-2015) Towards joining micro tubular solid oxide fuel cells with the current collector: A solder barrier based approach**

A. Stoeckl<sup>\*</sup>; S. Mnich<sup>1</sup>; S. Kuehn<sup>1</sup>; 1. eZelleron GmbH, Germany; 2. eZelleron GmbH, Germany

**(ICACC-S12-P052-2015) Improvement of the thermal shock resistance performance for Ultra-high temperature ceramics**

W. Li<sup>\*</sup>; D. Li<sup>1</sup>; R. Wang<sup>1</sup>; X. Shen<sup>1</sup>; 1. Chongqing University, China

**(ICACC-S12-P053-2015) High temperature interaction of metal oxides with molten Gd, Ti, Zr and its alloys**

N. Sobczak<sup>\*</sup>; R. Nowak<sup>1</sup>; A. Siewiorek<sup>1</sup>; M. Homa<sup>1</sup>; G. Bruzda<sup>1</sup>; B. Korpala<sup>1</sup>; I. Kaban<sup>2</sup>; N. Mattern<sup>2</sup>; J. Eckert<sup>2</sup>; 1. Foundry Research Institute, Poland; 2. IFW, Germany

**(ICACC-S12-P054-2015) Fire behaviour of composite materials made of ettringitic binders**

M. Michel<sup>\*</sup>; L. Michel<sup>1</sup>; J. Ambroise<sup>1</sup>; E. Ferrier<sup>1</sup>; E. Prud'homme<sup>1</sup>; 1. Université LYON 1, France

**(ICACC-S12-P055-2015) Contribution of ettringitic binders in the fire resistance of composite materials**

M. Michel<sup>\*</sup>; E. Prud'homme<sup>1</sup>; A. Limam<sup>1</sup>; A. Llosa<sup>1</sup>; E. Reyes<sup>2</sup>; 1. Université LYON 1, France; 2. MIHB, France

**(ICACC-S12-P056-2015) Polymer-derived ZrC-SiC Composite Ceramic Powders**

X. Wei<sup>\*</sup>; M. Ge<sup>1</sup>; W. Zhang<sup>1</sup>; 1. State Key Laboratory of Multiphase Complex systems, Institute of Process Engineering, Chinese Academy of Sciences, China

**(ICACC-S12-P057-2015) Superconductivity in the M2AX phases**

A. D. Bortolozzo<sup>\*</sup>; M. Meireles<sup>1</sup>; C. M. dos Santos<sup>1</sup>; A. S. Machado<sup>1</sup>; 1. School of Applied Science of Unicamp, Brazil; 2. Federal University of Itajuba – campus Itabira, Unifei-Itabira, Brazil; 3. School of Engineering of Lorena – USP, Brazil

**(ICACC-S12-P058-2015) Effect of SiC addition on oxidation behavior and mechanical properties of TiB<sub>2</sub> and NbB<sub>2</sub>**

I. Akin<sup>\*</sup>; F. Sahin<sup>1</sup>; O. Yucel<sup>1</sup>; G. Goller<sup>1</sup>; 1. Istanbul Technical University, Turkey

**(ICACC-FS1-P059-2015) Encapsulation of fluoride in wastewater by using dicalcium phosphate dihydrate (DCPD)**

Y. Arioka<sup>\*</sup>; M. Tafu<sup>1</sup>; T. Tushima<sup>1</sup>; T. Chohji<sup>2</sup>; 1. National Institute of Technology, Toyama College, Japan; 2. National Institute of Technology, Kagoshima College, Japan

**(ICACC-FS1-P060-2015) Flash Sintering of Geopolymer Composites**

F. Trombin<sup>\*</sup>; T. Dietz<sup>1</sup>; S. P. Letourneau<sup>1</sup>; P. F. Keane<sup>\*</sup>; G. P. Kutyla<sup>1</sup>; S. K. Jha<sup>2</sup>; R. Raj<sup>2</sup>; W. M. Kriven<sup>1</sup>; 1. Institute of Metal Research, USA; 2. University of Colorado, USA; 3. University of Illinois at Urbana-Champaign, USA

**(ICACC-FS1-P061-2015) Sustainable design driven philosophy: case studies of sustainable materials and processing**

M. Karhu<sup>\*</sup>; P. Kivikytö-Reponen<sup>1</sup>; 1. VTT Technical Research Centre of Finland, Finland

**(ICACC-FS1-P062-2015) Effect of fly ash composition on geopolymer synthesis**

J. Eichler<sup>\*</sup>; 1. Universal Technology Corporation, USA

**(ICACC-FS5-P063-2015) The formation mechanism of defect and its effect on laser induced damage in DKDP crystal**

B. Liu<sup>\*</sup>; X. Sun<sup>\*</sup>; X. Xu<sup>1</sup>; Z. Wang<sup>1</sup>; 1. Shandong University, China

**(ICACC-FS5-P064-2015) Phase Analysis of Atomic Layer Deposited VO<sub>x</sub> Thin Films**

S. Wang<sup>\*</sup>; T. Singh<sup>1</sup>; N. Aslam<sup>1</sup>; H. Zhang<sup>1</sup>; S. Hoffmann-Eifert<sup>2</sup>; S. Mathur<sup>1</sup>; 1. University of Cologne, Germany; 2. Forschungszentrum Juelich, Germany

**(ICACC-FS6-P065-2015) Flash sintering of ceramic composites: thermal analysis of the incubation stage**

M. Steil<sup>\*</sup>; E. Bichaud<sup>1</sup>; J. Chaix<sup>1</sup>; P. Carry<sup>1</sup>; 1. Université Grenoble Alpes & CNRS, France; 2. Université Grenoble Alpes & CNRS, France

## Wednesday, January 28, 2015

**S1: Mechanical Behavior and Performance of Ceramics & Composites****CMCs**

Room: Coquina Salon D

Session Chair: Dileep Singh, Argonne National Lab

**8:30 AM****(ICACC-S1-031-2015) C/SiC composites with a self-healing SiBC matrix fabricated by liquid silicon infiltration (Invited)**

X. Yin<sup>\*</sup>; L. Zhang<sup>1</sup>; L. Cheng<sup>1</sup>; 1. Northwestern Polytechnical University, China

**8:50 AM****(ICACC-S1-032-2015) Defect Evolution in Polymer Impregnation and Pyrolysis Derived CMCs**

N. M. Larson<sup>\*</sup>; C. G. Levi<sup>1</sup>; F. W. Zok<sup>1</sup>; 1. University of California, Santa Barbara, USA

**9:10 AM****(ICACC-S1-033-2015) Processing and evaluation of Re<sub>2</sub>Si<sub>2</sub>O<sub>7</sub> fiber coatings for SiC/SiC composites**

E. E. Boakye<sup>\*</sup>; P. Mogilevsky<sup>1</sup>; T. A. Parthasarathy<sup>1</sup>; K. Keller<sup>1</sup>; T. Key<sup>1</sup>; R. Hay<sup>2</sup>; M. Cinibulk<sup>2</sup>; 1. UES, Inc., Dayton, OH, USA; 2. Air Force Research Laboratory, USA

**9:30 AM****(ICACC-S1-034-2015) Interface behavior in Hi-Nicalon S/SiC composites**

C. Chanson<sup>\*</sup>; S. Jacques<sup>1</sup>; E. Martin<sup>2</sup>; 1. LCTS-CNRS, France; 2. LCTS-Université Bordeaux I, France

**9:50 AM**

**Break**

**10:10 AM**

**(ICACC-S1-035-2015) Development and Testing of a Low NOx Oxide Ceramic Combustor for Aero-Engines**

S. Hackemann<sup>\*1</sup>; T. Behrendt<sup>2</sup>; Y. Shi<sup>3</sup>; P. Mechnich<sup>4</sup>; T. Aumeier<sup>2</sup>; B. Kanka<sup>1</sup>; T. Richter<sup>2</sup>; S. Hofmann<sup>2</sup>; K. Artzt<sup>1</sup>; 1. DLR - German Aerospace Center, Germany; 2. DLR - German Aerospace Center, Germany; 3. DLR - German Aerospace Center, Germany

**10:30 AM**

**(ICACC-S1-036-2015) Structural Stress Analysis of an Effusive Cooled CMC Liner**

S. Hoenig<sup>1</sup>; R. Jemmali<sup>1</sup>; S. Hofmann<sup>1</sup>; D. Koch<sup>\*1</sup>; 1. Institute of Structures and Design, Germany

**10:50 AM**

**(ICACC-S1-037-2015) Mechanical Behavior of Nextel™720/ Aluminosilicate Composite Under Combined Tension-Torsion Loading**

S. Hilburn<sup>1</sup>; M. Ruggles-Wrenn<sup>\*1</sup>; C. Ryther<sup>2</sup>; L. Zawada<sup>2</sup>; 1. Air Force Institute of Technology, USA; 2. Air Force Research Laboratory, USA

**11:10 AM**

**(ICACC-S1-038-2015) Coatings and Matrices Improving the Oxidation Resistance of Carbon Fiber Reinforced Composites for Ultra-High Temperature Applications**

X. Zhang<sup>\*1</sup>; S. Dong<sup>1</sup>; L. Gao<sup>1</sup>; H. Zhou<sup>1</sup>; Z. Wang<sup>1</sup>; Y. Ding<sup>1</sup>; P. He<sup>1</sup>; J. Hu<sup>1</sup>; Y. Kan<sup>1</sup>; 1. Shanghai Institute of Ceramics, Chinese Academy of Sciences, China

**11:30 AM**

**(ICACC-S1-039-2015) Novel Hybrid Ceramic Nanocomposites**

I. Ahmad<sup>\*1</sup>; 1. King Saud University, Riyadh, Saudi Arabia, Saudi Arabia

## S2: Advanced Ceramic Coatings for Structural, Environmental, and Functional Applications

### Thermal Barrier Coatings: Characterization and NDE Methods

Room: Coquina Salon G

Session Chair: Rodney Trice, Purdue University

**8:30 AM**

**(ICACC-S2-009-2015) Prediction of the Cyclic Durability as a Function of Cycle Duration and Temperature of Air Plasma Sprayed Coating Using Inelastic Strain (Invited)**

E. H. Jordan<sup>\*1</sup>; S. Ahmadian<sup>1</sup>; 1. University of Connecticut, USA

**9:00 AM**

**(ICACC-S2-010-2015) Microstructure characteristics and temperature dependent local elastic response of EB-PVD thermal barrier coatings examined by in-situ synchrotron X-ray diffraction**

M. Bartsch<sup>\*1</sup>; K. Knipe<sup>2</sup>; A. Manero<sup>2</sup>; S. Sofronsky<sup>2</sup>; C. Meid<sup>1</sup>; J. Wischek<sup>1</sup>; M. Smith<sup>3</sup>; C. Lacdao<sup>3</sup>; J. Okasinski<sup>4</sup>; J. Almer<sup>4</sup>; A. M. Karlsson<sup>3</sup>; S. Raghavan<sup>2</sup>; 1. German Aerospace Center, Germany; 2. University of Central Florida, USA; 3. Cleveland State University, USA; 4. Argonne National Laboratory, USA

**9:20 AM**

**(ICACC-S2-011-2015) Synchrotron x-ray measurements capturing thermally grown oxide behavior in thermal barrier coatings**

A. Manero<sup>1</sup>; S. Sofronsky<sup>1</sup>; K. Knipe<sup>1</sup>; C. Meid<sup>1</sup>; J. Wischek<sup>2</sup>; C. Lacdao<sup>4</sup>; M. Smith<sup>3</sup>; J. Okasinski<sup>3</sup>; J. Almer<sup>3</sup>; A. Karlsson<sup>3</sup>; M. Bartsch<sup>3</sup>; S. Raghavan<sup>\*1</sup>; 1. University of Central Florida, USA; 2. German Aerospace Center, Germany; 3. Argonne National Laboratory, USA; 4. Cleveland State University, USA

**9:40 AM**

**(ICACC-S2-012-2015) Imaging and quantification of microstructure evolutions in EB-PVD TBC using 3D X-ray micro-tomography**

X. Zhang<sup>\*1</sup>; Y. Zhao<sup>1</sup>; P. Xiao<sup>1</sup>; P. Withers<sup>1</sup>; 1. Univ. of Manchester, United Kingdom

**10:00 AM**

**(ICACC-S2-013-2015) X-ray Tomographic Imaging of APS TBC Damage Progression**

N. Asadizanjani<sup>\*1</sup>; S. Shahbazmohammadi<sup>1</sup>; E. H. Jordan<sup>1</sup>; 1. university of connecticut, USA

**10:20 AM**

**Break**

## CMAS-related Degradation and Mitigation Strategies I

Room: Coquina Salon G

Session Chair: Uwe Schulz, German Aerospace Center

**10:40 AM**

**(ICACC-S2-014-2015) Field Experience in Heavy Duty Gas Turbines Operating in CMAS Type Conditions (Invited)**

H. Bossmann<sup>1</sup>; G. Witz<sup>\*1</sup>; B. Bordenet<sup>1</sup>; K. Stefansson<sup>1</sup>; 1. Alstom (Switzerland) Ltd, Switzerland

**11:10 AM**

**(ICACC-S2-015-2015) Erosion and High Temperature Corrosion Performance of PS-PVD TBCs**

S. Rezanka<sup>\*1</sup>; G. Mauer<sup>1</sup>; D. E. Mack<sup>1</sup>; R. Vassen<sup>1</sup>; 1. Forschungszentrum Jülich GmbH, Germany

**11:30 AM**

**(ICACC-S2-016-2015) Understanding a novel failure mode in testing thermal barrier coatings with CMAS attack**

A. Harris<sup>\*1</sup>; E. H. Jordan<sup>1</sup>; 1. University of Connecticut, USA; 2. University of Connecticut, USA

## S3: 12th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology

### Surface and Interfacial Reactions

Room: Crystal

Session Chairs: Enrico Traversa, King Abdullah University of Science and Technology; Nguyen Minh, University of California, San Diego

**8:00 AM**

**(ICACC-S3-024-2015) Surface Reaction of Doped Lanthanum Cobaltite System (Invited)**

K. Yashiro<sup>\*1</sup>; H. Sato<sup>1</sup>; M. Sasaki<sup>1</sup>; R. A. Budiman<sup>1</sup>; S. Hashimoto<sup>2</sup>; T. Nakamura<sup>3</sup>; K. Amezawa<sup>3</sup>; T. Kawada<sup>1</sup>; 1. Tohoku University, Japan; 2. Tohoku University, Japan; 3. Tohoku University, Japan

**8:30 AM**

**(ICACC-S3-025-2015) Ba deficient NdBaCo2O5+δ oxides for Intermediate Temperature Solid Oxide Fuel Cell Cathodes**

R. Pelosato<sup>\*1</sup>; A. Donazzi<sup>1</sup>; G. Cordaro<sup>1</sup>; D. Stucchi<sup>1</sup>; I. Natali Sora<sup>3</sup>; C. Cristiani<sup>1</sup>; G. Dotelli<sup>1</sup>; 1. Politecnico di Milano, Italy; 2. Politecnico di Milano, Italy; 3. Università di Bergamo, Italy

**8:50 AM**

**(ICACC-S3-026-2015) The Enhancement of Surface Oxygen Exchange Constant in the Composite Electrode**

R. A. Budiman<sup>\*1</sup>; H. Kudo<sup>1</sup>; T. Miyazaki<sup>2</sup>; S. Hashimoto<sup>3</sup>; K. Yashiro<sup>1</sup>; T. Kawada<sup>1</sup>; 1. Tohoku University, Japan; 2. Tohoku University, Japan; 3. Tohoku University, Japan

**9:10 AM**

**(ICACC-S3-027-2015) Metallic conductors for cathode in Solid Oxide Fuel Cells and their electrochemical properties**

A. Stoeck<sup>\*1</sup>; S. Mnich<sup>1</sup>; S. Kuehn<sup>1</sup>; 1. eZelleron GmbH, Germany; 2. eZelleron GmbH, Germany

**9:30 AM**

**(ICACC-S3-028-2015) Structural and electrochemical performance stability of perovskite - fluorite composite SOFC electrode**

S. Gupta<sup>\*1</sup>; M. K. Mahapatra<sup>1</sup>; P. Singh<sup>1</sup>; 1. University of Connecticut, USA

9:50 AM

Break

10:10 AM

**(ICACC-S3-029-2015) Bio-template Assisted Nano-catalyst Infiltration of Porous SOFC Electrodes**

O. Ozmen<sup>\*2</sup>; S. Lee<sup>1</sup>; K. Gerdes<sup>1</sup>; J. W. Zondlo<sup>3</sup>; K. Sabolsky<sup>2</sup>; E. M. Sabolsky<sup>2</sup>; 1. U.S. Department of Energy, USA; 2. West Virginia University, USA; 3. West Virginia University, USA

10:30 AM

**(ICACC-S3-030-2015) Development of microtubular solid oxide fuel cells using hydrocarbon fuels (Invited)**

H. Sumi<sup>\*1</sup>; H. Shimada<sup>1</sup>; T. Yamaguchi<sup>1</sup>; K. Hamamoto<sup>1</sup>; T. Suzuki<sup>1</sup>; Y. Fujishiro<sup>1</sup>; 1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

11:00 AM

**(ICACC-S3-031-2015) Interaction between glass-based sealants and MnCo spinel coated interconnects for Solid Oxide Cells**

F. Smeacetto<sup>\*1</sup>; A. Sabato<sup>1</sup>; A. De Miranda<sup>1</sup>; M. Salvo<sup>1</sup>; M. Bindi<sup>2</sup>; A. Chrysanthou<sup>3</sup>; M. Ferraris<sup>1</sup>; 1. Politecnico di Torino, Italy; 2. Edison S.p.A., Italy; 3. University of Hertfordshire, United Kingdom

11:20 AM

**(ICACC-S3-032-2015) Sealants for SOFC/SOEC stacks: challenges of sealing and operating temperature**

J. C. Schilm<sup>\*1</sup>; A. Rost<sup>1</sup>; M. Kusnezoff<sup>1</sup>; A. Michaelis<sup>1</sup>; 1. Fraunhofer IKTS, Germany

11:40 AM

**(ICACC-S3-033-2015) Investigation on the carbon deposition behavior of Ni-YSZ Cermet in various types of hydrocarbon gas**

N. Ohmura<sup>\*1</sup>; T. Nakamura<sup>2</sup>; K. Matsuoka<sup>4</sup>; T. Kudo<sup>4</sup>; T. Kawada<sup>3</sup>; K. Amezawa<sup>2</sup>; 1. Tohoku University, Japan; 2. Tohoku University, Japan; 3. Tohoku University, Japan; 4. JX Nippon Oil & Energy Corporation, Japan

12:00 PM

**(ICACC-S3-034-2015) Performance and Stability of LSM-based Cathode Infiltrated with Electro-catalyst**

G. Tao<sup>\*1</sup>; 1. Materials & Systems Research Inc., USA

**S4: Armor Ceramics: Challenges and New Developments****Modeling / Testing and Evaluation / Quasi-Static and Dynamic Behavior I**

Room: Coquina Salon E

Session Chair: Costas Fountzoulas, ARL; Matthew Bratcher, ARL

8:30 AM

**(ICACC-S4-030-2015) Protection – New Ideas, Advanced Materials, New Penetration Models**

I. V. Kartuzov<sup>\*1</sup>; J. Campbell<sup>2</sup>; V. Kartuzov<sup>1</sup>; 1. IPMS NASU, Ukraine; 2. ARL, USA

8:50 AM

**(ICACC-S4-031-2015) Use of microstructural control to alter ballistic performance in silicon carbide-boron carbide composites**

T. Williams<sup>\*1</sup>; J. Yeomans<sup>1</sup>; A. Heaton<sup>2</sup>; C. Hampson<sup>3</sup>; 1. University of Surrey, United Kingdom; 2. Dstl, United Kingdom; 3. Morgan Advanced Materials, United Kingdom

9:10 AM

**(ICACC-S4-032-2015) Properties and performance of cubic-boron nitride**

J. Swab<sup>\*1</sup>; L. Vargal<sup>1</sup>; E. Wilson<sup>1</sup>; E. Warner<sup>1</sup>; 1. Weapons & Materials Research Directorate, USA

9:30 AM

**(ICACC-S4-033-2015) TNO's research on ceramic based armor: experiments and modelling (Invited)**

E. Carton<sup>\*1</sup>; G. Roebroeks<sup>1</sup>; J. Weerheijm<sup>1</sup>; A. Diederer<sup>1</sup>; M. Kwint<sup>1</sup>; 1. TNO, Netherlands

10:00 AM

Break

10:20 AM

**(ICACC-S4-034-2015) Adhesion Between Alumina Ceramic and Glass Fibre-Reinforced Polyester Composite in a Hybrid Armour System**

B. B. Johnsen<sup>\*1</sup>; K. B. Lausund<sup>2</sup>; D. B. Rahbek<sup>1</sup>; F. Hansen<sup>3</sup>; 1. Norwegian Defence Research Establishment (FFI), Norway; 2. University of Oslo, Norway; 3. University of Oslo, Norway

10:40 AM

**(ICACC-S4-035-2015) Experimental and computational study on fracture patterns of alumina ceramic tiles upon ballistic impact**

D. B. Rahbek<sup>\*1</sup>; B. B. Johnsen<sup>1</sup>; T. Thorvaldsen<sup>1</sup>; J. Simons<sup>2</sup>; T. Kobayashi<sup>2</sup>; D. Shockey<sup>2</sup>; 1. Norwegian Defence Research Establishment, Norway; 2. SRI International, USA

11:00 AM

**(ICACC-S4-036-2015) Crack and Damage Velocities in Ballistic Experiments**

C. E. Anderson<sup>\*1</sup>; R. P. Bigger<sup>1</sup>; C. E. Weiss<sup>1</sup>; 1. Southwest Research Institute, USA

11:20 AM

**(ICACC-S4-037-2015) Dynamic fracture toughness of pressureless-sintered and reaction-bonded SiC and B<sub>4</sub>C composites**

J. J. Pittari<sup>\*1</sup>; G. Subhash<sup>1</sup>; 1. University of Florida, USA

11:40 AM

**(ICACC-S4-038-2015) Laser-shock spall testing of glass and glass-ceramics**

M. J. Davis<sup>\*1</sup>; C. Weinhold<sup>1</sup>; P. Vullo<sup>1</sup>; 1. SCHOTT North America, Inc., USA

**S6: Advanced Materials and Technologies for Energy Generation, Conversion, and Rechargeable Energy Storage****Solid Electrolytes and Characterization**

Room: Tomoka A

Session Chairs: Dany Carlier, ICMCB-CNRS; Robert Dominko, National Institute of Chemistry

8:30 AM

**(ICACC-S6-025-2015) Lithium Metal Phosphate Solid Electrolytes via Reactive Sintering (Invited)**

M. Badding<sup>\*1</sup>; 1. Corning Incorporated, USA

9:00 AM

**(ICACC-S6-026-2015) Design of Solid-state Electrolytes using High-throughput First Principles Computations (Invited)**

S. Ong<sup>\*1</sup>; Y. Mo<sup>2</sup>; W. D. Richards<sup>3</sup>; L. Miara<sup>4</sup>; H. Lee<sup>4</sup>; G. Ceder<sup>1</sup>; 1. University of California San Diego, USA; 2. University of Maryland College Park, USA; 3. Massachusetts Institute of Technology, USA; 4. Samsung Advanced Institute of Technology, USA

9:30 AM

**(ICACC-S6-027-2015) In-Situ TEM study of energy storage materials (Invited)**

C. Wang<sup>\*1</sup>; 1. Pacific Northwest National Laboratory, USA

10:00 AM

Break

10:20 AM

**(ICACC-S6-028-2015) In-situ characterization of deformation creep response Li-ion electrode materials (Invited)**

S. J. Dillon<sup>\*1</sup>; 1. University of Illinois Urbana-Champaign, USA



**10:50 AM**

**(ICACC-S6-029-2015) Local impedance spectroscopic and microstructural analyses of Al-in-diffused Li7La3Zr2O12**  
J. Ahn<sup>\*</sup>; S. Park<sup>1</sup>; J. Lee<sup>1</sup>; 1. Korea university, Korea (the Republic of)

**11:10 AM**

**(ICACC-S6-030-2015) MXene 'Clay': High capacitance from Ti3C2 electrodes produced by rolling**  
M. Ghidui<sup>\*</sup>; M. Lukatskaya<sup>1</sup>; M. Zhao<sup>1</sup>; Y. Gogotsi<sup>1</sup>; M. W. Barsoum<sup>1</sup>; 1. Drexel University, USA

## **S7: 9th International Symposium on Nanostructured Materials: Innovative Synthesis and Processing of Nanostructured, Nanocomposite and Hybrid Functional Materials for Energy, Health and Sustainability**

### **Nanomaterials for Water-splitting I**

Room: Coquina Salon B

Session Chairs: Ziqi Sun, University of Wollongong, Australia; Shaohua Shen, Xi'an Jiaotong University

**8:30 AM**

**(ICACC-S7-017-2015) Serendipity or design of catalysts and photo-catalysts? (Invited)**  
P. Fornasiero<sup>\*</sup>; 1. University of Trieste, Italy

**9:00 AM**

**(ICACC-S7-018-2015) Enhanced Water Splitting at Thin Film WO<sub>3</sub> Photoanodes Bearing Plasmonic Nanoparticles (Invited)**  
R. Solarska<sup>\*</sup>; K. Bienkowski<sup>1</sup>; J. Augustynski<sup>1</sup>; 1. University of Warsaw, Poland

**9:20 AM**

**(ICACC-S7-019-2015) One-Step Fabrication of Functionalized Graphene Materials via Submerged Liquid Plasma (SLP) in Solvent under Ambient Conditions (Invited)**  
M. Yoshimura<sup>\*</sup>; J. Senthilnathan<sup>1</sup>; K. SanjeevaRao<sup>1</sup>; 1. National Cheng Kung Univ., Taiwan

**9:50 AM**

**(ICACC-S7-020-2015) Cu-doped ZnO with the addition of graphene for use as photocatalyst**  
S. Hsieh<sup>\*</sup>; J. Ting<sup>1</sup>; 1. National Cheng Kung University, Taiwan

**10:10 AM****Break**

### **Nanomaterials for Water-splitting II**

Room: Coquina Salon B

Session Chairs: Renata Solarska, University of Warsaw; Paolo Fornasiero, University of Trieste

**10:30 AM**

**(ICACC-S7-021-2015) Nanostructure engineering of metal oxides for solar energy harvesting (Invited)**  
Z. Sun<sup>\*</sup>; J. Kim<sup>1</sup>; S. Dou<sup>1</sup>; 1. University of Wollongong, Australia, Australia

**11:00 AM**

**(ICACC-S7-022-2015) Structural effect of TiO<sub>2</sub>-Hematite multilayer anode on water splitting efficiency fabricated by PECVD**  
M. Pyeon<sup>\*</sup>; T. Hwang<sup>2</sup>; K. Moon<sup>3</sup>; S. Mathur<sup>1</sup>; 1. University of Cologne, Germany; 2. Korea Institute of Industrial Technology, Korea (the Republic of); 3. Korea Institute of Industrial Technology, Korea (the Republic of)

**11:20 AM**

**(ICACC-S7-023-2015) Atomic/Molecular Layer Deposited Inorganic-Organic Hybrid Thin Films for Enhanced Thermoelectrics (Invited)**  
M. Karppinen<sup>\*</sup>; 1. Aalto University, Finland

**11:50 AM**

**(ICACC-S7-024-2015) Surface engineered doping of hematite nanorod arrays for efficient solar water splitting (Invited)**  
S. Shen<sup>\*</sup>; 1. Xi'an Jiaotong University, China

## **S8: 9th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT9)**

### **Novel Ceramic Processing IV**

Room: Coquina Salon A

Session Chairs: Rajendra Bordia, Clemson University; Satoshi Tanaka, Nagaoka University of Technology

**8:30 AM**

**(ICACC-S8-029-2015) Analysis and Simulation Guided Processing of Hierarchical Porous Ceramics (Invited)**  
R. K. Bordia<sup>\*</sup>; A. Lichtner<sup>2</sup>; H. Shang<sup>2</sup>; D. Rousset<sup>3</sup>; D. Jauffres<sup>3</sup>; C. Martin<sup>3</sup>; 1. Clemson University, USA; 2. University of Washington, USA; 3. Université de Grenoble - Alpes, France

**9:00 AM**

**(ICACC-S8-030-2015) Design and Fabrication of high-temperature heat exchangers and microreactors**  
C. Lewinsohn<sup>\*</sup>; J. Fellows<sup>1</sup>; H. Anderson<sup>1</sup>; M. Wilson<sup>1</sup>; 1. Ceramtec, Inc., USA

**9:20 AM**

**(ICACC-S8-031-2015) Slip-Casting by Water-Absorbing Resin Mold Enables Crack-Free and Even-Packing Ceramic Molding System**  
A. Matsumoto<sup>\*</sup>; 1. TOTO LTD, Japan

**9:40 AM**

**(ICACC-S8-032-2015) Additive Manufacturing - Strategies for the Selective Volume Sintering of Ceramics**  
T. Mühler<sup>\*</sup>; J. G. Heinrich<sup>1</sup>; J. Günster<sup>2</sup>; 1. Clausthal University of Technology, Germany; 2. Federal Institute for Materials Research and Testing, Germany

**10:00 AM****Break**

10:00 - 10:20

**10:20 AM**

**(ICACC-S8-033-2015) Manufacturing Complex-Shaped Ceramic Components with Aligned Microstructural Features through Room-Temperature Injection Molding and 3D Printing of Ceramic Suspension Gels (CeraSGels)**  
L. Rueschhoff<sup>\*</sup>; J. P. Youngblood<sup>1</sup>; R. W. Trice<sup>1</sup>; 1. Purdue University, USA

**10:40 AM**

**(ICACC-S8-034-2015) Development of 3-dimensional orientation in MgTi<sub>2</sub>O<sub>7</sub> by tape casting in a strong magnetic field**  
T. S. Suzuki<sup>\*</sup>; Y. SUZUKI<sup>2</sup>; T. UCHIKOSHI<sup>1</sup>; Y. SAKKA<sup>1</sup>; 1. National Institute for Materials Science, Japan; 2. University of Tsukuba, Japan

**11:00 AM**

**(ICACC-S8-035-2015) Transparent textured ceramics fabricated by colloidal processing in strong magnetic field**  
S. Tanaka<sup>\*</sup>; T. Takahashi<sup>1</sup>; T. Tanaka<sup>1</sup>; K. Uematsu<sup>1</sup>; 1. Nagaoka University of Technology, Japan

11:20 AM

**(ICACC-S8-036-2015) Estimation of State Transition Probability Matrix of Coordination Number Distribution of Particles in Ceramic Powder Compact**

K. Yasuda\*; 1. Tokyo Institute of Technology, Japan

**S9: Porous Ceramics: Novel Developments and Applications****Membranes and High SSA Ceramics II**

Room: Coquina Salon H

Session Chair: Ingolf Voigt, Fraunhofer Institute for Ceramic Technology and Systems IKTS

8:30 AM

**(ICACC-S9-009-2015) Polymer-Derived Ceramic (PDC) Aerogels (Invited)**

G. Soraru\*; 1. University of Trento, Italy

9:00 AM

**(ICACC-S9-010-2015) Hierarchically structured Silicon Carbide derived Carbon monoliths for Catalyst support structures**

B. Zierath\*; A. Kern\*; B. Etzold\*; P. Greil\*; T. Fey\*; 1. Friedrich-Alexander-University Erlangen-Nuremberg, Germany; 2. Friedrich-Alexander-University Erlangen-Nuremberg, Germany

9:20 AM

**(ICACC-S9-011-2015) Shaping of porous CaO-based sorbents for CO<sub>2</sub> capture**

B. Michielsens\*; J. Deckx\*; J. Sysmans\*; S. Mullens\*; 1. Flemish Institute for Technological Research, Belgium

9:40 AM

**(ICACC-S9-012-2015) Structuring of AlPOs and Zeolite Powders into Hierarchically Porous CO<sub>2</sub> Adsorbents**

F. Akhtar\*; 1. Luleå University of Technology, Sweden

10:00 AM

Break

**Innovations in Processing Methods and Synthesis of Porous Ceramics II**

Room: Coquina Salon H

Session Chair: Tobias Fey, Lehrstuhl Glas und Keramik

10:20 AM

**(ICACC-S9-013-2015) Processing, Structure and Thermal Properties of Solid-state Sintered SiC Foams by Aqueous Gelcasting (Invited)**

G. Sundararajan\*; D. Jana\*; K. Chattopadhyay\*; 1. ARCI, India; 2. ARCI, India; 3. IISc, India

10:50 AM

**(ICACC-S9-014-2015) Three-dimensional printing of preceramic polymers and fillers**

A. Zocca\*; G. Franchin\*; E. Hamada\*; C. M. Gomes\*; E. Bernardo\*; M. A. Lopez Heredia\*; C. Knabe\*; J. Günster\*; P. Colombo\*; 1. University of Padova, Italy; 2. BAM Bundesanstalt für Materialforschung und -prüfung, Germany; 3. Philipps University Marburg, Germany

11:10 AM

**(ICACC-S9-015-2015) Controlling the Pore Structure of Freeze-Cast Preceramic Polymers**

M. Naviroj\*; P. Colombo\*; K. Faber\*; 1. Northwestern University, USA; 2. Università di Padova, Italy

**S12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nano-laminated Ternary Carbides and Nitrides (MAX Phases)****Novel Characterization Methods and Lifetime Assessment**

Room: Ponce DeLeon

Session Chair: Anne Joulain, Pprime Institute - POITIERS

8:30 AM

**(ICACC-S12-029-2015) A Genomic Approach to MAX Phases: An Overview (Invited)**

W. Ching\*; 1. University of Missouri-Kansas City, USA

9:00 AM

**(ICACC-S12-030-2015) Modeling of Fusion Zone Temperatures in ZrB<sub>2</sub>-ZrC Ceramic Weld Pools**

D. King\*; G. Hillmas\*; W. G. Fahrenholtz\*; 1. Missouri S&amp;T, USA

9:20 AM

**(ICACC-S12-031-2015) Crack Healing Mechanism of Cr<sub>2</sub>AlC Studied by X-ray Tomography**

R. Pei\*; L. Shen\*; W. Sloof\*; S. van der Zwaag\*; P. Mummery\*; P. Withers\*; 1. University of Manchester, United Kingdom; 2. Delft University of Technology, Netherlands; 3. Delft University of Technology, Netherlands; 4. University of Manchester, United Kingdom

9:40 AM

Break

**Novel Processing Methods (Bulk, Coatings and Thin Film)**

Room: Ponce DeLeon

Session Chairs: Yanchun Zhou, Institute of Metal Research; Gregory Thompson, University of Alabama

10:20 AM

**(ICACC-S12-032-2015) Synthesis and Characterization of Pulsed Cathodic Arc Deposited Zr<sub>2</sub>Al<sub>3</sub>C<sub>4</sub> Thin Films**

C. Lai\*; M. Tucker\*; J. Lu\*; P. Eklund\*; J. Rosen\*; 1. Linköping University, Sweden

10:40 AM

**(ICACC-S12-033-2015) Ultra High Temperature Coatings for environmental protection of C<sub>f</sub>/SiC composites**

F. Uhlmann\*; C. Wilhelm\*; F. Wigger\*; S. Schmidt-Wimmer\*; S. Beyer\*; 1. Airbus Group Innovations, Germany; 2. Airbus Defence and Space, Germany

11:00 AM

**(ICACC-S12-034-2015) ZrB<sub>2</sub>-SiC-ZrC ternary composites: co-effects of ZrC and SiC phases on microstructures and mechanical properties**

G. Zhang\*; H. Liu\*; J. Liu\*; H. Ma\*; H. Wu\*; 1. Shanghai Institute of Ceramics, China; 2. Loughborough University, United Kingdom

11:20 AM

**(ICACC-S12-035-2015) Novel Synthesis, Mechanical Properties and Oxidation Behavior of Ultra-High-Temperature Ceramic (UHTC) Nanocomposites**

L. Zhang\*; W. Wu\*; A. L. Ortiz\*; N. P. Padture\*; 1. Brown University, USA; 2. University of Extremadura, Spain

11:40 AM

**(ICACC-S12-036-2015) In situ synthesis of ZrB<sub>2</sub>/SiC hybrid composite for leading edges of hypersonic vehicles**

N. Patra\*; D. Jayaseelan\*; W. Lee\*; 1. Imperial College London, South Kensington Campus, United Kingdom

### S13: International Symposium on Advanced Ceramics and Composites for Sustainable Nuclear Energy and Fusion Energy

#### Thermo-structural Ceramics for Nuclear Systems

Room: Tomoka B

Session Chairs: Chad Parish, Oak Ridge National Lab; Ji-Jung Kai, National Tsing-Hua University

##### 8:30 AM

#### (ICACC-S13-028-2015) Ultra-High Temperature Ceramics and their Potential in Nuclear Applications (Invited)

G. Hilmas<sup>\*1</sup>; W. G. Fahrenholtz<sup>1</sup>; 1. Missouri University of Science and Technology, USA

##### 9:00 AM

#### (ICACC-S13-029-2015) The response of ZrB<sub>2</sub> to simulated plasma-facing material conditions of He irradiation at high temperatures

L. Garrison<sup>\*1</sup>; G. L. Kulcinski<sup>2</sup>; 1. Oak Ridge National Laboratory, USA; 2. University of Wisconsin-Madison, USA

##### 9:20 AM

#### (ICACC-S13-030-2015) The microstructure and thermal oxidation effect of nuclear-grade graphite under 700-1600°C

C. Yang<sup>\*1</sup>; W. Huang<sup>1</sup>; Z. Wang<sup>1</sup>; J. Kai<sup>1</sup>; 1. National Tsing-Hua University, Taiwan, Taiwan

##### 9:40 AM

#### (ICACC-S13-031-2015) Multi-Scale Characterization of Irradiation-Induced Microstructural Changes of Fine-Grained Graphite

A. A. Campbell<sup>\*1</sup>; Y. Katoh<sup>1</sup>; K. Takizawa<sup>2</sup>; 1. Oak Ridge National Laboratory, USA; 2. Currently at Oak Ridge National Laboratory, USA

##### 10:00 AM

Break

##### 10:20 AM

#### (ICACC-S13-032-2015) Potential and Opportunities for MAX Phase in Nuclear Applications (Invited)

D. J. Tallman<sup>\*1</sup>; E. N. Hoffman<sup>1</sup>; E. N. Caspi<sup>1</sup>; B. Garcia-Diaz<sup>2</sup>; G. Kohse<sup>3</sup>; R. L. Sindelar<sup>2</sup>; M. W. Barsoum<sup>\*1</sup>; 1. Drexel University, USA; 2. Savannah River Site, USA; 3. Massachusetts Institute of Technology, USA

##### 10:50 AM

#### (ICACC-S13-033-2015) Corrosion-resistant nano-laminated ternary carbides for use in heavy liquid metal coolants (Invited)

K. Lambrinou<sup>\*1</sup>; T. Lapauw<sup>2</sup>; A. Jianu<sup>3</sup>; A. Weisenburger<sup>2</sup>; J. Ejenstam<sup>4</sup>; P. Szakalos<sup>4</sup>; J. Wallenius<sup>4</sup>; E. Strom<sup>5</sup>; K. Vanmeensel<sup>2</sup>; J. Vleugels<sup>2</sup>; 1. SCK-CEN, Belgium; 2. KU Leuven, Belgium; 3. KIT, Germany; 4. KTH Royal Institute of Technology, Sweden; 5. Sandvik Materials Technology, Sweden

##### 11:20 AM

#### (ICACC-S13-034-2015) The Effect of Neutron Irradiation on Ti<sub>2</sub>AlC, Ti<sub>3</sub>AlC<sub>2</sub>, and Ti<sub>3</sub>SiC<sub>2</sub>

D. J. Tallman<sup>\*1</sup>; E. N. Hoffman<sup>1</sup>; E. N. Caspi<sup>1</sup>; B. Garcia-Diaz<sup>2</sup>; G. Kohse<sup>3</sup>; R. L. Sindelar<sup>2</sup>; M. W. Barsoum<sup>\*1</sup>; 1. Drexel University, USA; 2. Savannah River Site, USA; 3. Massachusetts Institute of Technology, USA

##### 11:40 AM

#### (ICACC-S13-035-2015) Neutron and ion irradiation response of T<sub>1</sub>Al<sub>2</sub>C<sub>2</sub> and Ti<sub>3</sub>SiC<sub>2</sub> MAX phases

C. M. Parish<sup>\*1</sup>; S. J. Zinkle<sup>2</sup>; C. Shih<sup>1</sup>; A. A. Campbell<sup>1</sup>; L. L. Snead<sup>1</sup>; D. N. Leonard<sup>1</sup>; G. Samolyuk<sup>3</sup>; Y. Osetskiy<sup>3</sup>; T. R. Watkins<sup>3</sup>; J. M. LeBeau<sup>3</sup>; X. Sang<sup>3</sup>; Y. Katoh<sup>1</sup>; 1. ORNL, USA; 2. University of Tennessee, USA; 3. North Carolina State University, USA

### FS1: Geopolymers, Chemically Bonded Ceramics, Eco-friendly and Sustainable Materials

#### Conversion to Ceramics II

Room: Oceanview

Session Chair: Sylvie Rossignol, SPCTS

##### 8:30 AM

#### (ICACC-FS1-014-2015) Microstructural investigation of carbothermally reacted geopolymer composites, made under specific alkaline conditions (Invited)

C. Bagci<sup>\*1</sup>; G. P. Kutyla<sup>2</sup>; W. M. Kriven<sup>2</sup>; 1. Hitit University, Turkey; 2. University of Illinois, USA

##### 9:00 AM

#### (ICACC-FS1-015-2015) HT Mechanical Properties of Alumina or Mullite Fiber/Weave Reinforced Geopolymer Composites (Invited)

S. S. Musil<sup>1</sup>; A. A. Kolchin<sup>2</sup>; S. T. Mileiko<sup>2</sup>; W. M. Kriven<sup>\*1</sup>; 1. University of Illinois at Urbana-Champaign, USA; 2. Russian Academy of Sciences, Russian Federation

##### 9:30 AM

#### (ICACC-FS1-016-2015) Effect of Curing Conditions on Crystalline Phase Development of Heat-treated K/Cs Geopolymer (Invited)

A. Steveson<sup>\*1</sup>; W. M. Kriven<sup>1</sup>; 1. University of Illinois at Urbana-Champaign, USA; 2. University of Illinois at Urbana-Champaign, USA

##### 10:00 AM

Break

### Novel Applications and Construction Materials I

Room: Oceanview

Session Chair: Hubert Rahier, Vrije Universiteit Brussel

##### 10:20 AM

#### (ICACC-FS1-017-2015) Ammonia-borane geopolymer (AB-G) composite (Invited)

L. Schomborg<sup>1</sup>; Z. Assi<sup>1</sup>; J. Buhl<sup>1</sup>; C. H. Rüscher<sup>\*1</sup>; M. Wark<sup>2</sup>; 1. University of Hannover, Germany; 2. University of Oldenburg, Germany

##### 10:50 AM

#### (ICACC-FS1-018-2015) Geopolymer binder for building systems effect of silica on geopolymer reactivity

S. Rossignol<sup>\*1</sup>; F. Gouny<sup>1</sup>; 1. SPCTS, France

##### 11:10 AM

#### (ICACC-FS1-019-2015) Synthesis and Characterization of Geopolymer Nanoaggregates and Their Ion-exchange Properties (Invited)

D. Medpell<sup>\*1</sup>; D. Seo<sup>1</sup>; 1. Arizona State University, USA

### FS5: Single Crystalline Materials for Electrical, Optical and Medical Applications

#### Ferro/piezo-electric II

Room: Tomoka C

Session Chair: Hiroaki Takeda, Tokyo Institute of Technology

##### 8:30 AM

#### (ICACC-FS5-021-2015) Ferroelectric and relaxor BCTZ piezoelectric single crystals (Invited)

M. Maglione<sup>\*1</sup>; F. Benabdallah<sup>1</sup>; P. Veber<sup>1</sup>; M. Prakasam<sup>1</sup>; O. Viraphong<sup>1</sup>; K. Shimamura<sup>2</sup>; 1. ICMCB-CNRS, France; 2. National Institute for Materials Science, Japan

**9:00 AM****(ICACC-F55-022-2015) Relaxor-based single crystals grown by continuous feeding (Invited)**

K. Echizenya\*; M. Matsushita; K. Nakamura; Y. Tachi<sup>2</sup>; 1. JFE MINERAL COMPANY,LTD., Japan; 2. JFE MINERAL COMPANY,LTD., Japan

**9:30 AM****(ICACC-F55-023-2015) Hydrothermal Crystal Growth and applications (Invited)**

A. Largeteau\*; 1. ICMCB-CNRS, France

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

Room: Tomoka C

Session Chair: Gisele Maxwell, Shasta Crystals Inc

**10:20 AM****(ICACC-F55-024-2015) Crystalline Phosphor Ceramic Plate for Next Generation Automobile Head Lamp (Invited)**

D. Yoon\*; Y. Song<sup>1</sup>; 1. SungKyunKwan Univeristy, Korea (the Republic of)

**10:50 AM****(ICACC-F55-025-2015) Growth of Oxide and Nitride Phosphor Single Crystal using Gas Phase Method (Invited)**

K. Toda\*; 1. Niigata university, Japan

**11:20 AM****(ICACC-F55-026-2015) Garnet single crystals for efficient phosphor and optical isolator applications (Invited)**

K. Shimamura\*; E. Villora<sup>1</sup>; 1. National Institute for Materials Science, Japan

**2nd European Union - USA Engineering Ceramics Summit****Advanced Ceramic Technologies: Current Status and Future Prospects IV**

Room: Coquina Salon F

Session Chairs: Sanjay Mathur, University of Cologne; Jerzy Lis, AGH University of Science and Technology

**8:30 AM****(ICACC-PRECS-021-2015) The UK Ceramic Community's Interaction with the EU and the USA: Learning from Both (Invited)**

W. E. Lee\*; E. Saiz<sup>1</sup>; J. Binner<sup>2</sup>; 1. Imperial College London, United Kingdom; 2. Birmingham University, United Kingdom

**9:00 AM****(ICACC-PRECS-022-2015) The experiences in research and transfer of innovative high tech ceramic technologies in Poland (Invited)**

J. Lis\*; 1. AGH University of Science and Technology, Poland

**9:30 AM****(ICACC-PRECS-023-2015) New trends of electronic materials for future needs (Invited)**

D. Suvorov\*; 1. Jozef Stefan Institute, Slovenia

**10:00 AM****Break****10:20 AM****(ICACC-PRECS-024-2015) On the Evolution of Nanomechanical Characterization for Brittle Solids (Invited)**

T. Wyrobek\*; 1. Hysitron, Inc., USA

**10:50 AM****(ICACC-PRECS-025-2015) The Rare Earth Elements among the Critical Elements (Invited)**

G. Meyer\*; 1. Iowa State University, USA

**11:20 AM****(ICACC-PRECS-026-2015) Niobium carbide for a reliable value chain**

M. Woydt\*; H. Mohrbacher<sup>2</sup>; 1. BAM Federal Institute for Materials Research and Testing, Germany; 2. Niobelcon bv/ba, Belgium

**11:40 AM****(ICACC-PRECS-027-2015) Cerium Oxide Nanoparticles in Nanomedicine: Panacea or Trojan Horses?**

L. Ghibelli\*; 1. Universita' di Roma Tor Vergata, Italy

**4th Global Young Investigator Forum****New Materials for Energy Applications**

Room: Coquina Salon C

Session Chairs: Craig Smith, Ohio Aerospace Institute; Chinghuan Lee, National Cheng Kung University

**8:30 AM****(ICACC-GYIF-032-2015) Development of PtCeO<sub>2</sub> electrocatalysts via sol-gel and chemical reduction for Direct Ethanol Fuel Cells**

M. J. Paulo\*; E. Pereira<sup>2</sup>; A. C. Tavares<sup>1</sup>; 1. INRS, Canada; 2. Federal University of Sao Carlos, Brazil

**8:50 AM****(ICACC-GYIF-033-2015) Fabrication and chemical heat storage property of Mg layered hydroxide salts**

S. Yamashita\*; Y. Sugie<sup>1</sup>; H. Kita<sup>1</sup>; 1. Nagoya University, Japan

**9:10 AM****(ICACC-GYIF-034-2015) Fatigue mechanisms in blended cathode materials for lithium ion batteries**

M. Lang\*; M. Darma<sup>1</sup>; H. Ehrenberg<sup>1</sup>; 1. Karlsruhe Institute of Technology, Germany

**9:30 AM****(ICACC-GYIF-035-2015) Ba(Ti<sub>1-x</sub>Rh<sub>x</sub>)O<sub>3±δ</sub> perovskite-type oxides for hydrogen reformer catalyst**

Y. Gönüllü\*; B. Saruhan-Brings<sup>2</sup>; G. Mondragon Rodriguez<sup>2</sup>; 1. University of Cologne, Germany; 2. German Aerospace Centre, Germany

**9:50 AM****(ICACC-GYIF-036-2015) Nano-structured Metal Oxide Gas Sensors**

T. Fischer\*; S. Mathur<sup>1</sup>; 1. University of Cologne, Germany

**10:10 AM****Break****Mechanical Properties of Ceramics and Composites**

Room: Coquina Salon C

Session Chairs: Thomas Fischer, University of Cologne; Yakup Gönüllü, University of Cologne

**10:30 AM****(ICACC-GYIF-037-2015) Monitoring Crack Extension in Ceramic Matrix Composite during Interlaminar Fracture Testing Using Electrical Resistivity**

R. Mansour\*; E. Mailet<sup>1</sup>; G. N. Morscher<sup>1</sup>; 1. The University of Akron, USA



10:50 AM

**(ICACC-GYIF-038-2015) Microstructural development and intrinsic fracture toughness of monolithic Si<sub>3</sub>N<sub>4</sub> ceramics prepared by spark plasma sintering**C. A. Lee\*<sup>1</sup>; H. Lu<sup>2</sup>; C. Wang<sup>3</sup>; H. Lin<sup>4</sup>; D. Lii<sup>5</sup>; J. Huang<sup>1</sup>; 1. National Cheng Kung University, Taiwan; 2. National Chin-Yi University of Technology, Taiwan; 3. Tsinghua University, China; 4. Oak Ridge National Laboratory, USA; 5. Cheng Shiu University, Taiwan

11:10 AM

**(ICACC-GYIF-039-2015) Correlating tensile creep of SiC/SiC composites with changes in electrical resistance**C. Smith\*<sup>1</sup>; G. N. Morscher<sup>2</sup>; 1. NASA Glenn Research Center, USA; 2. University of Akron, USA

11:30 AM

**(ICACC-GYIF-040-2015) Acoustic Emission and Electrical Resistivity During Tensile Testing of SiC/SiC Composites with different fiber types and Interphases**A. Almansour\*<sup>1</sup>; E. Mailet<sup>1</sup>; G. N. Morscher<sup>1</sup>; 1. The University of Akron, USA

11:50 AM

**(ICACC-GYIF-041-2015) Evaluation of R-curve of nanopolycrystalline stishovite using micro cantilever specimens**K. Yoshida\*<sup>1</sup>; N. Nishiyama<sup>2</sup>; F. Wakai<sup>1</sup>; Y. Shinoda<sup>1</sup>; A. Takashi<sup>1</sup>; M. Sone<sup>1</sup>; 1. Tokyo Institute of Technology, Japan; 2. Deutsches Elektronen-Synchrotron, Germany**S1: Mechanical Behavior and Performance of Ceramics & Composites****Environmental Effects**

Room: Coquina Salon D

Session Chairs: Marina Ruggles-Wrenn, Air Force Institute of Technology; Martha Mecartney, UC Irvine

1:30 PM

**(ICACC-S1-040-2015) Quantification and Modeling of Environmental Effects on SiC Fibers (Invited)**R. Hay\*<sup>1</sup>; T. Tidball<sup>1</sup>; R. Corns<sup>2</sup>; T. Parthasarathy<sup>3</sup>; 1. Air Force Research Laboratory, USA; 2. UES, Inc., USA; 3. Wright State University, USA

2:00 PM

**(ICACC-S1-041-2015) Oxidation of Hi-Nicalon<sup>TM</sup> SiC Fibers**M. Wilson\*<sup>1</sup>; E. Opila<sup>1</sup>; 1. University of Virginia, USA

2:20 PM

**(ICACC-S1-042-2015) Strength degradation after fatigue at elevated temperatures for SiC Hi-Nicalon and Hi-Nicalon S fibers and tows**J. Lamon\*<sup>1</sup>; M. R'Mili<sup>2</sup>; 1. CNRS, France; 2. INSA Lyon/University of Lyon, France

2:40 PM

**(ICACC-S1-043-2015) Creep in Interlaminar Shear of Nextel<sup>TM</sup>720/ Aluminosilicate Composite at 1100 °C in Air and in Steam**S. Hilburn<sup>1</sup>; M. Ruggles-Wrenn\*<sup>1</sup>; 1. Air Force Institute of Technology, USA

3:00 PM

Break

3:20 PM

**(ICACC-S1-044-2015) Fatigue Characterization of Sylramic-iBN/BN/CVI CMC under Combustion Environment**D. J. Bertrand\*<sup>1</sup>; V. Sabelkin<sup>2</sup>; S. Mall<sup>2</sup>; L. P. Zawada<sup>1</sup>; 1. Air Force Research Lab, USA; 2. Air Force Institute of Technology, USA

3:40 PM

**(ICACC-S1-045-2015) Oxidation of Ni in Al<sub>2</sub>O<sub>3</sub> after High Temperature Exposure to Dry Air, H<sub>2</sub>O, or D<sub>2</sub>O**M. Mecartney\*<sup>1</sup>; J. Angle<sup>2</sup>; 1. UC Irvine, USA; 2. UC Irvine, USA

4:00 PM

**(ICACC-S1-046-2015) Interactions between Na<sub>2</sub>SO<sub>4</sub>, B<sub>2</sub>O<sub>3</sub> and SiO<sub>2</sub> and relevance to hot corrosion of ceramic matrix composites**E. K. Poerschke\*<sup>1</sup>; E. Opila<sup>1</sup>; 1. University of Virginia, USA

4:20 PM

**(ICACC-S1-047-2015) Influence of Temperature and Humidity on the Strength of Low Temperature Co-fired Ceramics**C. Krautgasser\*<sup>1</sup>; R. Danzer<sup>2</sup>; F. Aldrian<sup>3</sup>; P. Supancic<sup>3</sup>; R. Bermejo<sup>2</sup>; 1. Materials Center Leoben Forschung GmbH, Austria; 2. Montanuniversitaet Leoben, Austria; 3. TDK-EPC, Austria

4:40 PM

**(ICACC-S1-048-2015) Measurement of Physical Properties of Thin Film Ceramic Substrates**C. P. Linseis\*<sup>1</sup>; 1. Linseis Inc., USA**S2: Advanced Ceramic Coatings for Structural, Environmental, and Functional Applications****CMAS-related Degradation and Mitigation Strategies II**

Room: Coquina Salon G

Session Chairs: Peter Mechnich, German Aerospace Center (DLR); Douglas Wolfe, Pennsylvania State University

1:30 PM

**(ICACC-S2-017-2015) Lifetime of new single and double layer EB-PVD thermal barrier coatings and their behavior under deposits (Invited)**U. Schulz\*<sup>1</sup>; P. Mechnich<sup>1</sup>; R. Naraparaju<sup>1</sup>; 1. DLR, Germany

2:00 PM

**(ICACC-S2-018-2015) CMAS Attack and Mitigation Mechanisms in Air Plasma Sprayed Thermal Barrier Coatings**A. R. Krause\*<sup>1</sup>; H. Garces<sup>1</sup>; G. Dwivedi<sup>2</sup>; S. Sampath<sup>3</sup>; N. P. Padture<sup>1</sup>; 1. Brown University, USA; 2. Stony Brook University, USA

2:20 PM

**(ICACC-S2-019-2015) Durable, Low Thermal Conductivity Thermal Barrier Coatings Modified for Harsh Environments**C. Jiang\*<sup>1</sup>; E. H. Jordan<sup>2</sup>; M. Gell<sup>1</sup>; J. Roth<sup>2</sup>; 1. University of Connecticut, USA; 2. University of Connecticut, USA

2:40 PM

**(ICACC-S2-020-2015) Protective Mg-Al spinel coatings for oxide CMCs**N. K. Eils\*<sup>1</sup>; P. Mechnich<sup>1</sup>; 1. German Aerospace Center (DLR), Germany

3:00 PM

Break

3:20 PM

**(ICACC-S2-021-2015) Phase Equilibria in Thermal Barrier Coating/ Silicate Melt Interactions**D. L. Poerschke\*<sup>1</sup>; T. L. Barth<sup>1</sup>; C. G. Levi<sup>1</sup>; 1. University of California Santa Barbara, USA

3:40 PM

**(ICACC-S2-022-2015) Properties and Crystallization Kinetics of Calcium-Magnesium Aluminosilicate (CMAS) Glass**V. L. Wiesner\*<sup>1</sup>; N. Bansal<sup>1</sup>; 1. NASA Glenn Research Center, USA

4:00 PM

**(ICACC-S2-023-2015) TBC corrosion by volcanic ash – properties and behavior of natural and artificial test dusts**P. Mechnich\*<sup>1</sup>; 1. German Aerospace Center (DLR), Germany

4:20 PM

**(ICACC-S2-024-2015) Durability and CMAS Resistance of Advanced Environmental Barrier Coating Systems**D. Zhu\*<sup>1</sup>; 1. NASA Glenn Research Center, USA

4:40 PM

**(ICACC-S2-025-2015) Calcium–magnesium–aluminosilicate corrosion behaviors of rare-earth disilicates at 1400°C**

J. Liu\*; 1. Guangdong university of technology, China

**S3: 12th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology****Oxygen Ion, Proton and Mixed Conductors**

Room: Crystal

Session Chairs: Nicola Perry, Kyushu University; Federico Smeacetto, Politecnico di Torino

1:30 PM

**(ICACC-S3-035-2015) Sinterability and Chemical Stability of BaZr<sub>0.1</sub>Ce<sub>0.7</sub>Y<sub>0.1</sub>Yb<sub>0.1</sub>O<sub>3-δ</sub> Proton Conducting Electrolyte for SOFCs**A. Vahid Mohammadi\*; P. Foroughi<sup>1</sup>; Z. Cheng<sup>1</sup>; 1. Florida International University, USA

1:50 PM

**(ICACC-S3-036-2015) Electronic Conductivity Measurement in Mixed Ionic and Electronic Conductors (MIEC) and Solid Electrolytes: A Transient Technique**L. Zhang\*; L. Zhu<sup>1</sup>; A. V. Virkar<sup>1</sup>; 1. University of Utah, USA

2:10 PM

**(ICACC-S3-037-2015) Electronic Conductivity Measurement in Mixed Ionic and Electronic Conductors (MIEC) and Solid Electrolytes: A Steady-state Technique**L. Zhu\*; L. Zhang<sup>1</sup>; A. V. Virkar<sup>1</sup>; 1. University of Utah, USA

2:30 PM

**(ICACC-S3-038-2015) A First-Principles Approach to the Attempt Frequency of Oxygen Ion Jumps in Doped Ceria**J. Koettgen\*; T. Zacherle<sup>1</sup>; S. Grieshammer<sup>1</sup>; M. Martin<sup>1</sup>; 1. RWTH Aachen University, Germany

2:50 PM

Break

3:10 PM

**(ICACC-S3-039-2015) Mixed ionic and electronic conductivity of terbium and gadolinium doped ceria solid solutions**R. C. Pillai\*; S. Chockalingam<sup>1</sup>; S. Misture<sup>2</sup>; D. D. Edwards<sup>2</sup>; S. Basu<sup>3</sup>; E. M. Sabolsky<sup>1</sup>; 1. West Virginia University, USA; 2. Kazuo Inamori School of Engineering, Alfred University, USA; 3. Indian Institute of Technology Delhi, India

3:30 PM

**(ICACC-S3-040-2015) Nonlinear Current-Voltage Characteristics of Individual Boundaries in Doped Ceria Based on Lamellae Studies**G. Baure\*; S. S. Sulekar<sup>1</sup>; M. Buck<sup>1</sup>; J. C. Nino<sup>1</sup>; 1. University of Florida, USA

3:50 PM

**(ICACC-S3-041-2015) Initial development of oxygen transport membrane technology at St Andrews**

Z. Dehaney-Steven\*; 1. University of St Andrews, United Kingdom

4:10 PM

**(ICACC-S3-042-2015) Strontium and tungsten incorporated La<sub>2</sub>Mo<sub>2</sub>O<sub>9</sub> solid electrolyte synthesized via polyol-mediated route for IT-SOFC**P. Singh\*; R. Pandey<sup>1</sup>; 1. Indian Institute of Technology (BHU) Varanasi, India**S4: Armor Ceramics: Challenges and New Developments****Modeling / Testing and Evaluation / Quasi-Static and Dynamic Behavior II**

Room: Coquina Salon E

Session Chair: Nitin Daphalapurkar, Johns Hopkins University; Michael Golt, ARL

1:20 PM

**(ICACC-S4-039-2015) The Relationship between Thermal Shock and Ballistic Behaviours of Ceramic Materials**R. Beaumont\*; J. Yeomans<sup>1</sup>; B. James<sup>2</sup>; R. Dorey<sup>1</sup>; 1. University of Surrey, United Kingdom; 2. DSTL, Porton Down, United Kingdom

1:40 PM

**(ICACC-S4-040-2015) Phenomenological Mechanochemistry of Fracture and Terminal Ballistics**

M. Grinfeld\*; 1. The US Army Research Laboratory, USA

2:00 PM

**(ICACC-S4-041-2015) Characterisation of ceramics for ballistic applications**A. C. Healey\*; J. Yeomans<sup>1</sup>; P. Smith<sup>1</sup>; J. Cotton<sup>2</sup>; S. Maclachlan<sup>2</sup>; 1. University of Surrey, United Kingdom; 2. Lucideon Ltd, United Kingdom

2:20 PM

**(ICACC-S4-042-2015) On the Fragmentation of Advanced Ceramics**J. D. Hogan\*; N. Daphalapurkar<sup>1</sup>; K. T. Ramesh<sup>1</sup>; 1. Hopkins Extreme Materials Institute, USA

2:40 PM

**(ICACC-S4-043-2015) Can Drop-Weight Tests Differentiate the Damage Resistance of Alumina Ceramics with Different Grain Structures for Armour Applications?**J. Wade\*; S. Robertson<sup>1</sup>; A. Greig<sup>1</sup>; H. Wu<sup>1</sup>; 1. Loughborough University, United Kingdom

3:00 PM

Break

3:20 PM

**(ICACC-S4-044-2015) Rate-Dependent Hardness and Amorphization Behavior of Nano-structure Boron Carbide**M. DeVries\*; J. J. Pittari<sup>1</sup>; G. Subhash<sup>1</sup>; 1. University of Florida, USA

3:40 PM

**(ICACC-S4-045-2015) In-Situ SEM Microcompression of Single Crystal Boron Carbide**J. Ligda\*; P. Khoma<sup>2</sup>; V. Domnich<sup>3</sup>; J. LaSalvia<sup>4</sup>; B. E. Schuster<sup>4</sup>; 1. Army Research Laboratory, USA; 2. Army Research Laboratory, USA; 3. Rutgers, The State University of New Jersey, USA; 4. Army Research Laboratory, USA

4:00 PM

**(ICACC-S4-046-2015) Shock experiments on confined TiB<sub>2</sub> and SiC**S. Satapathy\*; C. Williams<sup>1</sup>; D. Dandekar<sup>1</sup>; 1. U.S. Army Research Laboratory, USA

4:20 PM

**(ICACC-S4-047-2015) Efficient implementation of a strain-rate dependent constitutive relationship for ceramics**L. Graham-Brady\*; F. Huq<sup>1</sup>; J. Liu<sup>1</sup>; 1. Johns Hopkins University, USA

4:40 PM

**(ICACC-S4-048-2015) Anisotropic Damage Modeling of Boron Carbide with an Informed Microstructure**D. D. Mallick\*; J. D. Hogan<sup>1</sup>; L. Farbaniec<sup>1</sup>; M. Shaeffer<sup>1</sup>; R. Ayyagari<sup>1</sup>; N. Daphalapurkar<sup>1</sup>; K. T. Ramesh<sup>1</sup>; 1. Johns Hopkins University/ Army Research Lab, USA

## S5: Next Generation Bioceramics and Biocomposites

### Bioceramics I

Room: Coquina Salon F

Session Chairs: Delbert Day, Missouri University of Science and Technology; Leif Hermansson, Doxa AB

**1:30 PM**

#### (ICACC-S5-001-2015) Multifunctional Glass Microspheres for Medical Applications (Invited)

D. E. Day<sup>\*</sup>; 1. Missouri University of Science and Engineering, USA

**2:00 PM**

#### (ICACC-S5-002-2015) Modelling the Reactivity of Bioactive Glasses with Water (Invited)

A. Cormack<sup>\*</sup>; A. Tilocca<sup>2</sup>; 1. Alfred University, USA; 2. University College London, United Kingdom

**2:20 PM**

#### (ICACC-S5-003-2015) Tantalum-based Diffusion Coating for Increasing the Biocompatibility of Conventional Metal Implant Alloys (Invited)

J. Stiglich<sup>\*</sup>; B. Williams<sup>1</sup>; R. Narayan<sup>2</sup>; 1. Ultramet, USA; 2. University of North Carolina-North Carolina State University, USA

**2:40 PM**

#### (ICACC-S5-004-2015) Chemical Durability of Oxide Bioceramics (Invited)

N. P. Mellott<sup>\*</sup>; 1. Alfred University, USA

**3:00 PM**

Break

**3:20 PM**

#### (ICACC-S5-005-2015) Nanoscale structure and modification of Biomaterials (Invited)

F. Rosei<sup>\*</sup>; 1. INRS, Canada

**3:40 PM**

#### (ICACC-S5-006-2015) Influence of Bioactive Glass/Ceramic Ionic Dissolution Products on the Bioactivity of Hard Tissue Biomaterials (Invited)

A. W. Wren<sup>\*</sup>; 1. Alfred University, USA

**4:00 PM**

#### (ICACC-S5-007-2015) Review of the 2nd Innovations in Bioceramics Conference (Invited)

S. B. Jung<sup>\*</sup>; 1. MO-SCI Corporation, USA

**4:20 PM**

#### (ICACC-S5-008-2015) On the Formation of Apatites in Chemically Bonded Bioceramic Systems (Invited)

L. Hermansson<sup>\*</sup>; J. Löf<sup>1</sup>; G. Gomez-Ortega<sup>1</sup>; 1. Doxa AB, Sweden

**4:40 PM**

#### (ICACC-S5-009-2015) Novel porous bioceramics from the firing of silicone/calcite mixtures (Invited)

E. Bernardo<sup>\*</sup>; L. Fiocco<sup>1</sup>; 1. University of Padova, Italy

## S7: 9th International Symposium on Nanostructured Materials: Innovative Synthesis and Processing of Nanostructured, Nanocomposite and Hybrid Functional Materials for Energy, Health and Sustainability

### Nanomaterials for Water-splitting III

Room: Coquina Salon B

Session Chairs: Andrea Illiberi, TNO; Corisa Kons, University of South Florida

**1:30 PM**

#### (ICACC-S7-025-2015) SOLAROGENIX - Visible Light Active Metal Oxide Nano-catalysts for Sustainable Solar Hydrogen Production (Invited)

S. Mathur<sup>\*</sup>; T. Fischer<sup>1</sup>; L. Mayrhofer<sup>2</sup>; M. Niederberger<sup>3</sup>; J. Augustynski<sup>4</sup>; J. Morante<sup>5</sup>; H. Lemmetyinen<sup>6</sup>; D. Barreca<sup>7</sup>; V. Lütthen<sup>8</sup>; B. Proft<sup>1</sup>; 1. University of Cologne, Germany; 2. Fraunhofer Institute of Mechanics of Materials IWM, Germany; 3. ETH Zurich, Switzerland; 4. University of Warsaw, Poland; 5. Catalonia Institute for Energy Research (IREC), Spain; 6. Tampere University of Technology, Finland; 7. Padova University, Italy; 8. Siemens AG, Germany; 9. Sachtleben Pigment GmbH, Germany

**2:00 PM**

#### (ICACC-S7-026-2015) Interfacial Electronic Structure of Energy Conversion/Storage Materials Studied with In Situ X-ray Spectroscopy (Invited)

C. Dong<sup>\*</sup>; J. Guo<sup>2</sup>; 1. National Synchrotron Radiation Research Center, Taiwan; 2. Lawrence Berkeley National Laboratory, USA

**2:30 PM**

#### (ICACC-S7-027-2015) Multi-junction Metal Oxide Photoanodes for water-splitting applications

Y. Gönüllü<sup>\*</sup>; T. Fischer<sup>1</sup>; A. Mettenböcker<sup>1</sup>; S. Mathur<sup>1</sup>; 1. Inorganic Chemistry, Germany

**2:50 PM**

Break

### Nanomaterials for Solar Energy Harvesting

Room: Coquina Salon B

Session Chairs: Chung-Li Dong, National Synchrotron Radiation Research Center; Thomas Fischer, University of Cologne

**3:30 PM**

#### (ICACC-S7-028-2015) Atmospheric vapor-phase-deposition of TCOs for PV (Invited)

A. Illiberi<sup>\*</sup>; P. Poodt<sup>1</sup>; F. Grob<sup>1</sup>; P. Bolt<sup>1</sup>; F. Roozeboom<sup>2</sup>; 1. TNO, Netherlands; 2. Eindhoven University of Technology, Netherlands

**4:00 PM**

#### (ICACC-S7-029-2015) Encapsulation of silver nanowires in transparent conductive oxides for photovoltaic devices

M. Goebelt<sup>\*</sup>; B. Hoffmann<sup>1</sup>; M. Latzel<sup>1</sup>; S. Schmitt<sup>1</sup>; S. Jaeckle<sup>1</sup>; M. Bashouti<sup>1</sup>; S. Christiansen<sup>2</sup>; 1. Max-Planck-Institute for the Science of Light, Germany; 2. Helmholtz Center Berlin for Materials and Energy, Germany

**4:20 PM**

#### (ICACC-S7-030-2015) Hybrid inorganic-organic solar cells: Integration of nanowires and metal oxide encapsulation

S. Jaeckle<sup>\*</sup>; S. Schmitt<sup>1</sup>; M. Goebelt<sup>1</sup>; M. Mattiza<sup>1</sup>; S. Christiansen<sup>2</sup>; 1. Max Planck Institute for the Science of Light, Germany; 2. Helmholtz Center for Materials and Energy, Germany

**4:40 PM**

#### (ICACC-S7-031-2015) Deposition of lead halide perovskite onto metallic wires

T. Vu<sup>\*</sup>; J. Ting<sup>1</sup>; 1. National Cheng Kung University, Taiwan

**5:00 PM****(ICACC-S7-032-2015) Role of CeO<sub>2</sub> Addition on the Ionic Conductivity of 8 mol. % Y<sub>2</sub>O<sub>3</sub> – ZrO<sub>2</sub> Electrolyte for the Application of Solid Oxide fuel cell**A. Gupta<sup>\*</sup>; K. Balani<sup>1</sup>; S. Omar<sup>1</sup>; 1. INDIAN INSTITUTE OF TECHNOLOGY KANPUR INDIA, India**S8: 9th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT9)****Advanced Sintering Technologies**

Room: Coquina Salon A

Session Chairs: Pavol Sajgalik; Tohru Suzuki, National Institute for Materials Science

**1:30 PM****(ICACC-S8-037-2015) Additive-free hot-pressed silicon carbide ceramics – a material with exceptional mechanical properties (Invited)**P. Sajgalik<sup>\*</sup>; J. Sedlaček<sup>1</sup>; Z. Lences<sup>1</sup>; J. Duszka<sup>2</sup>; H. Lin<sup>3</sup>; 1. Institute of Inorganic Chemistry, Slovak Academy of Sciences, Slovakia; 2. Institute of Materials Research, SAS, Slovakia; 3. Oak Ridge National Laboratory, USA**2:00 PM****(ICACC-S8-038-2015) Modeling and Scale-Up of Direct Current Sintering of ZrB<sub>2</sub> Ultra-High Temperature Ceramics**D. Pham<sup>\*</sup>; E. L. Corral<sup>1</sup>; 1. University of Arizona, USA**2:20 PM****(ICACC-S8-039-2015) Direct Current Sintering (DCS) of Complex Geometries: Modeling in COMSOL to predict and reduce temperature gradients**P. K. Neff<sup>\*</sup>; D. Pham<sup>1</sup>; F. Smith<sup>1</sup>; E. L. Corral<sup>1</sup>; 1. University of Arizona, USA**2:40 PM****(ICACC-S8-040-2015) Processing and Microstructural Evolution of Spark Plasma Sintered Alumina with Graphene Nanoplatelet Reinforcement**A. Nieto<sup>\*</sup>; L. Huang<sup>1</sup>; Y. Han<sup>2</sup>; J. M. Schoenung<sup>1</sup>; 1. University of California Davis, USA; 2. Yeungnam University, Korea (the Republic of)**3:00 PM****Break**

15:00 - 15:20

**3:20 PM****(ICACC-S8-041-2015) Influence of Spark-Plasma-Sintering (SPS) Parameters on Optical Transparency of MgAl<sub>2</sub>O<sub>4</sub> Spinel (Invited)**K. Morita<sup>\*</sup>; B. Kim<sup>1</sup>; H. Yoshida<sup>1</sup>; K. HIRAGA<sup>2</sup>; Y. SAKKA<sup>1</sup>; 1. National Institute for Materials Science, Japan; 2. Kitami Institute of Technology, Japan**3:50 PM****(ICACC-S8-042-2015) Synthesis by spark plasma sintering (SPS) of a composite of barium aluminosilicate (BaAl<sub>2</sub>Si<sub>2</sub>O<sub>8</sub>) reinforced by oxide fibers**R. Billard<sup>\*</sup>; A. Allemand<sup>1</sup>; Y. Lepetitcorps<sup>1</sup>; 1. LCTS, France**4:10 PM****(ICACC-S8-043-2015) Fast thermal cycling of SiC based ceramics by microwave heating**G. Bianchi<sup>1</sup>; P. Vavassori<sup>1</sup>; A. Ortona<sup>\*</sup>; G. Annino<sup>6</sup>; S. Gianella<sup>5</sup>; B. Vila<sup>2</sup>; M. Nagliati<sup>3</sup>; M. Mallah<sup>2</sup>; M. Valle<sup>1</sup>; M. Orlandi<sup>3</sup>; 1. SUPSI, Switzerland; 2. Fricke und Mallah Microwave Technology GmbH, Germany; 3. BREMBO SGL CARBON CERAMIC BRAKES, Italy; 4. Petroceramics, Italy; 5. Erbicol, Switzerland; 6. Consiglio Nazionale delle Ricerche, Italy**4:30 PM****(ICACC-S8-044-2015) Microwave Processing Cage-like Magnesium Silicate Hosted Phosphor with a 660 nm-featured Emission for Bio-illumination**D. Wang<sup>\*</sup>; Q. Lu<sup>1</sup>; Z. Mao<sup>1</sup>; 1. Tianjin University of Technology, China**S9: Porous Ceramics: Novel Developments and Applications****Innovations in Processing Methods and Synthesis of Porous Ceramics III**

Room: Coquina Salon H

Session Chair: Enrico Bernardo, University of Padova

**1:30 PM****(ICACC-S9-016-2015) Fabrication of High-flux Ceramic Hollow Fibers for Gas and Liquid Separations (Invited)**Z. Lai<sup>\*</sup>; 1. King Abdullah University of Science and Technology, Saudi Arabia**2:00 PM****(ICACC-S9-017-2015) Fabrication of porous SiC ceramics using silicon, carbon and polysiloxane**E. Lee<sup>\*</sup>; Y. Kim<sup>1</sup>; D. Kim<sup>1</sup>; 1. SungKyunKwan University, Korea (the Republic of)**2:20 PM****(ICACC-S9-018-2015) Innovations and novel techniques used to manufacture low cost environmentally friendly porous ceramics**J. E. Lancien<sup>\*</sup>; S. O. Matthews<sup>1</sup>; E. Branigan<sup>1</sup>; 1. SCF Processing Ltd, Ireland**2:40 PM****(ICACC-S9-019-2015) Porous 3D ceramic structures formed using a modified weaving technique**S. O. Matthews<sup>\*</sup>; J. E. Lancien<sup>1</sup>; J. Matthews<sup>1</sup>; 1. SCF Processing Ltd, Ireland**3:00 PM****Break****Innovations in Processing Methods and Synthesis of Porous Ceramics IV**

Room: Coquina Salon H

Session Chair: Siobhan Matthews, SCF Processing Ltd

**3:20 PM****(ICACC-S9-020-2015) Hierarchical Porous Ceramics Fabricated by Freeze-Casting Method and Their Energy and Environmental Applications (Invited)**D. Kim<sup>1</sup>; S. Yong<sup>1</sup>; W. Jung<sup>1</sup>; D. Kim<sup>\*</sup>; 1. KAIST, Korea (the Republic of)**3:50 PM****(ICACC-S9-021-2015) Imaging of Internal Microstructure of Porous Titania Granules by Epoxy Infiltration**N. Ku<sup>\*</sup>; R. A. Haber<sup>1</sup>; 1. Rutgers University, USA**4:10 PM****(ICACC-S9-022-2015) Effect of Pore Former Shape on Cast Ce<sub>0.9</sub>Gd<sub>0.1</sub>O<sub>1.95</sub>- $\delta$  Tapes Properties**C. Grings Schmidt<sup>\*</sup>; A. Kaiser<sup>1</sup>; K. Kammer Hansen<sup>1</sup>; K. Bøhm Andersen<sup>1</sup>; A. Roosen<sup>2</sup>; Z. Fu<sup>2</sup>; 1. Technical University of Denmark, Denmark; 2. University of Erlangen-Nuremberg, Germany**4:30 PM****(ICACC-S9-023-2015) Advanced electrodes for Tubular Ceramic Fuel Cells**A. Hanifi<sup>\*</sup>; T. H. Etsell<sup>1</sup>; P. Sarkar<sup>2</sup>; 1. University of Alberta, Edmonton, Canada; 2. Alberta Innovates - Technology Futures, Canada



## S10: Virtual Materials (Computational) Design and Ceramic Genome

### Ceramic Genome and Modeling of Structure and Property I

Room: Coquina Salon C

Session Chairs: Jingyang Wang, Institute of Metal Research; Wai-Yim Ching, University of Missouri-Kansas City

**1:30 PM**

#### (ICACC-S10-001-2015) Use of Ab Initio Data in Materials Informatics: Application to MAX Phases (Invited)

W. Ching\*; R. Sakidja<sup>1</sup>; 1. University of Missouri-Kansas City, USA

**2:00 PM**

#### (ICACC-S10-002-2015) Highly Selective Hybrid Gas Sensors: Insights from DFT (Invited)

L. Mayrhofer\*; M. Hoffmann<sup>2</sup>; J. Prades<sup>3</sup>; F. Hernandez-Ramirez<sup>2</sup>; T. Järvi<sup>1</sup>; M. Moseler<sup>1</sup>; A. Waag<sup>2</sup>; H. Shen<sup>2</sup>; 1. Fraunhofer IWM, Germany; 2. Technical University of Braunschweig, Germany; 3. University of Barcelona, Spain

**2:30 PM**

#### (ICACC-S10-003-2015) Multiplet Energy Diagrams of $d^3$ Ions Based on First-Principles Calculations for Theoretical Design of Red Phosphors for White LEDs (Invited)

K. Ogasawara\*; 1. Kwansei Gakuin University, Japan

**3:00 PM**

Break

**3:20 PM**

#### (ICACC-S10-004-2015) Strategy to achieve lower intrinsic lattice thermal conductivity (Invited)

J. Wang\*; 1. Institute of Metal Research, China

**3:50 PM**

#### (ICACC-S10-005-2015) Theoretical Investigations on the Structural, Electronic, Mechanical and Thermal Properties of MP2O7 (M = Ti, Zr, Hf)

H. Xiang\*; Y. Zhou<sup>1</sup>; Z. Feng<sup>1</sup>; 1. Aerospace Research Institute of Materials and Processing Technology, China

**4:10 PM**

#### (ICACC-S10-006-2015) Calculation of Lattice Thermal Conductivity of MAX Phases

C. Dhakal\*; R. Sakidja<sup>1</sup>; S. Aryal<sup>1</sup>; W. Ching<sup>1</sup>; 1. University of Missouri-Kansas City, USA

**4:30 PM**

#### (ICACC-S10-007-2015) Studies of the Cracked MMCs with Lamellar Microstructure

M. Kashtalyan<sup>2</sup>; Y. Sinchuk<sup>1</sup>; R. Piat<sup>1</sup>; 1. Karlsruhe Institute of Technology, Germany; 2. University of Aberdeen, United Kingdom

## S12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nano-laminated Ternary Carbides and Nitrides (MAX Phases)

### Methods to Improve the Oxidation Resistance and Damage Tolerance

Room: Ponce DeLeon

Session Chair: Xiaohui Wang, Institute of Metal Research

**1:30 PM**

#### (ICACC-S12-037-2015) The Role of Microstructure on Mechanical Behavior of Ti<sub>2</sub>AlC (Invited)

M. Radovic\*; 1. Texas A&M University, USA

**2:00 PM**

#### (ICACC-S12-038-2015) Development of MAX phases for nuclear fuel cladding applications

D. Horlait\*; D. D. Jayaseelan<sup>1</sup>; W. E. Lee<sup>1</sup>; S. Grasso<sup>2</sup>; 1. Imperial College London, United Kingdom; 2. Queen Mary University, United Kingdom

**2:20 PM**

#### (ICACC-S12-039-2015) Interaction of selected MAX Phases with pure sodium

G. Bentzel\*; M. W. Barsoum<sup>1</sup>; 1. Drexel University, USA

**2:40 PM**

#### (ICACC-S12-040-2015) SiC Depletion in ZrB<sub>2</sub>-30 vol% SiC During Oxidation at Ultra-High Temperatures

K. Shugart\*; E. Opila<sup>2</sup>; 1. UES, Inc., USA; 2. University of Virginia, USA

**3:00 PM**

Break

## New Precursors for Powders, Coatings and Matrix or Fibers of Composites

Room: Ponce DeLeon

Session Chair: Guo-Jun Zhang, Shanghai Institute of Ceramics

**3:20 PM**

#### (ICACC-S12-041-2015) Preparation and Microstructure Investigation of UHTC Fibers (Invited)

W. Zhang<sup>1</sup>; M. Ge<sup>1</sup>; Y. Tian<sup>1</sup>; X. Lv<sup>2</sup>; S. Yu<sup>1</sup>; X. Wei<sup>1</sup>; 1. Institute of Process Engineering, Chinese Academy of Sciences, China; 2. University of Chinese Academy of Sciences, China

**3:40 PM**

#### (ICACC-S12-042-2015) Influence of Nitrogen Pressure on SHS Synthesis of Ti<sub>2</sub>AlN Powders

L. Chlubny\*; J. Lis<sup>1</sup>; M. M. Bucko<sup>1</sup>; D. Zientara<sup>1</sup>; M. Bednarska<sup>1</sup>; 1. AGH-University of Science and Technology, Poland

**4:00 PM**

#### (ICACC-S12-043-2015) Fiber Interface Coatings via UVCVD for High Temperature Fiber-reinforced Ceramic Matrix Composites

J. Stiglich\*; B. Williams<sup>1</sup>; J. Brockmeyer<sup>1</sup>; V. Arrieta<sup>1</sup>; 1. Ultramet, USA

**4:20 PM**

#### (ICACC-S12-044-2015) Synthesis of doped hafnium diboride for UHT applications

P. Zheng\*; J. Binner<sup>2</sup>; B. Vaidhyanathan<sup>1</sup>; 1. Loughborough University, United Kingdom; 2. University of Birmingham, United Kingdom

**4:40 PM**

#### (ICACC-S12-045-2015) Synthesis and Sintering of Nanoscale Hafnium Diboride Powders

E. Martinez\*; P. Foroughi<sup>1</sup>; Z. Cheng<sup>1</sup>; 1. Florida International University, USA

**5:00 PM**

#### (ICACC-S12-046-2015) Recent Studies to Understand the Tribology of MAX Phases and Their Composites

S. Gupta\*; 1. University of North Dakota, USA

## S13: International Symposium on Advanced Ceramics and Composites for Sustainable Nuclear Energy and Fusion Energy

### SiC Composites R&D for Fusion Energy

Room: Tomoka B

Session Chair: Monica Ferraris, Politecnico di Torino

**1:30 PM**

#### (ICACC-S13-036-2015) Japanese activities on SiC/SiC composites toward fusion DEMO

T. Nozawa\*; K. Ozawa<sup>1</sup>; H. Tanigawa<sup>1</sup>; 1. Japan Atomic Energy Agency, Japan

**1:50 PM****(ICACC-S13-037-2015) Silicon Carbide Composite Research in U.S. Fusion Materials Program**Y. Katoh<sup>\*</sup>; L. L. Snead<sup>1</sup>; C. H. Henager<sup>2</sup>; 1. Oak Ridge National Laboratory, USA; 2. Pacific Northwest National Laboratory, USA**2:10 PM****(ICACC-S13-038-2015) On the Research Activities and Achievements in SiCf/Si Composites for Fusion Structural Applications (Invited)**S. Novak<sup>1</sup>; A. Ivekovic<sup>1</sup>; M. Ferraris<sup>2</sup>; A. Galatanou<sup>3</sup>; J. I. Pastor<sup>4</sup>; D. Blagoeva<sup>5</sup>; S. Gonzalez da Vicente<sup>\*6</sup>; 1. Jozef Stefan Institute, Slovenia; 2. Politecnico di Torino, Italy; 3. National Institute for Materials Physics, Romania; 4. Universidad Politécnica de Madrid, Spain; 5. NRG, Netherlands; 6. EFDA Close Support Unit, Germany**2:40 PM****Break****Ceramic and Glass Technology for Nuclear Waste Management**

Room: Tomoka B

Session Chair: Josef Matyas, Pacific Northwest National Lab

**3:20 PM****(ICACC-S13-039-2015) Stabilization of Concentrated Low Activity Waste in a Cementitious Waste Form (Invited)**A. Cozzi<sup>\*</sup>; K. Fox<sup>1</sup>; E. Hansen<sup>1</sup>; J. Farell<sup>2</sup>; 1. Savannah River National Lab, USA; 2. University of Alabama, USA**3:50 PM****(ICACC-S13-040-2015) Glass Ceramic Waste Form Development for High-Level Waste from Reprocessed Spent Nuclear Fuel (Invited)**J. V. Crum<sup>\*</sup>; V. Maio<sup>2</sup>; J. Marra<sup>3</sup>; J. Vienna<sup>1</sup>; 1. Pacific Northwest National Laboratory, USA; 2. Idaho National Laboratory, USA; 3. Savannah River National Laboratory, USA**4:20 PM****(ICACC-S13-041-2015) Ceramic Waste Forms for Immobilization of Waste from Commercial Fuel Reprocessing (Invited)**J. Amoroso<sup>\*</sup>; J. Marra<sup>1</sup>; 1. Savannah River National Laboratory, USA**4:40 PM****(ICACC-S13-042-2015) Development of Silica-Based Waste Form for Radioiodine**J. Matyas<sup>\*</sup>; A. Walter<sup>1</sup>; 1. Pacific Northwest National Lab, USA**FS1: Geopolymers, Chemically Bonded Ceramics, Eco-friendly and Sustainable Materials****Construction Materials II**

Room: Oceanview

Session Chairs: Elodie Prud'homme, LGCIE - INSA Lyon; Cengiz Bagci, Hitit University

**1:30 PM****(ICACC-FS1-020-2015) Current Progress in the Development of Next Generation Green Manufacturing Technologies (Invited)**M. F. Riyad<sup>1</sup>; S. Gupta<sup>\*1</sup>; 1. University of North Dakota, USA**1:50 PM****(ICACC-FS1-021-2015) Long-term development of mechanical strength of alkali-activated metakaolin (MK), fly ash (FA), slag (H) and hybrids (FA/MK, H/MK)**F. Jirasit<sup>\*1</sup>; C. H. Rüscher<sup>2</sup>; L. Lohaus<sup>3</sup>; P. Chindaprasert<sup>4</sup>; 1. RMUTL, Thailand; 2. Leibniz Universität Hannover, Germany; 3. Leibniz Universität Hannover, Germany; 4. Khon Kaen University, Thailand**2:10 PM****(ICACC-FS1-022-2015) Analysis and Correlation of Chemical and Mechanical Characteristics of Fly Ash Geopolymer Concrete**R. Islam<sup>\*1</sup>; C. Montes<sup>1</sup>; E. Allouche<sup>1</sup>; 1. Louisiana Tech University, USA**2:30 PM****(ICACC-FS1-023-2015) Study of consolidated materials based on alkali-activated blast furnace slag (Invited)**E. Prud'homme<sup>\*1</sup>; M. Michel<sup>2</sup>; J. Ambroise<sup>1</sup>; 1. LGCIE - INSA Lyon, France; 2. LCGIE - Université Lyon I, France**2:50 PM****Break****3:10 PM****(ICACC-FS1-024-2015) Preparation of geopolymer-type mortar and lightweight concrete from copper floatation waste and coal combustion by products (Invited)**T. Jadambaa<sup>1</sup>; M. Amgalan<sup>1</sup>; D. Batmunkh<sup>1</sup>; Z. Tsoodol<sup>1</sup>; B. Uyat<sup>1</sup>; J. Tsedev<sup>2</sup>; C. H. Rüscher<sup>\*3</sup>; 1. Institute of Chemistry and Chemical Technology, Mongolian Academy of Sciences, Mongolia; 2. Mongolian University of Science and Technology, Mongolia; 3. University of Hannover, Germany**3:30 PM****(ICACC-FS1-025-2015) Thermomechanical stability of portland cement with steel slag waste contents**H. A. Colorado<sup>\*1</sup>; S. A. Colorado<sup>2</sup>; J. Posada<sup>1</sup>; 1. Universidad de Antioquia, Colombia; 2. Instituto Tecnológico Metropolitano, Colombia**3:50 PM****(ICACC-FS1-026-2015) Portland cement with battery waste contents**H. A. Colorado<sup>\*1</sup>; A. Norena<sup>2</sup>; 1. Universidad de Antioquia, Colombia; 2. I+D Recycling Solutions, Colombia**4:10 PM****(ICACC-FS1-027-2015) The role of temperature on properties of ternary composite matrix**M. Boháč<sup>\*1</sup>; R. Novotný<sup>1</sup>; J. Másilko<sup>1</sup>; F. Frajkorová<sup>1</sup>; E. Bartoniczkova<sup>1</sup>; M. Palou<sup>1</sup>; 1. Brno University of Technology, Faculty of Chemistry, Czech Republic**4:30 PM****(ICACC-FS1-028-2015) Sustainability of Geopolymeric bricks production process (Invited)**R. Cioffi<sup>1</sup>; C. Borrelli<sup>1</sup>; C. Ferone<sup>\*1</sup>; A. Petrillo<sup>2</sup>; 1. University Parthenope, Italy; 2. University Parthenope, Italy**FS2: Advanced Ceramic Materials and Processing for Photonics and Energy****Solar Cells**

Room: Tomoka A

Session Chairs: Yasuhiro Tachibana, RMIT University; Giovanni Fanchini, University of Western Ontario

**1:30 PM****(ICACC-FS2-001-2015) Solution processed organic/inorganic photovoltaics (Invited)**C. Luscombe<sup>\*1</sup>; 1. University of Washington, USA**2:00 PM****(ICACC-FS2-002-2015) Charge separation and recombination processes in bare and dye-sensitized TiO<sub>2</sub> nanoparticles (Invited)**R. Katoh<sup>\*1</sup>; 1. Nihon university, Japan**2:30 PM****(ICACC-FS2-003-2015) Interfacing organic and carbon-based nanomaterials towards their applications in sustainable energy**G. Fanchini<sup>\*1</sup>; 1. University of Western Ontario, Canada

3:00 PM

Break

3:20 PM

**(ICACC-FS2-004-2015) Ultrafast spectroscopic study on interfacial electron transfer in some sensitized solar cell systems (Invited)**A. Furube<sup>\*1</sup>; 1. National Institute of Advanced Industrial Science and Technology, Japan

3:50 PM

**(ICACC-FS2-005-2015) Carbon nanotubes / TiO<sub>2</sub> composite systems for high efficiency dye sensitized solar cells**D. Benetti<sup>\*1</sup>; K. Dembele<sup>1</sup>; C. Trudeau<sup>2</sup>; S. Cloutier<sup>2</sup>; A. Vomiero<sup>2</sup>; F. Rosei<sup>1</sup>; 1. INRS, Canada; 2. University of Brescia, Italy; 3. École de technologie supérieure, Canada

4:10 PM

**(ICACC-FS2-006-2015) Perovskite materials on Silicon for photovoltaics (Invited)**R. Nechache<sup>\*1</sup>; 1. Institut National de la Recherche Scientifique (INRS), Canada

4:40 PM

**(ICACC-FS2-007-2015) Development of semiconductor quantum dot sensitized solar cells**Y. Tachibana<sup>\*1</sup>; 1. RMIT University, Australia

## FS5: Single Crystalline Materials for Electrical, Optical and Medical Applications

### New Directions I

Room: Tomoka C

Session Chairs: Klaus Becker, TU Braunschweig; Detlef Klimm, Leibniz Institute for Crystal Growth

1:30 PM

**(ICACC-FS5-027-2015) Solid state electrochemistry: a tool for synthesis and characterization of solids (Invited)**C. Delmas<sup>\*1</sup>; M. Guignard<sup>1</sup>; D. Carlier<sup>1</sup>; J. Darriet<sup>1</sup>; 1. CNRS, France

2:00 PM

**(ICACC-FS5-028-2015) Single-Crystal Growth of Solid Electrolyte Li<sub>x</sub>La(1-x)/3NbO<sub>3</sub> by Unidirectional Solidification Method (Invited)**Y. Fujiwara<sup>\*1</sup>; K. Hoshikawa<sup>1</sup>; K. Kohama<sup>2</sup>; 1. Shinshu University, Japan; 2. Toyota Motor Corp., Japan

2:30 PM

**(ICACC-FS5-029-2015) Reactive Atmospheres for Oxide Crystal Growth (Invited)**D. Klimm<sup>\*1</sup>; R. Bertram<sup>1</sup>; S. Ganschow<sup>1</sup>; Z. Galazka<sup>1</sup>; D. Schulz<sup>1</sup>; R. Uecker<sup>1</sup>; 1. Leibniz Institute for Crystal Growth, Germany

3:00 PM

Break

3:20 PM

**(ICACC-FS5-030-2015) Simultaneous generation of multiple nonlinear processes in patterned ferroelectrics (Invited)**M. O. Ramirez<sup>\*1</sup>; L. Mateos<sup>1</sup>; P. Molina<sup>1</sup>; L. E. Bausa<sup>1</sup>; 1. Universidad Autonoma Madrid, Spain

3:50 PM

**(ICACC-FS5-031-2015) A High-Temperature Optical Spectroscopy Study of Lithium Niobate, LiNbO<sub>3</sub> (Invited)**J. Shi<sup>1</sup>; K. D. Becker<sup>\*1</sup>; 1. TU Braunschweig, Germany

4:20 PM

**(ICACC-FS5-032-2015) Discussion on polycrystals over single crystals for optical devices**M. Prakasam<sup>\*1</sup>; A. Largeteau<sup>2</sup>; 1. ICMCB-CNRS, France; 2. ICMCB-CNRS, France

4:40 PM

**(ICACC-FS5-033-2015) Magnetic phase transitions of hexagonal RMnO<sub>3</sub> studied by Raman spectroscopy**T. Nguyen<sup>1</sup>; X. Chen<sup>2</sup>; S. Cheong<sup>3</sup>; T. Noh<sup>4</sup>; N. Sung<sup>5</sup>; B. Cho<sup>5</sup>; I. Yang<sup>\*1</sup>; 1. Ewha Womans University, Korea (the Republic of); 2. Konkuk University, Korea (the Republic of); 3. Rutgers University, USA; 4. Seoul National University, Korea (the Republic of); 5. Gwangju Institute of Science and Technology, Korea (the Republic of)

## Posters

### Session B

Room: Ocean Center Arena

5:00 PM

**(ICACC-S2-P066-2015) Effects of local nonuniform deformation in SiC/SiC on failure behaviors of EBCs**A. Otsuka<sup>\*1</sup>; T. Kuribara<sup>1</sup>; H. Kakisawa<sup>1</sup>; Y. Kagawa<sup>1</sup>; 1. The University of Tokyo, Japan**(ICACC-S2-P067-2015) Effect of particle in-flight behavior on the microstructure and mechanical property of La<sub>2</sub>Ce<sub>2</sub>O<sub>7</sub> thermal barrier coatings**K. Liu<sup>\*1</sup>; Y. Kang<sup>1</sup>; Y. Wang<sup>1</sup>; J. Tang<sup>1</sup>; Y. Bai<sup>1</sup>; 1. Xi'an Jiaotong University, China**(ICACC-S2-P068-2015) Influence of In-flight behavior of YSZ Particles on the Microstructure and Thermal Insulation Performance of Thermal Barrier Coatings**J. Tang<sup>\*1</sup>; Q. Fu<sup>1</sup>; Z. Han<sup>1</sup>; Y. Bai<sup>1</sup>; 1. Xi'an Jiaotong University, China**(ICACC-S2-P069-2015) A Transmission Electron Microscopy Study of The Microstructure And Interface of Zirconia-based Thermal Barrier Coatings**Y. Wang<sup>\*1</sup>; Y. Bai<sup>1</sup>; H. Z. Han<sup>1</sup>; 1. State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University, China**(ICACC-S2-P070-2015) Development of stable and tough Si base bondcoat layer for EBCs on SiC/SiC substrate**S. Magata<sup>\*1</sup>; Y. Arai<sup>1</sup>; H. Kakisawa<sup>1</sup>; Y. Kagawa<sup>1</sup>; 1. The University of Tokyo, Japan**(ICACC-S2-P071-2015) Ti-Al-Si-Cr-N nanocomposite coatings deposited by magnetron sputtering process with single alloying targets**H. Lee<sup>\*1</sup>; K. Moon<sup>1</sup>; 1. KITECH, Korea (the Republic of)**(ICACC-S3-P072-2015) Preliminary Studies about bi-layer interconnect including lanthanum strontium titanate (LST) for application of solid oxide fuel cell**H. Yoon<sup>\*1</sup>; S. Park<sup>1</sup>; N. Sammes<sup>1</sup>; J. Chung<sup>1</sup>; 1. Pohang University of Science and Technology(POSTECH), Korea (the Republic of)**(ICACC-S3-P073-2015) Tubular Ceramic Fuel Cell Stack**A. Hanifi<sup>\*1</sup>; T. H. Etsell<sup>1</sup>; P. Sarkar<sup>2</sup>; 1. University of Alberta, Edmonton, Canada; 2. Alberta Innovates - Technology Futures, Canada**(ICACC-S3-P074-2015) Oxygen Nonstoichiometry of La<sub>Ni</sub>xM<sub>1-x</sub>O<sub>3-δ</sub> (M = Fe, Co and x = 0.6, 0.4)**R. A. Budiman<sup>\*1</sup>; S. Hashimoto<sup>2</sup>; T. Nakamura<sup>3</sup>; K. Yashiro<sup>1</sup>; K. Amezawa<sup>1</sup>; T. Kawada<sup>1</sup>; 1. Tohoku University, Japan; 2. Tohoku University, Japan; 3. Tohoku University, Japan**(ICACC-S3-P075-2015) Effects of TiO<sub>2</sub> Addition on Microstructure and Ionic Conductivity of Gadolinia-Doped Ceria**M. F. Dias<sup>1</sup>; E. N. Muccillo<sup>\*1</sup>; 1. Energy and Nuclear Research Institute, Brazil**(ICACC-S3-P076-2015) Characteristics of protective LSM coatings on Cr-contained steels used as metallic interconnectors of intermediated temperature solid oxide fuel cells**C. Chang<sup>\*1</sup>; C. Hwang<sup>1</sup>; C. Tsai<sup>1</sup>; S. Yang<sup>1</sup>; W. Shong<sup>1</sup>; Z. Zhuang-Shie<sup>1</sup>; T. D. Huang<sup>1</sup>; 1. Institute of Nuclear Energy Research, Taiwan**(ICACC-S3-P077-2015) Electrical and structural characterization of Mn-Co spinel protective coatings for SOFC interconnects**S. Molin<sup>1</sup>; D. Boccaccini<sup>1</sup>; M. Chen<sup>1</sup>; S. Cabanas-Polo<sup>2</sup>; A. R. Boccaccini<sup>2</sup>; M. Bindi<sup>3</sup>; P. Leone<sup>4</sup>; A. De Miranda<sup>5</sup>; F. Smeacetto<sup>\*5</sup>; 1. Technical University of Denmark, Denmark; 2. University of Erlangen-Nuremberg, Germany; 3. Edison S.p.A., Italy; 4. Politecnico di Torino, Italy; 5. Politecnico di Torino, Italy**(ICACC-S3-P078-2015) Effects of 12% CO<sub>2</sub> in Air on LSM/YSZ Cathodes during 1000 h SOFC Tests**J. S. Hardy<sup>\*1</sup>; C. A. Coyle<sup>1</sup>; N. L. Canfield<sup>1</sup>; J. Stevenson<sup>1</sup>; 1. Pacific Northwest National Laboratory, USA

**(ICACC-S5-P079-2015) Enlarging Pore Size in Electrospun Scaffolds by Positive Voltage and Negative Voltage Electrospinning for Enhancing Cell Infiltration**

Q. Zhao\*<sup>1</sup>; M. Wang<sup>1</sup>; 1. The University of Hong Kong, Hong Kong

**(ICACC-S5-P080-2015) Effect of reactivity of dicalcium phosphate dihydrate (DCPD) by hybridization with hydroxyapatite (HA)**

Y. Takemura\*<sup>1</sup>; M. Tafu<sup>1</sup>; T. Tushima<sup>1</sup>; T. Chohji<sup>1</sup>; 1. National Institute of Technology, Toyama College, Japan; 2. National Institute of Technology, Kagoshima College, Japan

**(ICACC-S5-P081-2015) High-performance, Reaction Sintered Lithium Disilicate Glass-ceramics**

T. Zhao<sup>1</sup>; Y. Qin<sup>1</sup>; B. Wang<sup>1</sup>; J. Yang\*<sup>1</sup>; 1. Xi'an Jiaotong University, China

**(ICACC-S5-P082-2015) Effect of Ca and Mg Ion Irradiation on Bioactivity of Hydroxyapatite Ceramics**

S. Kobayashi\*<sup>1</sup>; T. Izawa<sup>2</sup>; Y. Teranishi<sup>1</sup>; 1. Tokyo Metropolitan University, Japan; 2. Tokyo Metropolitan University, Japan; 3. Tokyo Metropolitan Industrial Technology Research Institute, Japan

**(ICACC-S5-P083-2015) Mechanical properties of  $\beta$ -tricalcium phosphate**

B. Mehdikhani\*<sup>1</sup>; 1. Standard Research Institute, Iran (the Islamic Republic of)

**(ICACC-S5-P084-2015) Synthesis nano bio-ceramic powder  $\beta$ -Ca<sub>2</sub>P<sub>2</sub>O<sub>7</sub>**

B. Mehdikhani\*<sup>1</sup>; 1. Standard Research Institute, Iran (the Islamic Republic of)

**(ICACC-S5-127-2015) Assessment of bioactive and resorbable ceramic formulations for 3D printing techniques**

S. K. Clarke\*<sup>1</sup>; S. O. Matthews<sup>1</sup>; J. E. Lancien<sup>2</sup>; I. Thompson<sup>2</sup>; 1. SCF Processing Ltd, Ireland; 2. Dental Institute, Kings's College, Guys Hospital, United Kingdom

**(ICACC-S7-P085-2015) Cu(II) reduction without reductants: insights from theory**

E. Fois\*<sup>1</sup>; D. Barreca<sup>2</sup>; A. Gasparotto<sup>3</sup>; C. Maccato<sup>3</sup>; R. Seraglia<sup>2</sup>; E. Tondello<sup>3</sup>; G. Tabacchi<sup>1</sup>; 1. University of Insubria and INSTM, Italy; 2. CNR-ISTM and INSTM and Padova University, Italy; 3. Padova University and INSTM, Italy

**(ICACC-S7-P086-2015) Synthesis and functionalization of SHG active Barium Titanate (BaTiO<sub>3</sub>): Towards biomedical imaging**

C. De Dobbelaere\*<sup>1</sup>; W. Vanoppre<sup>2</sup>; K. Elen<sup>3</sup>; E. Slenders<sup>3</sup>; S. Deville<sup>4</sup>; M. Ameloot<sup>4</sup>; A. Hardy<sup>2</sup>; M. K. Van Bael<sup>1</sup>; 1. Universiteit Hasselt, Belgium; 2. Transnational University Limburg, Belgium; 3. IMEC vzw, Belgium; 4. Hasselt University, Belgium

**(ICACC-S7-P087-2015) Tailored Lysozyme-ZnO Nanoparticle Conjugates as Nanoantibiotics**

N. Tripathy<sup>1</sup>; R. Ahmad\*<sup>1</sup>; Y. Hahn<sup>1</sup>; 1. Dept of Earth and Environ Sci, Korea (the Republic of); 2. Chonbuk National University, Korea (the Republic of)

**(ICACC-S7-P088-2015) Crystalline mesoporous films of titanium oxides with various degree of substoichiometry for fuel cells**

K. Bienkowski\*<sup>1</sup>; P. Kulesza<sup>1</sup>; 1. University of Warsaw, Poland

**(ICACC-S7-P089-2015) A novel planar heterojunctioned perovskite solar cell**

M. Yang\*<sup>1</sup>; J. Ting<sup>1</sup>; 1. National Cheng Kung University, Taiwan

**(ICACC-S7-P090-2015) Visible Light Hydrogen Evolution on Heptazine- and Triazine-based Polymers and Metal Complex Cocatalysts bound to p-Silicon Photocathodes**

F. Podjaski\*<sup>1</sup>; K. Schwinghammer<sup>1</sup>; B. Tuffy<sup>1</sup>; V. Lau<sup>1</sup>; J. Vukajlovic<sup>2</sup>; E. Alarcon-Llado<sup>2</sup>; A. Fontcuberta-I-Morrall<sup>2</sup>; B. V. Lotsch<sup>1</sup>; 1. Max-Planck-Institute for Solid State Research, Germany; 2. Ecole Polytechnique Fédérale de Lausanne, Switzerland

**(ICACC-S7-P091-2015) Influence of residual gas pressure and negative heavy-ion implantation on the properties of nitride high-entropy alloys (TiZrHfVNbTaN)**

A. Pogrebnjak\*<sup>1</sup>; I. V. Yakushchenko<sup>1</sup>; O. V. Sobol<sup>2</sup>; V. M. Beresnev<sup>3</sup>; O. V. Bondar<sup>1</sup>; Y. Takeda<sup>4</sup>; K. Oyoshi<sup>4</sup>; H. Amekura<sup>4</sup>; K. Kono<sup>4</sup>; 1. Sumy State University, Ukraine; 2. National Technical University "Kharkov Polytechnical Institute", Ukraine; 3. Karazin Kharkiv National University, Ukraine; 4. National Institute for Material Science (NIMS), Japan

**(ICACC-S7-P092-2015) Structural features amorphous-like coatings AlN-TiB<sub>2</sub>-TiSi<sub>2</sub> after annealing and their impact on physical and mechanical properties changes**

A. Pogrebnjak\*<sup>1</sup>; A. Demianenko<sup>1</sup>; Y. Takeda<sup>4</sup>; K. Oyoshi<sup>4</sup>; 1. Sumy State University, Ukraine; 2. National Institute for Materials Science, Japan

**(ICACC-S7-P093-2015) Thermoplastic properties and structural characterization of organically modified metalloxane bulk materials with optical transparency**

O. Shinya\*<sup>1</sup>; H. Uchiyama<sup>1</sup>; H. Kozuka<sup>1</sup>; 1. Kansai university, Japan

**(ICACC-S7-P094-2015) Investigation of the HAP/HPMC/MCC biodegradable tablet for controlled drug delivery**

M. Oner\*<sup>1</sup>; ÖZGE. Ulu<sup>1</sup>; A. Aktas<sup>2</sup>; O. F. Firat<sup>2</sup>; 1. Yildiz Technical University, Turkey; 2. Deva Pharmaceutical Company, Turkey

**(ICACC-S7-P095-2015) Microwave synthesis, structure and optical characterization of metal oxides nanoparticles**

A. K. Singh\*<sup>1</sup>; U. T. Nakate<sup>2</sup>; 1. Armament Research and Development Establishment, India; 2. Defence Institute of Advanced Technology, India

**(ICACC-S7-P128-2015) Highly Conductive and Dispersible Graphene and Its Application in P3HT-Based Solar Cells**

T. Mahmoudi<sup>1</sup>; W. Rho\*<sup>1</sup>; Y. Hahn<sup>1</sup>; 1. Dept of Earth and Environ Sci, Korea (the Republic of)

**(ICACC-S8-P096-2015) Polymer Derived Ceramic Nanocomposites Coating Reinforced with Carbon Nanotube Preforms**

H. Yang\*<sup>1</sup>; J. McKee<sup>1</sup>; X. Wang<sup>1</sup>; Y. Cai<sup>1</sup>; J. Gou<sup>1</sup>; 1. University of Central Florida, USA

**(ICACC-S8-P097-2015) Influence of the added rare earth oxide on DC volume resistivity at high temperatures of Si<sub>3</sub>N<sub>4</sub> ceramics**

D. Kawai\*<sup>1</sup>; J. Tatami<sup>1</sup>; M. Iijima<sup>1</sup>; T. Takahashi<sup>1</sup>; 1. Yokohama National University, Japan; 2. Kanagawa Academy of Science and Technology, Japan

**(ICACC-S8-P098-2015) Novel Visualizing Technique of the Tips of the Cracks for Indentation Fracture Resistance Method**

H. Miyazaki\*<sup>1</sup>; Y. Yoshizawa<sup>1</sup>; 1. National Institute of AIST, Japan

**(ICACC-S8-P099-2015) Round-Robin Test on Fracture Toughness of Ceramic Substrates for Power Modules**

H. Miyazaki\*<sup>1</sup>; Y. Yoshizawa<sup>1</sup>; K. Hira<sup>1</sup>; T. Ohji<sup>1</sup>; 1. National Institute of AIST, Japan

**(ICACC-S8-P100-2015) Fabrication of transparent and fluorescent Eu-doped  $\beta$ -SiAlON ceramics**

T. Tanaka\*<sup>1</sup>; J. Tatami<sup>1</sup>; M. Iijima<sup>1</sup>; T. Takahashi<sup>1</sup>; M. Yokouchi<sup>1</sup>; 1. Yokohama National University, Japan; 2. Kanagawa Academy of Science and Technology, Japan; 3. Kanagawa Industrial Technology Center, Japan

**(ICACC-S8-P101-2015) Sintering: Fractal electronics and Brownian motion perspectives**

V. Mitić\*<sup>1</sup>; V. Paunović<sup>1</sup>; L. Kocić<sup>1</sup>; S. Janković<sup>2</sup>; B. Jordović<sup>3</sup>; M. Miljković<sup>4</sup>; 1. Serbian Academy of Sciences, Serbia; 2. University of Nis, Serbia; 3. Serbian Academy of Sciences, Serbia; 4. University of Kragujevac, Serbia; 5. University of Nis, Serbia

**(ICACC-S8-P102-2015) Hydrothermal Synthesis and Characterization of 0.65Pb (Mg<sup>1</sup>/3Nb<sup>2</sup>/3)O<sub>3</sub> - 0.35PbTiO<sub>3</sub> nanowires and its Application to Nanogenerators**

B. Moorthy\*<sup>1</sup>; C. Baek<sup>1</sup>; D. Kim<sup>1</sup>; 1. Korea Advanced Institute of Science and Technology, Korea (the Republic of)

**(ICACC-S8-P103-2015) Microstructural control of crystal-oriented strontium barium niobate ceramics**

T. Tanaka\*<sup>1</sup>; S. Tanaka<sup>1</sup>; 1. Nagaoka university of technology, Japan

**(ICACC-S8-P104-2015) Synthesis and sintering behavior of Y<sub>2</sub>O<sub>3</sub> nanoparticles for transparent ceramics**

H. Ma\*<sup>1</sup>; W. Jung<sup>1</sup>; S. Jung<sup>1</sup>; D. Kim<sup>1</sup>; 1. KAIST, Korea (the Republic of)

**(ICACC-S8-P105-2015) Synthesis of BaTiO<sub>3</sub> core-shell nanoparticles with Sr-doped surface layer**

J. Wang\*<sup>1</sup>; C. Baek<sup>1</sup>; K. Park<sup>2</sup>; C. Choi<sup>2</sup>; D. Kim<sup>1</sup>; 1. KAIST, Korea (the Republic of); 2. Samsung Electro-Mechanics, Korea (the Republic of)

**(ICACC-S8-P106-2015) Direct observation of particle motions in condensed slurry by confocal laser scanning fluorescent microscopy**

Y. Nagasawa\*<sup>1</sup>; Z. Kato<sup>1</sup>; S. Tanaka<sup>1</sup>; 1. Nagaoka University of Technology, Japan

**(ICACC-S8-P107-2015) Continuous observation of large pores of alumina at middle stage of sintering by micro-focus X-ray computed tomography**

T. Hondo\*<sup>1</sup>; Z. Kato<sup>1</sup>; S. Tanaka<sup>1</sup>; 1. Nagaoka University of Technology, Japan

**(ICACC-S8-P108-2015) Preparation and characterization of RB-SiC ceramics delivered from phenol resin/SiC composite**

A. Shimamura\*<sup>1</sup>; K. Naoki<sup>1</sup>; M. Hotta<sup>1</sup>; M. Fukushima<sup>1</sup>; T. Ohji<sup>1</sup>; 1. National Institute of Advanced Industrial Science and Technology (AIST), Japan



**(ICACC-S8-P109-2015) Catalytic effect on Ammonia Borane for nano Boron Nitride materials in Hydrogen energy application**  
J. Wang\*; 1. NSYSU, Taiwan

**(ICACC-S8-P110-2015) High-Strain-Rate Superplastic Deformation of Nanocrystalline Silicon Nitride Ceramics**  
R. Wanaruruksawong\*; Y. Shinoda; T. Akatsu; F. Wakai; 1. Tokyo Institute of Technology, Japan

**(ICACC-S8-P111-2015) Citrate-nitrate synthesis of IGZO powder: an isothermal titration approach**  
K. Chuang\*; K. Chiu; 1. Industrial Technology Research Institute, Taiwan

**(ICACC-S10-P112-2015) First Principles Calculations of Boron Suboxide**  
J. S. Dunn\*; A. B. Rahane; V. Kumar; 1. Army Research Laboratory, USA; 2. Vijay Kumar Foundation, India

**(ICACC-S11-P113-2015) A study on the Ti-Al-Cr-Si-N nanocomposite coatings deposited by magnetron sputtering process with single alloying targets**  
J. Pyun\*; H. Lee; K. Moon; 1. KITECH, Korea (the Republic of)

**(ICACC-S11-P114-2015) Microstructural and properties of influence of Cu contents (5 ~ 20 wt. %) on Mo-Cu alloys synthesized by planetary ball milling and spark plasma sintering**  
H. Lee\*; K. Moon; P. SHIN; 1. KITECH, Korea (the Republic of); 2. Inha Univ, Korea (the Republic of)

**(ICACC-S11-P115-2015) Alpha-double-prime type Ti-7.5Mo alloy for dental casting applications**  
J. Chern Lin\*; Y. Hsiao; Y. Chen; C. Ju; 1. National Cheng Kung University, Taiwan

**(ICACC-S11-P116-2015) The particle growth mechanism of high-purity silicon carbide powders**  
Y. Kim\*; M. Bang; E. Lee; D. Kim; 1. SUNG KYUN KWAN UNIVERSITY, Korea (the Republic of)

**(ICACC-S11-P117-2015) A Novel High Temperature Continuous Thermal Processing System for Various Applications**  
D. Bloom\*; 1. BTU International, USA

**(ICACC-S11-P118-2015) CrN/Al<sub>2</sub>O<sub>3</sub>/CrN multilayered coatings with excellent mechanical property and corrosion behavior synthesized by a hybrid HIPIMS/ALD process**  
Z. Wan; P. Song; K. Cho; K. Kim; S. Kwon; 1. Pusan National University, Korea (the Republic of); 2. Pusan National University, Korea (the Republic of); 3. Pusan National University, Korea (the Republic of)

**(ICACC-S11-P119-2015) Plasma-enhanced Atomic Layer Deposition of TiN thin films for Effective Se Barrier in CIGS Solar Cells**  
E. Yun; S. Kwon; S. Lee; W. Park; K. Kim; 1. Pusan National University, Korea (the Republic of); 2. Pusan National University, Korea (the Republic of)

**(ICACC-S13-P120-2015) Erosion-corrosion behavior of graphite foil-incorporated carbon-carbon composite in molten fluoride salt**  
C. Ju\*; T. Chen; H. Lin; K. Lee; J. Chern Lin; 1. National Cheng-Kung University, Taiwan; 2. I-Shou University, Taiwan

**(ICACC-S13-P121-2015) The behavior of He-ion irradiation defects in SA-Tyrannohex SiC Fiber-Bonded composite and single crystal 3C-SiC under high temperature environment**  
J. Hu\*; Y. Lin; H. Lin; J. Kai; I. Chiu; 1. National Tsing Hua University, Taiwan; 2. National Tsing Hua University, Taiwan

**(ICACC-S13-P122-2015) TEM and XRD investigation of the point defect-induced swelling in irradiated 3C SiC**  
H. Lin\*; J. Hu; Y. Lin; J. Kai; 1. National Tsing Hua University, Taiwan; 2. National Tsing Hua University, Taiwan

**(ICACC-S13-P123-2015) Effect of Additive Content on Thermal Properties of Liquid-Phase Sintered SiC Ceramics Sintered with Yttria and Scandia**  
Y. Na\*; K. Lim; S. Lee; Y. Kim; 1. KEPCO NF, Korea (the Republic of); 2. The University of Seoul, Korea (the Republic of)

**(ICACC-S13-P124-2015) Spark Plasma Sintering for Transuranic Elements**  
M. Colonna\*; V. Tyrpekl; T. Wangle; C. Berkman; M. Holzhäuser; J. Somers; 1. JRC-ITU, Germany; 2. Czech Technical University, Czech Republic

**(ICACC-FS2-P125-2015) Molecular Co(II) and Co(III) Heteroarylalkenolates as Efficient Precursors for Chemical Vapor Depositions of Co<sub>3</sub>O<sub>4</sub> Nanowires**  
M. Bueyuekyazi\*; C. Hegemann; T. Lehnen; W. Tyrra; S. Mathur; 1. University of Cologne, Germany

**(ICACC-FS2-P126-2015) Glass-ceramics based on the bulk formation of "anti-glass" spherulites in the TeO<sub>2</sub>-Nb<sub>2</sub>O<sub>5</sub>-Bi<sub>2</sub>O<sub>3</sub> system**  
M. Shimoda; A. Bertrand; J. Carreaud; G. Delaizir; J. Duclere\*; M. Colas; J. Cornette; T. Hayakawa; O. Masson; C. Genevois; E. Véron; M. Allix; P. Thomas; 1. Nagoya Institute of Technology, Japan; 2. Laboratoire de Science des Procédés Céramiques et de Traitements de Surface (SPCTS), France; 3. Conditions Extrêmes et Matériaux : Haute Température et Irradiation (CEMHTI), France

## Thursday, January 29, 2015

### S1: Mechanical Behavior and Performance of Ceramics & Composites

#### Mechanical Behavior of CMCs

Room: Coquina Salon D

Session Chairs: Randall Hay, Air Force Research Laboratory; Jacques Lamon, CNRS

**8:30 AM**

**(ICACC-S1-049-2015) Investigation of the flexural strength of continuous fiber reinforced ceramic matrix composites (Invited)**  
J. Lamont\*; V. Calard; 1. CNRS, ENS, France; 2. CNRS, University of Bordeaux, France

**9:00 AM**

**(ICACC-S1-050-2015) Delamination and Damage Growth in Ceramic Matrix Composites under Impact Loads**  
R. S. Kumar\*; M. Mordasky; 1. United Technologies Research Center, USA

**9:20 AM**

**(ICACC-S1-051-2015) Investigation and modeling of creep for an all-oxide CMC**  
K. Artzt\*; S. Hackemann; F. Flucht; M. Bartsch; 1. DLR, Germany

**9:40 AM**

**(ICACC-S1-052-2015) 3-D Alumina Grain Growth and Fiber Mechanical Properties in Nextel 610**  
R. Hay\*; K. Keller; T. Tidball; 1. Air Force Research Laboratory, USA; 2. UES, Inc., USA; 3. Wright State University, USA

**10:00 AM**

**Break**

**10:20 AM**

**(ICACC-S1-053-2015) Optical deformation analysis of alumina based wound highly porous CMCs**  
S. Hackemann\*; J. Wischek; 1. DLR - German Aerospace Center, Germany

**10:40 AM**

**(ICACC-S1-054-2015) Correlation of electrical resistance to CMC stress-strain and fracture behavior under high heat-flux thermal and stress gradients**  
M. P. Appleby\*; G. N. Morscher; D. Zhu; 1. The University of Akron, USA; 2. NASA Glenn Research Center, USA

**11:00 AM**

**(ICACC-S1-055-2015) Modeling of the mechanical and electrical behaviors of melt-infiltrated SiC/SiC composites**  
E. Maillet\*; M. P. Appleby; C. R. Baker; G. N. Morscher; 1. The University of Akron, USA

**11:20 AM****(ICACC-S1-056-2015) Failure of Short Carbon Fiber-Dispersed SiC Matrix Composite under bi-axial Tensile Loading Condition**R. Inoue\*; Y. Kagawa<sup>2</sup>; 1. The University of Tokyo, Japan; 2. National Institute for Materials Science(NIMS), Japan**11:40 AM****(ICACC-S1-057-2015) Electrical Resistivity During Tensile Creep Testing of Different Volume Fraction SiC/SiC Composites**A. Almansour\*; E. Maillat<sup>2</sup>; G. N. Morscher<sup>1</sup>; 1. The University of Akron, USA**S2: Advanced Ceramic Coatings for Structural, Environmental, and Functional Applications****Environmental Barrier Coatings I**

Room: Coquina Salon G

Session Chairs: Dongming Zhu, NASA Glenn Research Center; Yutaka Kagawa

**9:00 AM****(ICACC-S2-026-2015) Functionally Graded Mullite-Based Hybrid EBC/TBC Coatings for Si-Based Ceramics in Gas Turbines (Invited)**S. Basu\*; V. Sarin<sup>1</sup>; 1. Boston University, USA**9:30 AM****(ICACC-S2-027-2015) Structural Stabilization of Advanced EBC with Excellent Thermal Energy Reflection at High Temperatures**M. Tanaka\*; T. SASSA<sup>2</sup>; S. HORI<sup>2</sup>; N. KAWASHIMA<sup>1</sup>; S. KITAOKA<sup>1</sup>; M. YOSHIDA<sup>2</sup>; O. SAKURADA<sup>2</sup>; M. HASEGAWA<sup>3</sup>; Y. KAGAWA<sup>4</sup>; 1. Japan Fine Ceramics Center, Japan; 2. Gifu University, Japan; 3. Yokohama National University, Japan; 4. The University of Tokyo, Japan**9:50 AM****(ICACC-S2-028-2015) Modeling of interactions between cracks in multilayer environmental barrier coatings**S. Sehr\*; W. Pro<sup>1</sup>; M. Begley<sup>1</sup>; 1. University of California, Santa Barbara, USA**10:10 AM**

Break

**10:30 AM****(ICACC-S2-029-2015) Mechanical Properties of Air Plasma Sprayed Environmental Barrier Coating (EBC) Materials**B. T. Richards\*; D. Zhu<sup>2</sup>; H. Wadley<sup>1</sup>; 1. University of Virginia, USA; 2. NASA Glenn Research Center, USA**10:50 AM****(ICACC-S2-030-2015) The effect of rare earth-based environmental barrier coatings (EBC) on the oxidation behaviour of a melt infiltrated (MI) SiC/SiC matrix composite**N. Al Nasiri\*; D. D. Jayaseelan<sup>1</sup>; W. E. Lee<sup>1</sup>; 1. Imperial College London, United Kingdom**11:10 AM****(ICACC-S2-031-2015) Thermochemistry of Rare Earth Silicates for Environmental Barrier Applications**G. Costa\*; N. S. Jacobson<sup>1</sup>; 1. NASA Glenn Research Center, USA**S3: 12th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology****Electrical and Mechanical Reliability / Electrochemical Performance and Stability**

Room: Crystal

Session Chairs: John Olenick, ENrG Incorporated; Jochen Schilm, Fraunhofer Gesellschaft

**8:30 AM****(ICACC-S3-043-2015) Tailoring Chemo-Mechanical Coupling to Enhance Durability of Mixed Conducting Perovskite Electrodes (Invited)**N. H. Perry\*; D. Marrocchelli<sup>2</sup>; J. Kim<sup>2</sup>; S. R. Bishop<sup>1</sup>; H. L. Tuller<sup>2</sup>; 1. Kyushu University, Japan; 2. Massachusetts Institute of Technology, USA**9:00 AM****(ICACC-S3-044-2015) Mechanical Damping and Dielectric Relaxation of 8 mol% YSZ**P. Gao<sup>1</sup>; G. Brankovic<sup>2</sup>; Z. Brankovic<sup>2</sup>; M. Radovic<sup>3</sup>; 1. Texas A&M University, USA; 2. University of Belgrade, Serbia; 3. Texas A&M University, USA**9:20 AM****(ICACC-S3-045-2015) Elastic Properties and Mechanical Loss of Doped Cerias Determined by Resonant Ultrasound Spectroscopy**A. M. Bolon<sup>1</sup>; P. Gao<sup>2</sup>; M. Radovic<sup>3</sup>; 1. Texas A&M University, USA; 2. Texas A&M University, USA**9:40 AM****(ICACC-S3-046-2015) Mechanical Properties of Ni-YSZ Anode Materials for Solid Oxide Fuel Cells**D. Ni\*; B. Charlas<sup>1</sup>; K. Kwok<sup>1</sup>; H. L. Frandsen<sup>1</sup>; 1. Technical University of Denmark, Denmark**10:00 AM**

Break

**10:20 AM****(ICACC-S3-047-2015) Two-stage performance and durability evaluation of anode-supported solid oxide fuel cell with 15,000 hours operation**T. Lin\*; W. Kao<sup>1</sup>; H. Kuo<sup>1</sup>; R. Lee<sup>2</sup>; S. Cheng<sup>2</sup>; 1. Institute of Nuclear Energy Research, Taiwan; 2. Institute of Nuclear Energy Research, Taiwan**10:40 AM****(ICACC-S3-048-2015) Electrochemical performance of thermal sprayed metal supported solid oxide fuel cells**M. Gupta\*; A. Weber<sup>2</sup>; N. Markocsan<sup>1</sup>; M. Gindrat<sup>3</sup>; 1. University West, Sweden; 2. Karlsruhe Institut für Technologie (KIT), Germany; 3. Oerlikon Metco, Switzerland**11:00 AM****(ICACC-S3-049-2015) Improving Power Density of Solid Oxide Fuel Cells: Role of Contact Resistance**L. Zhang\*; L. Zhu<sup>1</sup>; A. V. Virkar<sup>1</sup>; 1. University of Utah, USA**11:20 AM****(ICACC-S3-050-2015) Development of LT-SOFCs: Limiting Factors and Concepts for Achieving High Performance at Low Temperatures**L. Zhu\*; L. Zhang<sup>1</sup>; A. V. Virkar<sup>1</sup>; 1. University of Utah, USA**11:40 AM****(ICACC-S3-051-2015) Development of high performance anode-supported solid oxide fuel cells with optimized components**H. Shimada\*; T. Suzuki<sup>1</sup>; Y. Fujishiro<sup>1</sup>; 1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

## S5: Next Generation Bioceramics and Biocomposites

### Bioceramics II

Room: Coquina Salon F

Session Chairs: Anna Tampieri, CNR ISTECE (Faenza, Italy); Laurie Gower, University of Florida

**8:30 AM**

#### (ICACC-S5-010-2015) Smart bio-inspired nano-composites for tissue regeneration (Invited)

A. Tampieri<sup>\*</sup>; M. Sandri<sup>1</sup>; S. Sprio<sup>1</sup>; S. Panzeri<sup>1</sup>; 1. CNR ISTECE (Faenza, Italy), Italy

**9:00 AM**

#### (ICACC-S5-011-2015) Combining Soft and Hard Biomimetic Processing to Emulate Bone's Nano- and Micro-Structure (Invited)

B. Wingender<sup>1</sup>; P. Bradley<sup>2</sup>; J. Ruberti<sup>2</sup>; L. Gower<sup>\*</sup>; 1. University of Florida, USA; 2. Northeastern University, USA

**9:20 AM**

#### (ICACC-S5-012-2015) Synthesis of hollow silica flowers and titania nano-flowers for biomedical applications (Invited)

S. Chen<sup>2</sup>; N. Hanagata<sup>2</sup>; J. Wu<sup>3</sup>; A. Osaka<sup>\*</sup>; 1. Okayama University, Japan; 2. National Institute for Materials Science, Japan; 3. Zhejiang University, China

**9:40 AM**

#### (ICACC-S5-013-2015) Rare Earth Nanocerium in Wound healing (Invited)

S. Seal<sup>\*</sup>; 1. University of Central Florida, USA

**10:00 AM**

Break

**10:20 AM**

#### (ICACC-S5-014-2015) Potential of Bioactive Glass as Synthetic Scaffolds in the Repair of Structural Bone Defects (Invited)

M. N. Rahaman<sup>\*</sup>; L. F. Bonewald<sup>2</sup>; S. Bal<sup>3</sup>; W. Huang<sup>1</sup>; 1. Missouri University of Science & Technology, USA; 2. University of Missouri-Kansas City, USA; 3. University of Missouri-Columbia, USA; 4. Tongji University, China

**10:40 AM**

#### (ICACC-S5-015-2015) Emulsion Electrospun Scaffolds Made by Negative Voltage Electrospinning for Controlled Release of Growth Factors

Q. Zhao<sup>\*</sup>; M. Wang<sup>1</sup>; 1. The University of Hong Kong, Hong Kong

**11:00 AM**

#### (ICACC-S5-016-2015) Functionally Graded Ceramics for Next-generation Dental Restorations (Invited)

Y. Zhang<sup>\*</sup>; 1. New York University College of Dentistry, USA

**11:20 AM**

#### (ICACC-S5-017-2015) In Vitro Degradation and Conversion of Melt-derived Bioactive Glass Microfibers in Simulated Body Fluid

M. N. Rahaman<sup>\*</sup>; X. Liu<sup>1</sup>; D. E. Day<sup>1</sup>; 1. Missouri University of Science & Technology, USA

**11:40 AM**

#### (ICACC-S5-018-2015) Thick gelatin/hydroxyapatite composite coatings produced by electrophoretic deposition

F. Frajkorová<sup>\*</sup>; B. Ferrari<sup>2</sup>; J. Sedláček<sup>2</sup>; E. Molero<sup>1</sup>; 1. Faculty of Chemistry, Brno University of Technology, Czech Republic, Czech Republic; 2. Instituto de Cerámica y Vidrio, CSIC, Spain; 3. Institute of Inorganic Chemistry, Slovak Academy of Sciences, Slovakia

## S7: 9th International Symposium on Nanostructured Materials: Innovative Synthesis and Processing of Nanostructured, Nanocomposite and Hybrid Functional Materials for Energy, Health and Sustainability

### Solution Synthesis, Functionalization and Assembly of Metal Oxide Nano-materials I

Room: Coquina Salon B

Session Chairs: Mualla Oner, Yildiz Technical University; Federico Rosei, INRS

**8:30 AM**

#### (ICACC-S7-033-2015) Complex shape and composition metals and metal-in-ceramic nano-composites (Invited)

G. Westin<sup>\*</sup>; 1. Uppsala University, Sweden

**9:00 AM**

#### (ICACC-S7-034-2015) High current multilayered and nanocomposite YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> superconductor thin films and coated conductors derived from chemical solutions (Invited)

X. Obradors<sup>\*</sup>; T. Puig<sup>1</sup>; M. Coll<sup>1</sup>; V. R. Vlad<sup>1</sup>; J. Gázquez<sup>1</sup>; A. Palau<sup>1</sup>; S. Ricart<sup>1</sup>; C. F. Sánchez<sup>1</sup>; A. Calleja<sup>2</sup>; M. Vilardell<sup>2</sup>; X. Granados<sup>2</sup>; P. Cayado<sup>2</sup>; C. Pop<sup>2</sup>; L. Soler<sup>2</sup>; V. Rouco<sup>1</sup>; F. Vallés<sup>1</sup>; B. Villarejo<sup>1</sup>; R. Guzmán<sup>1</sup>; A. Queralto<sup>1</sup>; A. Perez del Pino<sup>1</sup>; 1. ICMAB - CSIC, Spain; 2. Oxolucia, Spain

**9:30 AM**

#### (ICACC-S7-035-2015) Microwave assisted synthesis of monodispersed Y<sub>2</sub>O<sub>3</sub> and Y<sub>2</sub>O<sub>3</sub>:Eu<sup>3+</sup> particles

A. M. Khachatourian<sup>1</sup>; C. Vogt<sup>2</sup>; F. Golestanifard<sup>2</sup>; H. Sarpoalaky<sup>2</sup>; M. S. Toprak<sup>\*</sup>; 1. KTH Royal Institute of Technology, Sweden; 2. Iran University of Science and Technology (IUST), Iran (the Islamic Republic of); 3. KTH Royal Institute of Technology, Sweden

**9:50 AM**

Break

### Solution Synthesis, Functionalization and Assembly of Metal Oxide Nano-materials II

Room: Coquina Salon B

Session Chairs: Gunnar Westin, Uppsala University; Xavier Obradors, ICMAB - CSIC

**10:30 AM**

#### (ICACC-S7-036-2015) The role of surfaces and interfaces in multifunctional materials (Invited)

F. Rosei<sup>\*</sup>; 1. INRS, Canada

**11:00 AM**

#### (ICACC-S7-037-2015) Aqueous chemical solution deposition of LuFeO<sub>3</sub> ultra high-k films

S. Giellis<sup>\*</sup>; M. Ivanov<sup>2</sup>; N. Peys<sup>1</sup>; J. van den Ham<sup>1</sup>; N. Pavlovic<sup>1</sup>; P. Robaey<sup>3</sup>; M. Nesladek<sup>3</sup>; J. Banys<sup>2</sup>; A. Hardy<sup>2</sup>; M. K. Van Bael<sup>1</sup>; 1. Hasselt University - IMEC vzw (div. IMOMEC), Belgium; 2. Vilnius University, Lithuania; 3. Hasselt University - IMEC vzw (div. IMOMEC), Belgium

**11:20 AM**

#### (ICACC-S7-038-2015) Preparation and characterization of hydroxyapatite reinforced polyhydroxyalkanoate composites (Invited)

M. Oner<sup>\*</sup>; B. Ilhan<sup>1</sup>; T. Bekat<sup>1</sup>; 1. Chemical Engineering Department, Turkey

**11:50 AM**

#### (ICACC-S7-039-2015) Nanostructured titanium surfaces with Sr doped calcium phosphate coating

S. Issa<sup>\*</sup>; P. Dubot<sup>1</sup>; L. Jordan<sup>2</sup>; 1. \* MCMC, Institut de Chimie et Des Matériaux Paris-Est, ICMPE-CNRS, France; 2. Université Paris 7, France

## S8: 9th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT9)

### Integration and Joining

Room: Coquina Salon A

Session Chairs: Kevin Ewsuk, Sandia National Laboratories; Michael Halbig, NASA Glenn Research Center

#### 8:30 AM

##### (ICACC-S8-045-2015) Characterization and Modeling of Glass Chemistry-Structure-Property Relations To Develop Advanced Glass Composite Joining Materials (Invited)

K. Ewsuk\*; 1. Sandia National Laboratories, USA

#### 9:00 AM

##### (ICACC-S8-046-2015) Challenges in the Development of High Temperature Joining and Characterization Technologies for SiC-Based Materials

M. C. Halbig\*; M. Singh; J. Lang; 1. NASA Glenn Research Center, USA; 2. Ohio Aerospace Institute, USA

#### 9:20 AM

##### (ICACC-S8-047-2015) Microstructural Observation of Interfaces in Diffusion Bonded Silicon Carbide Ceramics by TEM

H. Tsuda\*; S. Mori; M. C. Halbig; M. Singh; R. Asthana; 1. Osaka Prefecture University, Japan; 2. NASA, USA; 3. Ohio Aerospace Institute, USA; 4. University of Wisconsin-Stout, USA

#### 9:40 AM

##### (ICACC-S8-048-2015) Joining of alumina using a alumina-zirconia interlayer under low mechanical pressure

M. Hotta\*; N. Kondo; H. Kita; T. Ohji; 1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

#### 10:00 AM

#### Break

10:00 - 10:20

#### 10:20 AM

##### (ICACC-S8-049-2015) Principles of formation and manufacturing of corrosion resistant boride-based coatings

E. Medvedovski\*; 1. Endurance Technologies Inc., Canada

#### 10:40 AM

##### (ICACC-S8-050-2015) Development of a Plasma Arc Welding Technique for joining SiC based Composites

J. Watts\*; G. Hilmas; W. G. Fahrenholtz; S. Landwehr; 1. Missouri University of Science and Technology, USA; 2. Rolls Royce, USA

#### 11:00 AM

##### (ICACC-S8-051-2015) Laser Alloying and Dispersing Processes for the Modification of Ceramic Surfaces

M. Rohde\*; H. Seifert; 1. Karlsruhe Institut for Technology, Germany

#### 11:20 AM

##### (ICACC-S8-052-2015) New Combined Method of MPS and FEM for Simulating Friction Stir Processing

H. Serizawa\*; F. Miyasaka; 1. Osaka University, Japan; 2. Osaka University, Japan

#### 11:40 AM

##### (ICACC-S8-053-2015) Laser-Induced Periodic Surface Structures (LIPSS) on Ceramic Materials Using Ultrashort Pulse Filamentation

K. D. Behler\*; A. Valenzuela; C. Munson; M. Weidman; M. Richardson; 1. U.S. Army Research Laboratory, USA; 2. U.S. Army Research Laboratory, USA; 3. U.S. Army Research Laboratory, USA; 4. University of Central Florida, USA

## S9: Porous Ceramics: Novel Developments and Applications

### Modeling and Properties of Porous Ceramics

Room: Coquina Salon H

Session Chair: Sawao Honda, Nagoya Institute of Technology

#### 8:30 AM

##### (ICACC-S9-024-2015) Modeling of Freeze-Cast Alumina Structures Using Solidification Theory and the Two-Phase Stefan Problem

S. M. Miller\*; X. Xiao; K. Faber; 1. Northwestern University, USA; 2. Argonne National Laboratory, USA

#### 8:50 AM

##### (ICACC-S9-025-2015) A Numerical Study of a High Temperature Thermal Energy Storage System Using Graphite Foam Infiltrated with MgCl<sub>2</sub>

A. Gyekenyesi\*; A. Wroblewski; 1. Ohio Aerospace Institute, USA; 2. Cleveland State University, USA

#### 9:10 AM

##### (ICACC-S9-026-2015) Effect of Grain Size on the Properties of Porous Alumina

S. Honda\*; G. Grabarski; Y. Daiko; S. Hashimoto; B. NAIT-ALI; D. Smith; Y. Iwamoto; 1. Nagoya Institute of Technology, Japan; 2. Center Europeen de la Ceramique, France

#### 9:30 AM

##### (ICACC-S9-027-2015) 2D and 3D periodic hybrid material structures made of ceramic building blocks

T. Fey\*; P. Greil; M. Götz; B. Diepold; 1. Friedrich-Alexander Universität Erlangen (FAU), Germany

#### 9:50 AM

##### (ICACC-S9-028-2015) Evaluation of Thermal Protection System (TPS) Properties of Carbon Foam

S. C. Sharma\*; T. S. Lakshmanan; V. K. Vaidyan; 1. Vikram Sarabhai Space Centre, India; 2. University of Kerala, India

#### 10:10 AM

#### Break

## Mechanical Properties of Porous Ceramics

Room: Coquina Salon H

Session Chair: Abhaya Bakshi, Saint-Gobain

#### 10:30 AM

##### (ICACC-S9-029-2015) Mechanical characterization of porous ceramics (Invited)

A. A. Shamkin\*; A. N. Levandovskiy; J. W. Zimmermann; 1. OOO Corning SNG, Russian Federation; 2. Corning Incorporated, USA

#### 10:50 AM

##### (ICACC-S9-030-2015) Experimental verification of bending test on porous ceramics

S. Honda\*; K. Yasuda; H. Kita; M. Takahashi; Y. Takahashi; J. Tatami; S. Tanaka; H. Muto; S. Yamamoto; 1. Nagoya Institute of Technology, Japan; 2. Tokyo Institute of Technology, Japan; 3. Nagoya University, Japan; 4. Ehime University, Japan; 5. Noritake Company Limited, Japan; 6. Yokohama National University, Japan; 7. Nagaoka University of Technology, Japan; 8. Toyohashi University of Technology, Japan; 9. Asuzac, Japan

#### 11:20 AM

##### (ICACC-S9-031-2015) 3 dimensional observation of porous ceramics by x-ray computer tomography

S. Tanaka\*; K. Yasuda; H. Kita; M. Takahashi; Y. Takahashi; J. Tatami; S. Honda; H. Muto; S. Yamamoto; 1. Nagaoka University of Technology, Japan; 2. Tokyo Tech, Japan; 3. Nagoya Univ., Japan; 4. Ehime Univ., Japan; 5. Noritake Co. Ltd., Japan; 6. Yokohama Nat'l Univ., Japan; 7. Nagoya Tech., Japan; 8. Toyohashi Univ. Tech., Japan; 9. Asuzac, Japan



**11:40 AM****(ICACC-S9-032-2015) Strength Distribution of Various Porous Ceramics**

K. Yasuda<sup>\*1</sup>; H. KITA<sup>2</sup>; M. TAKAHASHI<sup>3</sup>; Y. TAKAHASHI<sup>4</sup>; J. TATAMI<sup>5</sup>; S. TANAKA<sup>6</sup>; S. Honda<sup>7</sup>; H. MUTO<sup>8</sup>; S. YAMAMOTO<sup>9</sup>; 1. Tokyo Institute of Technology, Japan; 2. Nagoya Univ., Japan; 3. Ehime Univ., Japan; 4. Noritake Company Limited, Japan; 5. Yokohama Nat'l Univ., Japan; 6. Nagaoka Univ.Tech., Japan; 7. Nagoya Tech., Japan; 8. Toyohashi Univ.Tech., Japan; 9. Asuzac, Japan

**S10: Virtual Materials (Computational) Design and Ceramic Genome****Ceramic Genome and Modeling of Structure and Property II**

Room: Coquina Salon C

Session Chairs: Hans Seifert, Karlsruhe Institute of Technology; Leonhard Mayrhofer, Fraunhofer IWM

**8:30 AM****(ICACC-S10-008-2015) Systematics of Grain Boundary Transitions and Diagrams (Invited)**N. Zhou<sup>1</sup>; J. Luo<sup>\*1</sup>; 1. UCSD, USA**9:00 AM****(ICACC-S10-009-2015) Theoretical prediction of the extremely low thermal conductivity of Mg<sub>2</sub>Al<sub>4</sub>Si<sub>5</sub>O<sub>18</sub> with the rattler-in-cage crystal structure**Y. Li<sup>\*1</sup>; J. Wang<sup>1</sup>; 1. Institute of Metal Research, China**9:20 AM****(ICACC-S10-010-2015) Doping of CeO<sub>2</sub> as a tunable buffer layer for coated superconductors: A DFT study of mechanical and electronic properties**

D. E. Vanpoucke<sup>\*1</sup>; S. Cottenier<sup>1</sup>; P. Bultinck<sup>2</sup>; V. Van Speybroeck<sup>1</sup>; I. Van Driessche<sup>2</sup>; 1. Ghent University, Belgium; 2. Ghent University, Belgium

**9:40 AM****(ICACC-S10-011-2015) Thermodynamic investigation of the perovskite electrical conductivity**S. Darvish<sup>1</sup>; M. Mora<sup>1</sup>; Y. Zhong<sup>\*1</sup>; 1. Florida International University, USA**10:00 AM**

Break

**10:20 AM****(ICACC-S10-012-2015) Atomistic modeling of 2D and 3D nanocrystalline graphenic carbons: Structure and elastic properties (Invited)**

B. Farbos<sup>2</sup>; J. Da Costa<sup>3</sup>; P. Weisbecker<sup>1</sup>; C. Germain<sup>3</sup>; H. E. Fischer<sup>4</sup>; G. L. Vignoles<sup>2</sup>; J. Leyssale<sup>\*1</sup>; 1. CNRS, France; 2. Univ. Bordeaux, France; 3. Univ. Bordeaux, France; 4. Institut Laue Langevin, France

**10:50 AM****(ICACC-S10-013-2015) Theoretical prediction of magnetic state of the new MAX phases: (Ti<sub>1/3</sub>Cr<sub>2/3</sub>)<sub>3</sub>AlC<sub>2</sub>**J. Wang<sup>\*1</sup>; J. Wang<sup>1</sup>; 1. Institute of Metal Research, China**11:10 AM****(ICACC-S10-014-2015) Elastic and Electronic Properties of Ti<sub>2</sub>Al(C<sub>x</sub>N<sub>1-x</sub>) Solid Solutions**

S. R. Aryal<sup>\*1</sup>; L. Ouyang<sup>1</sup>; W. Ching<sup>2</sup>; 1. Tennessee State University, USA; 2. University of Missouri Kansas City, USA

**11:30 AM****(ICACC-S10-015-2015) Numerical simulation of mixed conductive/radiative heat transfer in highly porous materials**G. L. Vignoles<sup>\*1</sup>; 1. University Bordeaux, France**S11: Advanced Materials and Innovative Processing Ideas for the Production Root Technology****New Concept & Emerging Technology**

Room: Coquina Salon E

Session Chairs: Jochen Schneider, RWTH Aachen University; Byung-Koog Jang, National Institute for Materials Science (NIMS)

**8:30 AM****(ICACC-S11-001-2015) Quantum mechanically guided materials design approaches for industrial coating applications (Invited)**J. M. Schneider<sup>\*1</sup>; 1. RWTH Aachen University, Germany**9:00 AM****(ICACC-S11-002-2015) Removal of ceramic binder system using a hybrid supercritical fluid-assisted extraction technique**S. O. Matthews<sup>\*1</sup>; J. E. Lancien<sup>1</sup>; J. Matthews<sup>1</sup>; 1. SCF Processing Ltd, Ireland**9:20 AM****(ICACC-S11-003-2015) Thermal Properties and Fabrication of ZrO<sub>2</sub> Based Composites by Rare-Earth Oxides Addition**

S. Kim<sup>1</sup>; Y. Oh<sup>1</sup>; H. Kim<sup>1</sup>; B. Jang<sup>\*2</sup>; 1. Korea Institute of Ceramic Engineering and Technology, Korea (the Republic of); 2. National Institute for Materials Science (NIMS), Japan

**9:40 AM**

Break

**Shaping & Thermal Process**

Room: Coquina Salon E

Session Chairs: Tadachika Nakayama, Nagaoka University of Technology; Kyoung Il Moon, KITECH

**10:20 AM****(ICACC-S11-004-2015) Creation of ceramics micro components and fine coated layers by using nanoparticles paste stereolithography and thermal spraying (Invited)**S. Kirihaara<sup>\*1</sup>; 1. Osaka University, Japan**10:50 AM****(ICACC-S11-005-2015) Laminated Structure is One of the Most Important Industry Root Technologies in Ceramics**

K. Yasuda<sup>\*1</sup>; T. NAKAYAMA<sup>2</sup>; S. TANAKA<sup>2</sup>; 1. Tokyo Institute of Technology, Japan; 2. Nagaoka University of Technology, Japan

**11:10 AM****(ICACC-S11-006-2015) Modeling of fluid flow in tape casting of thin ceramics: analytical approaches and numerical investigations**M. Jabbari<sup>\*1</sup>; J. H. Hattel<sup>1</sup>; 1. Technical University of Denmark, Denmark**11:30 AM****(ICACC-S11-007-2015) Carbonization of Polyacrylonitrile (PAN) studied by TGA-GC-MS and TGA-FTIR**E. Post<sup>\*1</sup>; 1. NETZSCH Geraetebau GmbH, Germany

## S12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nano-laminated Ternary Carbides and Nitrides (MAX Phases)

### Structural-property Relationships of Existing Systems III

Room: Ponce DeLeon

Session Chair: Luke Walker, GT Advanced Technology

**8:30 AM**

#### (ICACC-S12-047-2015) Effects of Sintering Temperature and Cooling Rate on Microstructure and Mechanical Properties of Spark Plasma Sintered ZrB<sub>2</sub>-SiC

F. Gai<sup>\*</sup>; L. S. Walker<sup>1</sup>; E. L. Corral<sup>1</sup>; 1. The University of Arizona, USA

**8:50 AM**

#### (ICACC-S12-048-2015) Evaluation of oxidation resistance of ZrB<sub>2</sub>-SiC-ZrC ceramics at temperatures above 1973K

Y. Kubota<sup>\*</sup>; H. Tanaka<sup>1</sup>; Y. Kogo<sup>1</sup>; Y. Arai<sup>2</sup>; K. Goto<sup>3</sup>; 1. Tokyo University of Science, Japan; 2. University of Tokyo, Japan; 3. Institute of Space and Astronautical Science, Japan

**9:10 AM**

#### (ICACC-S12-049-2015) Densification and Mechanical Properties of Direct Current Sintered High Purity ZrB<sub>2</sub> Ultrahigh Temperature Ceramics

D. Pham<sup>\*</sup>; E. L. Corral<sup>1</sup>; 1. University of Arizona, USA

**9:30 AM**

#### (ICACC-S12-050-2015) Thermo-Chemical Compatibility of Hafnium Diboride with Alumina and Yttrium Aluminum Garnet at 1500°C in Air

S. Winder<sup>1</sup>; M. Ruggles-Wrenn<sup>\*</sup>; T. Parthasarathy<sup>2</sup>; T. Key<sup>2</sup>; C. Carney<sup>3</sup>; 1. Air Force Institute of Technology, USA; 2. UES Inc., USA; 3. Air Force Research Laboratory, USA

**9:50 AM**

Break

## Novel Processing Methods

Room: Ponce DeLeon

Session Chair: Lin Zhang, Brown University

**10:20 AM**

#### (ICACC-S12-051-2015) Processing of ZrB<sub>2</sub>-MoSi<sub>2</sub> Granules for Dual Architectural Toughening of ZrB<sub>2</sub>-Based Ceramics

L. Pienti<sup>\*</sup>; F. Monteverde<sup>1</sup>; L. Silvestroni<sup>1</sup>; D. Sciti<sup>1</sup>; R. J. Grohsmeyer<sup>2</sup>; G. Hillmas<sup>2</sup>; W. G. Fahrenholtz<sup>2</sup>; 1. CNR - ISTE, Italy; 2. Missouri University of Science and Technology, USA

**10:40 AM**

#### (ICACC-S12-052-2015) Effect of Processing Conditions, MoSi<sub>2</sub> Content, and ZrB<sub>2</sub> Particle Size on the Microstructure and Mechanical Properties of ZrB<sub>2</sub>-MoSi<sub>2</sub> Particulate Composites

R. J. Grohsmeyer<sup>\*</sup>; G. Hillmas<sup>1</sup>; W. G. Fahrenholtz<sup>1</sup>; L. Pienti<sup>2</sup>; F. Monteverde<sup>2</sup>; L. Silvestroni<sup>2</sup>; D. Sciti<sup>2</sup>; 1. Missouri University of Science and Technology, USA; 2. CNR-ISTEC, Italy

**11:00 AM**

#### (ICACC-S12-053-2015) Ultra High Temperature Ceramics as Conductive Die Materials for High Pressure and High Temperature Direct Current/Spark Plasma Sintering

L. S. Walker<sup>\*</sup>; 1. GT Advanced Technology, USA

**11:20 AM**

#### (ICACC-S12-054-2015) Influence of Current Density on Specimen Temperature and Grain Growth Mechanisms of Spark Plasma Sintered ZrB<sub>2</sub>-SiC

F. Gai<sup>\*</sup>; W. R. Pinc<sup>1</sup>; E. L. Corral<sup>1</sup>; 1. The University of Arizona, USA

## S13: International Symposium on Advanced Ceramics and Composites for Sustainable Nuclear Energy and Fusion Energy

### Radiation Effects in Ceramics and Composites

Room: Tomoka B

Session Chairs: William Weber, University of Tennessee; Sosuke Kondo, Kyoto University

**8:30 AM**

#### (ICACC-S13-043-2015) Irradiation-induced microstructural evolution and swelling of 3C-SiC (Invited)

J. Kai<sup>\*</sup>; Y. Lin<sup>1</sup>; C. Ho<sup>2</sup>; C. Ku<sup>3</sup>; 1. National Tsing-Hua University, Taiwan; 2. National Tsing-Hua University, Taiwan; 3. National Synchrotron Radiation Research Center, Taiwan

**9:00 AM**

#### (ICACC-S13-044-2015) TEM characterization of advanced SiC fibers irradiated to high dose at relatively low temperature

K. Ozawa<sup>\*</sup>; T. Taguchi<sup>2</sup>; H. Kurotaki<sup>1</sup>; T. Nozawa<sup>1</sup>; H. Tanigawa<sup>1</sup>; 1. Japan Atomic Energy Agency, Japan; 2. Japan Atomic Energy Agency, Japan

**9:20 AM**

#### (ICACC-S13-045-2015) A Quantitative Analysis to Determine the Irradiation Temperature Range and Distribution from Passive SiC Temperature Monitors

A. A. Campbell<sup>\*</sup>; Y. Katoh<sup>1</sup>; L. L. Snead<sup>1</sup>; 1. Oak Ridge National Laboratory, USA

**9:40 AM**

#### (ICACC-S13-046-2015) Radiation effects on defect mobility in SiC (Invited)

I. Szlufarska<sup>\*</sup>; D. Morgan<sup>1</sup>; H. Jiang<sup>1</sup>; J. Deng<sup>1</sup>; H. Ko<sup>1</sup>; B. Leng<sup>1</sup>; K. Sridharan<sup>1</sup>; L. He<sup>1</sup>; P. Voyles<sup>1</sup>; 1. University of Wisconsin, USA

**10:10 AM**

Break

**10:30 AM**

#### (ICACC-S13-047-2015) Ionization-Induced Self-Healing of Irradiation Damage in Silicon Carbide

W. J. Weber<sup>\*</sup>; R. Sachan<sup>2</sup>; O. H. Pakarinen<sup>2</sup>; M. L. Crespillo<sup>1</sup>; H. Xue<sup>1</sup>; Y. Zhang<sup>2</sup>; 1. University of Tennessee, USA; 2. Oak Ridge National Laboratory, USA

**10:50 AM**

#### (ICACC-S13-048-2015) Numerical Study on the Influence of Radiation Damage on Microstructural Evolution of a Binary Two-phase System

E. Hernandez<sup>\*</sup>; V. Tikare<sup>2</sup>; L. Wang<sup>1</sup>; 1. University of Michigan, USA; 2. Sandia National Laboratories, USA

**11:10 AM**

#### (ICACC-S13-049-2015) Quantitative High-Resolution Depth Profiling of Helium in Nano-engineered SiC with Time-of-Flight Elastic Recoil Detection Analysis

C. Chen<sup>\*</sup>; Y. Zhang<sup>2</sup>; E. Fu<sup>3</sup>; Y. Wang<sup>3</sup>; M. L. Crespillo<sup>1</sup>; C. L. Fontana<sup>2</sup>; J. T. Graham<sup>1</sup>; S. C. Shannon<sup>2</sup>; W. J. Weber<sup>1</sup>; 1. University of Tennessee, USA; 2. Oak Ridge National Laboratory, USA; 3. Los Alamos National Laboratory, USA; 4. North Carolina State University, USA

**11:30 AM**

#### (ICACC-S13-050-2015) On the Irradiation Stability of Alpha and Beta Silicon Carbide

L. L. Snead<sup>\*</sup>; Y. Katoh<sup>1</sup>; T. Koyanagi<sup>1</sup>; 1. Oak Ridge National Laboratory, USA

## FS2: Advanced Ceramic Materials and Processing for Photonics and Energy

### Glasses I

Room: Tomoka A

Session Chairs: Daniel Milanese, Politecnico Torino; Valerio Pruneri, ICFO-The Institute of Photonic Sciences

**8:30 AM**

#### (ICACC-FS2-008-2015) Engineering Novel Infrared Glass Ceramics for Advanced Optical Solutions (Invited)

K. C. Richardson<sup>\*</sup>; C. Smith<sup>1</sup>; J. Musgraves<sup>2</sup>; P. Wachtel<sup>2</sup>; T. Mayer<sup>3</sup>; A. Swisher<sup>3</sup>; A. Pogrebnyakov<sup>3</sup>; D. Werner<sup>3</sup>; C. Rivero-Baleine<sup>4</sup>; 1. University of Central Florida, USA; 2. IRadiance Glass, Inc., USA; 3. The Pennsylvania State University, USA; 4. Lockheed Martin Corporation, USA

**9:00 AM**

#### (ICACC-FS2-009-2015) Ultrathin materials and nano-structuring for multifunctional transparent surfaces (Invited)

D. Janner<sup>1</sup>; M. Marchena<sup>1</sup>; D. S. Ghosh<sup>1</sup>; T. L. Chen<sup>1</sup>; I. Mannelli<sup>1</sup>; M. Rude<sup>1</sup>; V. Mkhitaryan<sup>1</sup>; A. Carrilero<sup>1</sup>; V. Pruneri<sup>\*</sup>; 1. ICFO-The Institute of Photonic Sciences, Spain

**9:30 AM**

#### (ICACC-FS2-010-2015) Laser performances of diode-pumped Yb:CaF<sub>2</sub> optical ceramics obtained with an energy-efficient process (Invited)

M. Mortier<sup>\*</sup>; P. Aballea<sup>1</sup>; A. Sukanuma<sup>1</sup>; P. Gredin<sup>2</sup>; F. Druon<sup>3</sup>; J. Hostalrich<sup>3</sup>; P. Georges<sup>3</sup>; 1. PSL Research University, France; 2. Université Pierre et Marie Curie, France; 3. Université Paris-Sud, France

**10:00 AM**

Break

**10:20 AM**

#### (ICACC-FS2-011-2015) Light manipulation through surface waves in dielectric multilayers (Invited)

E. Descrovi<sup>\*</sup>; 1. politecnico di torino, Italy

**10:50 AM**

#### (ICACC-FS2-012-2015) Low temperature deposition of photoluminescent Si nanocrystals in a silica matrix (Invited)

N. Quitarano<sup>\*</sup>; D. Soubane<sup>1</sup>; T. Ozaki<sup>2</sup>; 1. McGill University, Canada; 2. Institut national de la recherche scientifique, Canada

**11:20 AM**

#### (ICACC-FS2-013-2015) Yb/Er-doped optical fibers for pulsed laser and optical amplifier applications

D. Milanese<sup>\*</sup>; D. Pugliese<sup>1</sup>; J. Lousteau<sup>2</sup>; N. G. Boetti<sup>1</sup>; M. Ferraris<sup>1</sup>; L. Scaltrito<sup>1</sup>; I. Forno<sup>1</sup>; M. Actis Grande<sup>1</sup>; A. A. Ishaaya<sup>3</sup>; 1. Politecnico Torino, Italy; 2. Istituto Superiore Mario Boella, Italy; 3. Ben Gurion University, Israel

## FS5: Single Crystalline Materials for Electrical, Optical and Medical Applications

### Optical Materials II

Room: Tomoka C

Session Chairs: Luisa Bausa, Universidad Autonoma de Madrid; Patrice Camy, University of Caen

**8:30 AM**

#### (ICACC-FS5-034-2015) Optical sources at the nanoscale by the interaction between localized surface plasmons and nonlinear solid state gain media (Invited)

L. E. Bausa<sup>\*</sup>; E. Yraola<sup>1</sup>; L. Sanchez-Garcia<sup>1</sup>; P. Molina<sup>1</sup>; M. O. Ramirez<sup>1</sup>; C. de las Heras<sup>1</sup>; J. J. Carvajal<sup>1</sup>; M. Aguiló<sup>2</sup>; F. Díaz<sup>2</sup>; 1. Universidad Autonoma de Madrid, Spain; 2. Universitat Rovira i Virgili, Spain

**9:00 AM**

#### (ICACC-FS5-035-2015) Crystal growth, linear and nonlinear optical properties of BaTeMo<sub>2</sub>O<sub>9</sub> (Invited)

X. Tao<sup>\*</sup>; J. Zhang<sup>1</sup>; 1. Shandong University, China

**9:30 AM**

#### (ICACC-FS5-036-2015) Large-size Nonlinear Optical LBO Crystal Growth (Invited)

Z. Hu<sup>\*</sup>; 1. Technical Institute of Physics and Chemistry, CAS, China

**10:00 AM**

Break

**10:20 AM**

#### (ICACC-FS5-037-2015) Coilable Single Crystals Fibers of Doped-YAG for High Power Laser Applications (Invited)

G. Maxwell<sup>\*</sup>; 1. Shasta Crystals Inc, USA

**10:50 AM**

#### (ICACC-FS5-038-2015) Complex layered SSL sources produced by a multipurpose, adaptable and fast ceramic process (Invited)

L. Esposito<sup>\*</sup>; J. Hostaša<sup>1</sup>; A. Piancastelli<sup>1</sup>; M. Vannini<sup>2</sup>; G. Toci<sup>2</sup>; 1. CNR, Italy; 2. CNR, Italy

**11:20 AM**

#### (ICACC-FS5-039-2015) Transparent YAG ceramics – the effect of doping ions

J. Hostaša<sup>\*</sup>; L. Esposito<sup>1</sup>; W. Pabst<sup>2</sup>; 1. CNR ISTECC, Institute of Science and Technology for Ceramics, Via Granarolo 64, 48018, Italy; 2. Institute of Chemical Technology, Prague, Technická 5, 166 28, Czech Republic

## S1: Mechanical Behavior and Performance of Ceramics & Composites

### Reliability and Small Scale Testing

Room: Coquina Salon D

Session Chairs: Jonathan Salem, NASA Glenn Research Center; Dietmar Koch, Institute of Structures and Design

**1:30 PM**

#### (ICACC-S1-058-2015) FEAMAC-CARES: CARES (Ceramics Analysis and Reliability Evaluation of Structures) and MAC/GMC (Micromechanics Analysis Code/ Generalized Method of Cells) Software Coupling Development Effort for CMC Stochastic-Strength-Based Damage Simulation (Invited)

N. N. Nemeth<sup>\*</sup>; O. Walton<sup>1</sup>; B. Bednarczyk<sup>1</sup>; E. Pineda<sup>1</sup>; S. Arnold<sup>1</sup>; 1. NASA Glenn Research Center, USA

**1:55 PM**

#### (ICACC-S1-059-2015) Internal pressure test and finite element analysis of a C/C-SiC rocket nozzle (Invited)

F. Breede<sup>1</sup>; N. Jain<sup>1</sup>; S. Hofmann<sup>1</sup>; D. Koch<sup>\*</sup>; 1. Institute of Structures and Design, Germany

**2:20 PM**

#### (ICACC-S1-060-2015) Post-Impact Damage Modeling of Ceramic Matrix Composites

P. M. Rao<sup>\*</sup>; R. S. Kumar<sup>1</sup>; 1. United Technologies Research Center, USA

**2:40 PM**

#### (ICACC-S1-061-2015) Fracture Analysis of Strengthened Glass for Strength and Fatigue Applications

V. Subramanian<sup>\*</sup>; G. Hu<sup>1</sup>; I. Ahmed<sup>1</sup>; 1. Corning Incorporated, USA; 2. Corning Incorporated, USA

**3:00 PM**

Break

**3:20 PM**

#### (ICACC-S1-062-2015) Interlaminar Mode I and Mode II Fracture Toughness in Ceramic matrix composites

M. Bailakanavar<sup>\*</sup>; P. Woelke<sup>1</sup>; N. Abboud<sup>1</sup>; G. Ojard<sup>1</sup>; T. Barnett<sup>1</sup>; 1. Weidlinger Associates Inc., USA; 2. United Technologies Research Center, USA; 3. Southern Research Institute, USA

**3:40 PM****(ICACC-S1-063-2015) Deformation of fine-grained CrAlN hard coatings (Invited)**W. J. Clegg<sup>\*1</sup>; S. Liu<sup>1</sup>; J. M. Wheeler<sup>2</sup>; X. T. Zeng<sup>3</sup>; J. Michler<sup>2</sup>; 1. University of Cambridge, United Kingdom; 2. EMPA, Switzerland; 3. Singapore Institute of Manufacturing Technology, Singapore**4:05 PM****(ICACC-S1-064-2015) Large strain plasticity of silica microspheres under electron irradiation**D. D. Stauffer<sup>\*1</sup>; S. Bhowmick<sup>1</sup>; R. C. Major<sup>1</sup>; S. Asif<sup>1</sup>; O. Warren<sup>1</sup>; 1. Hysitron, Inc., USA**4:25 PM****(ICACC-S1-065-2015) The Influence of Large Deflections on the Weibull Strength of Silicon Nanowires**R. Kirkpatrick<sup>2</sup>; J. Collins<sup>\*1</sup>; C. L. Muhlstein<sup>1</sup>; 1. Georgia Tech, USA; 2. Penn State, USA**4:45 PM****(ICACC-S1-066-2015) Accuracy and Limitations of Raman-Based Strain Measurements in Ceramic Nanowires**M. Yashinski<sup>2</sup>; H. Gutierrez<sup>2</sup>; C. L. Muhlstein<sup>\*1</sup>; 1. Georgia Tech, USA; 2. Penn State, USA; 3. University of Louisville, USA**5:05 PM****(ICACC-S1-067-2015) Effect of scale on the hardness of multiphase ceramics**L. J. Vandeperre<sup>1</sup>; A. Madamombe<sup>\*1</sup>; 1. Imperial College London, United Kingdom**5:25 PM****(ICACC-S1-068-2015) Measuring Nanoscale Mechanical Properties of Brittle Materials at Elevated Temperatures**S. Syed Amanulla<sup>\*1</sup>; 1. Hysitron, USA**S2: Advanced Ceramic Coatings for Structural, Environmental, and Functional Applications****Environmental Barrier Coatings II**

Room: Coquina Salon G

Session Chairs: Soumendra Basu, Boston University; Bradley Richards, University of Virginia

**1:30 PM****(ICACC-S2-032-2015) Failure mechanisms associated with the silica scale in BSAS coated C/SiC composites (Invited)**Y. Wang<sup>\*1</sup>; 1. Northwestern Polytechnical University, China**2:00 PM****(ICACC-S2-033-2015) Formation of preferential orientation on dense Al<sub>2</sub>O<sub>3</sub> coating prepared by aerosol deposition method**M. Hasegawa<sup>\*1</sup>; K. Akiyama<sup>1</sup>; M. Tanaka<sup>2</sup>; S. Kitaoka<sup>2</sup>; Y. Kagawa<sup>3</sup>; 1. Yokohama National University, Japan; 2. Japan Fine Ceramics Center, Japan; 3. The University of Tokyo, Japan**2:20 PM****(ICACC-S2-034-2015) Oxygen permeation within  $\alpha$ -alumina in advanced EBCs: An atomistic theoretical approach**T. Ogawa<sup>\*1</sup>; A. Kuwabara<sup>1</sup>; C. Fisher<sup>1</sup>; H. Moriwake<sup>1</sup>; S. Kitaoka<sup>1</sup>; 1. Japan Fine Ceramics Center, Japan**2:40 PM****(ICACC-S2-035-2015) Pulse phase thermography NDE for detection of partial delamination behavior in mullite/Si/RB-SiC model EBC system**Y. Arai<sup>\*1</sup>; R. Inoue<sup>1</sup>; T. Kuribara<sup>1</sup>; Y. Kagawa<sup>1</sup>; 1. The University of Tokyo, Japan**3:00 PM****Break****Multifunctional, Corrosion and Wear**

Room: Coquina Salon G

Session Chair: Kevin Plucknett, Dalhousie University

**3:20 PM****(ICACC-S2-036-2015) Porosity Control in Ceramics Coated Layers by Friction Effect Modulations on Tilted Thermal Nanoparticles Spraying (Invited)**S. Kirihara<sup>\*1</sup>; 1. Osaka University, Japan**3:50 PM****(ICACC-S2-037-2015) Aqueous corrosion behavior of Ti(C,N)-Ni<sub>3</sub>Al cermets**M. Holmes<sup>1</sup>; G. Kipourou<sup>3</sup>; Z. Farhat<sup>1</sup>; K. P. Plucknett<sup>\*1</sup>; 1. Dalhousie University, Canada**4:10 PM****(ICACC-S2-038-2015) Sol-gel based Nano-composites for Self cleaning applications**A. S. Khanna<sup>\*1</sup>; 1. IIT Bombay, India**4:30 PM****(ICACC-S2-039-2015) Formulation of hexagonal boron nitride suspensions for lubrication applications**S. Murali<sup>\*1</sup>; R. Haber<sup>1</sup>; 1. Rutgers, The State University of New Jersey, USA**4:50 PM****(ICACC-S2-040-2015) Preparation and microstructure of Cr<sub>2</sub>AlC coating by cathodic arc deposition**Y. Qian<sup>\*1</sup>; 1. Institute of Metal Research, Chinese Academy of Sciences, China**S3: 12th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology****Degradation, Modeling and Simulation / Novel Processing and Design**

Room: Crystal

Session Chairs: Ulrich Vogt, Empa; Mihails Kusnezoff, Fraunhofer IKTS

**1:30 PM****(ICACC-S3-052-2015) Steam Electrolysis with Electrode and Electrolyte Supported Solid Oxide Cells: Stability Testing Focussing on the 5000+ Hours Time Scale (Invited)**J. Schefold<sup>\*1</sup>; A. Brisse<sup>1</sup>; 1. European Institute for Energy Research, Germany**2:00 PM****(ICACC-S3-053-2015) NiO behavior observation in Ni-GDC anode during redox cycle**K. Sato<sup>\*1</sup>; T. Hatae<sup>1</sup>; S. Amaha<sup>1</sup>; 1. Tokyo Gas Co., Ltd., Japan**2:20 PM****(ICACC-S3-054-2015) Application of Computational Thermodynamics in Solid Oxide Fuel Cell**Y. Zhong<sup>\*1</sup>; M. Yang<sup>2</sup>; M. Chen<sup>3</sup>; 1. Florida International University, USA; 2. The Pennsylvania State University, USA; 3. Technical University of Denmark, Denmark**2:40 PM****(ICACC-S3-055-2015) Long-term Degradation Due to Cation Ordering in Rare Earth Doped Ceria**S. Grieshammer<sup>1</sup>; B. Grope<sup>1</sup>; J. Koettgen<sup>\*1</sup>; M. Martin<sup>1</sup>; 1. RWTH Aachen University, Germany**3:00 PM****Break**



**3:20 PM****(ICACC-S3-056-2015) Improving performance and long-term stability of solid oxide cells by integration of AA-CVD thin films (Invited)**

M. V. Schlupp<sup>\*</sup>; M. M. Wehrle<sup>1</sup>; R. Delmelle<sup>1</sup>; A. Borgschulte<sup>1</sup>; A. Remhof<sup>1</sup>; U. F. Vogt<sup>1</sup>; A. Zuetzel<sup>2</sup>; 1. Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; 2. EPFL, Switzerland

**3:50 PM****(ICACC-S3-057-2015) Application of Full Metal Fuel Cells (FMFCs) with Solid Oxide Thin Films in smartphone chargers**

S. Kuehn<sup>\*</sup>; A. Weber<sup>1</sup>; K. M. Paciejewska<sup>1</sup>; A. Stoeck<sup>1</sup>; L. Winkler<sup>1</sup>; S. Mnich<sup>1</sup>; 1. eZelleron, Germany

**4:10 PM****(ICACC-S3-058-2015) Development of Flat-tubular Solid Oxide Fuel Cells and Stacks**

T. Suzuki<sup>\*</sup>; H. Sumi<sup>1</sup>; T. Yamaguchi<sup>1</sup>; K. Hamamoto<sup>1</sup>; H. Shimada<sup>1</sup>; Y. Fujishiro<sup>1</sup>; J. D. Carter<sup>2</sup>; S. Barnett<sup>3</sup>; 1. National Institute of Advanced Industrial Science and Technology, Japan; 2. Argonne National Laboratory, USA; 3. Northwestern University, USA

**4:30 PM****(ICACC-S3-059-2015) Ni-free Hybrid Metal-Ceramic Supported SOFC**

R. Costa<sup>\*</sup>; R. Poss<sup>2</sup>; A. Chesnaud<sup>3</sup>; F. Willot<sup>4</sup>; G. Syvertsen<sup>5</sup>; M. Viviani<sup>6</sup>; A. Sanson<sup>7</sup>; L. Dessemond<sup>8</sup>; R. Semerad<sup>9</sup>; A. Ansar<sup>10</sup>; 1. German Aerospace Center, Germany; 2. Alantum Europe GmbH, Germany; 3. ARMINES, France; 4. ARMINES, France; 5. Ceramic Powder Technology AS, Norway; 6. CNR, Italy; 7. CNR, Italy; 8. Grenoble INP, France; 9. Ceraco Ceramic Coating GmbH, Germany; 10. Saan Energi AB, Sweden

**4:50 PM****(ICACC-S3-060-2015) Manufacturing of Metal Foam Supported SOFCs with Graded Ceramic Layer Structure and Thin-film Electrolyte**

F. Han<sup>\*</sup>; R. Semerad<sup>2</sup>; G. Constantin<sup>3</sup>; L. Dessemond<sup>3</sup>; R. Costa<sup>1</sup>; 1. German Aerospace Center, Germany; 2. Ceraco Ceramic Coating GmbH, Germany; 3. Université Grenoble Alpes, France

**5:10 PM****(ICACC-S3-061-2015) Effect of specific surface area and particle size distribution of gadolinium doped ceria slurry on densification during sintering process**

K. M. Paciejewska<sup>\*</sup>; S. Kühn<sup>1</sup>; A. Stoeck<sup>1</sup>; S. Mnich<sup>1</sup>; 1. eZelleron GmbH, Germany

**5:30 PM****(ICACC-S3-062-2015) The Effect of Precursor Gel Desiccation, Ceria Oxide Pre-Infiltration, and Solution Composition on the Size of Lanthanum Strontium Ferrite-Lanthanum Strontium Cobaltite Infiltrate Nano-Particles**

T. Burye<sup>\*</sup>; J. D. Nicholas<sup>1</sup>; 1. Michigan State University, USA

**S5: Next Generation Bioceramics and Biocomposites****Bioceramics III**

Room: Coquina Salon F

Session Chairs: Akiyoshi Osaka, Okayama University; Jacqueline Johnson, UTSI

**1:30 PM****(ICACC-S5-019-2015) Structure and Properties Study of Calcium Phosphate Bioceramics**

Y. Gao<sup>\*</sup>; R. law<sup>1</sup>; N. Karpukhina<sup>2</sup>; R. Hill<sup>2</sup>; 1. imperial college london, United Kingdom; 2. Queen Mary University of London, United Kingdom

**1:50 PM****(ICACC-S5-020-2015) Computed radiography with glass ceramic imaging plates (Invited)**

R. L. Leonard<sup>1</sup>; S. Gray<sup>2</sup>; R. Lubinsky<sup>3</sup>; R. Weber<sup>2</sup>; J. A. Johnson<sup>\*</sup>; S. Schweizer<sup>4</sup>; 1. UTSI, USA; 2. Materials Development, Inc., USA; 3. SUNY, Stony Brook, USA; 4. South Westphalia University of Applied Sciences, Germany

**2:10 PM****(ICACC-S5-021-2015) Experimental approach to study the thermal induced state of stress in a medical ceramic bilayer**

V. Mercurio<sup>\*</sup>; M. Paganelli<sup>1</sup>; 1. TA Instruments, Italy

**2:30 PM****(ICACC-S5-022-2015) New biomimetic strategies for regeneration of load-bearing bones (Invited)**

S. Sprio<sup>\*</sup>; M. Dapporto<sup>1</sup>; S. Panseri<sup>1</sup>; A. Tampieri<sup>1</sup>; 1. National Research Council of Italy, Italy

**2:50 PM****(ICACC-S5-023-2015) Nano-sized calcium phosphate particles with varied morphology prepared in a micro-flow reactor**

E. Fujii<sup>3</sup>; K. Kawabata<sup>3</sup>; Y. Shirosaki<sup>2</sup>; Y. Nakamura<sup>1</sup>; S. Hayakawa<sup>4</sup>; A. Osaka<sup>\*</sup>; 1. Okayama University, Japan; 2. Kyushu Institute of Technology, Japan; 3. Industrial Technology Center of Okayama Prefecture, Japan; 4. Okayama University, Japan

**3:10 PM****Break****3:30 PM****(ICACC-S5-024-2015) Effect of Na+/Mg2+ dopant ions on  $\beta \rightarrow \alpha$  phase transition of TCP bioceramics**

M. Frasnelli<sup>\*</sup>; R. S. Pillai<sup>1</sup>; D. Cabiddu<sup>1</sup>; V. M. Sglavo<sup>1</sup>; 1. University of Study of Trento, Italy

**3:50 PM****(ICACC-S5-025-2015) Simultaneous Testing of Calcite, Vaterite and Aragonite in Lac-SBF at 37 C (Invited)**

C. Tas<sup>\*</sup>; W. M. Kriven<sup>1</sup>; A. S. Madden<sup>2</sup>; 1. University of Illinois, USA; 2. University of Oklahoma, USA

**4:10 PM****(ICACC-S5-026-2015) Processing techniques and Characterizations of metastable biomimetic nanocrystalline apatites: Towards a new generation of calcium phosphate coatings and ceramics (Invited)**

D. Grossin<sup>\*</sup>; E. Kergourlay<sup>1</sup>; F. Brouillet<sup>1</sup>; C. Drouet<sup>1</sup>; G. Bertrand<sup>1</sup>; C. Rey<sup>1</sup>; 1. Université de Toulouse, France

**4:30 PM****(ICACC-S5-027-2015) Effect of grain boundary segregation on the hydrothermal degradation of Y-TZP**

F. Zhang<sup>\*</sup>; K. Vanmeensel<sup>1</sup>; M. Inokoshi<sup>2</sup>; B. Van Meerbeek<sup>2</sup>; I. Naert<sup>2</sup>; J. Vleugels<sup>1</sup>; 1. KULeuven, Belgium; 2. KU Leuven - University of Leuven, Belgium

**4:50 PM****(ICACC-S5-028-2015) Fabrication and Characterization of Nano Bioglass -Ceramic Scaffold for Bone Tissue Engineering**

A. K. Sampath<sup>\*</sup>; H. Tripathi<sup>1</sup>; S. P. Singh<sup>1</sup>; R. Pyare<sup>1</sup>; V. Sri Sravya<sup>1</sup>; M. Vyshali Nanda<sup>1</sup>; 1. Indian Institute of Technology(BHU), India

**5:10 PM****(ICACC-S5-029-2015) Mesoporous bioactive glass particles and their potential for bone regeneration (Invited)**

C. Vitale-Brovarone<sup>\*</sup>; 1. Politecnico di Torino, Italy

## S7: 9th International Symposium on Nanostructured Materials: Innovative Synthesis and Processing of Nanostructured, Nanocomposite and Hybrid Functional Materials for Energy, Health and Sustainability

### Solution Synthesis, Functionalization and Assembly of Metal Oxide Nano-materials III

Room: Coquina Salon B

Session Chair: Mohamed Sijaj, UQAM

**1:30 PM**

**(ICACC-S7-040-2015) Nanostructured metal oxides by wet chemical synthesis with applications for energy and health (Invited)**

A. Hardy\*; M. K. Van Bael<sup>1</sup>; 1. Hasselt University and imec division imomec, Belgium

**2:00 PM**

**(ICACC-S7-041-2015) Synthesis Strategies for the Low-Temperature Processing of Functional Oxide Thin Films by Advanced Solution Methods (Invited)**

I. Bretos\*; R. Jiménez; J. Ricote<sup>1</sup>; M. Calzada<sup>1</sup>; 1. ICMIM-CSIC, Spain

**2:30 PM**

**(ICACC-S7-042-2015) Modeling molecular precursors conversion to advanced materials (Invited)**

G. Tabacchi\*; 1. University of Insubria, Italy

**3:00 PM**

**Break**

### Metal Oxide Nanostructures for Chemical and Biological Sensors

Room: Coquina Salon B

Session Chairs: An Hardy, Rutgers University; Gloria Tabacchi, University of Insubria

**3:20 PM**

**(ICACC-S7-043-2015) Simultaneous Detection of Glucose, Cholesterol and Urea with Integrated ZnO Nanorods Field-Effect Transistor Array Biosensors (Invited)**

R. Ahmad<sup>1</sup>; D. Jung<sup>1</sup>; Y. Hahn\*; 1. Dept of Earth and Environ Sci, Korea (the Republic of)

**3:50 PM**

**(ICACC-S7-044-2015) Catalyst loaded micro-reactors: A new nano/micro-architecture for highly selective metal oxide gas sensors**

J. Yoon\*; Y. Hong<sup>1</sup>; Y. Kang<sup>1</sup>; J. Lee<sup>1</sup>; 1. Korea University, Korea (the Republic of); 2. Konkuk University, Korea (the Republic of)

**4:10 PM**

**(ICACC-S7-045-2015) One-step In-Situ Core Shell Graphene-Nanoparticles Growth by Chemical Vapor Deposition for Biosensing applications (Invited)**

M. Sijaj\*; 1. UQAM, Canada

**4:30 PM**

**(ICACC-S7-046-2015) Wet chemical synthesis of WO<sub>3</sub> quantum dots and gas sensing enhancement by surface oxygen vacancies**

M. Epifani\*; E. Comini<sup>1</sup>; R. Diaz<sup>2</sup>; T. Andreu<sup>3</sup>; A. Genç<sup>3</sup>; J. Arbiol<sup>4</sup>; P. Siciliano<sup>5</sup>; G. Faglia<sup>2</sup>; J. R. Morante<sup>1</sup>; 1. CNR-IMM, Italy; 2. SENSOR Lab, Brescia University and CNR-INO, Italy; 3. IMDEA Energy Institute, Spain; 4. Institut de Recerca en Energia de Catalunya (IREC), Spain; 5. Institut de Ciència de Materials de Barcelona, ICMAB-CSIC, Italy

**4:50 PM**

**(ICACC-S7-047-2015) Electrophoretic deposition of ZnO film and effect of UV light on Surface wettability**

A. K. Singh\*; U. T. Nakate<sup>2</sup>; 1. Armament Research and Development Establishment, India; 2. Defence Institute of Advanced Technology, India

**5:10 PM**

**(ICACC-S7-048-2015) Highly Sensitive Graphene Electrochemical Sensor for Detecting Colourants in Food**

K. Huang\*; J. Ting<sup>1</sup>; 1. National Cheng Kung University, Tainan, Taiwan, Taiwan

## S8: 9th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT9)

### Advanced Composite Manufacturing

Room: Coquina Salon A

Session Chairs: Shaoming Dong, Shanghai Institute of Ceramics, Chinese Academy of Sciences; Vojislav Mitić, Serbian Academy of Sciences

**1:30 PM**

**(ICACC-S8-054-2015) Mechanical properties and plasma sputtering resistances of textured h-BN ceramic composites (Invited)**

Y. Zhou\*; X. Duan<sup>1</sup>; D. Jia<sup>1</sup>; N. Jing<sup>1</sup>; Z. Tan<sup>1</sup>; Z. Yang<sup>1</sup>; S. Wang<sup>1</sup>; 1. Harbin Institute of Technology, China

**2:00 PM**

**(ICACC-S8-055-2015) Multi-scale enhanced C/SiC composites with one dimension nano structure (Invited)**

S. Dong\*; J. Hu<sup>1</sup>; Y. Kan<sup>1</sup>; 1. Shanghai Institute of Ceramics, Chinese Academy of Sciences, China

**2:30 PM**

**(ICACC-S8-056-2015) Development of Particle Dispersion Novel Silicon Carbide Composites**

T. Hinoki\*; K. Shimoda<sup>1</sup>; 1. Kyoto University, Japan; 2. National Institute for Materials Science, Japan

**2:50 PM**

**(ICACC-S8-057-2015) Optimization of porous SiC/SiC composites fabricated by liquid phase sintering**

S. Maeta\*; T. Hinoki<sup>1</sup>; 1. Kyoto University, Japan

**3:10 PM**

**Break**

15:00 - 15:20

**3:30 PM**

**(ICACC-S8-058-2015) One-step mechanical processing to prepare LSM/ScSZ composite particles for SOFC cathode**

A. Kondo\*; E. Nakamura<sup>1</sup>; T. Kozawa<sup>1</sup>; M. Naito<sup>1</sup>; 1. Osaka University, Japan

**3:50 PM**

**(ICACC-S8-059-2015) Si<sub>3</sub>N<sub>4</sub>/SiC self-healing ceramic nano-composites**

K. Krnel\*; L. Gruden<sup>1</sup>; T. Kosmac<sup>1</sup>; 1. Jozef Stefan Institute, Slovenia

**4:10 PM**

**(ICACC-S8-060-2015) Fractal aspects of the Coble's model corrections**

V. Mitić\*; V. Paunović<sup>1</sup>; V. Pavlović<sup>2</sup>; L. Kocić<sup>1</sup>; 1. University of Nis, Serbia; 2. Serbian Academy of Sciences, Serbia

4:30 PM

**(ICACC-S8-061-2015) Ti doped alumina dispersion strengthening copper prepared using internal oxidation at ambient atmosphere**

S. Han<sup>\*</sup>; S. Lim<sup>2</sup>; B. Han<sup>3</sup>; K. Kim<sup>4</sup>; 1. Korea Institute of Materials Science, Korea (the Republic of); 2. Kangwon National University, Korea (the Republic of); 3. Daegu Kyungbook Institute of Science and Technology, Korea (the Republic of); 4. Pusan National University, Korea (the Republic of)

4:50 PM

**(ICACC-S8-062-2015) Simple Synthesis Technique for Production of Boron Nitride Nanotubes**

J. Hurst<sup>\*</sup>; 1. NASA Glenn Research Center, USA

5:10 PM

**(ICACC-S8-063-2015) Enhanced Spinodal Phase Separation of SnO<sub>2</sub>-TiO<sub>2</sub> Ceramics by Iron Doping and their Electrical Properties (Invited)**

T. Sekino<sup>\*</sup>; T. Kusunose<sup>2</sup>; S. Tanaka<sup>3</sup>; 1. Osaka University, Japan; 2. Kagawa University, Japan; 3. Tohoku University, Japan

**S9: Porous Ceramics: Novel Developments and Applications****Applications of Porous Ceramics I**

Room: Coquina Salon H

Session Chair: Alberto Ortona, SUPSI

1:30 PM

**(ICACC-S9-033-2015) Treatment of Produced Water Using Silicon Carbide Membrane Filters (Invited)**

A. K. Bakshi<sup>\*</sup>; 1. Saint-Gobain, USA

1:50 PM

**(ICACC-S9-034-2015) Foam-reinforced Thermal Insulation for High Temperature and Cryogenic Temperature Applications**

J. Stiglich<sup>\*</sup>; B. Williams<sup>1</sup>; V. Arrieta<sup>1</sup>; 1. Ultramet, USA

2:10 PM

**(ICACC-S9-035-2015) Titanium oxide-based ceramic catalysts: processing and applications**

E. Medvedovski<sup>\*</sup>; 1. Endurance Technologies Inc., Canada

2:40 PM

**(ICACC-S9-036-2015) The development of porous ceramics for waste heat reduction**

Y. Tanaka<sup>\*</sup>; S. Sasaki<sup>1</sup>; A. Matsuyama<sup>1</sup>; T. Ebi<sup>1</sup>; 1. Mino ceramic Co., Ltd., Japan

3:00 PM

Break

**Applications of Porous Ceramics II**

Room: Coquina Salon H

Session Chair: James Zimmermann, Corning

3:20 PM

**(ICACC-S9-037-2015) Ceramics Flat-sheet Membrane for Waste Water Treatment (Invited)**

A. Nakagawa<sup>\*</sup>; H. NOGUCHI<sup>1</sup>; 1. MEIDENSHA CORPORATION, Japan

3:40 PM

**(ICACC-S9-038-2015) CMC tubes with internal engineered cellular ceramics for high temperatures heat exchange applications**

A. Ortona<sup>1</sup>; D. Yoon<sup>2</sup>; T. Fend<sup>\*3</sup>; S. Gianella<sup>1</sup>; 1. SUPSI, Switzerland; 2. Yeungnam University, Korea (the Republic of); 3. German Aerospace Center, Germany; 4. EngiCer, Switzerland

4:10 PM

**(ICACC-S9-039-2015) Engineered ceramic laminates with improved mechanical reliability achieved by tailoring the porosity**

N. Bellettati<sup>1</sup>; V. M. Sglavo<sup>\*1</sup>; 1. University of Trento, Italy

4:30 PM

**(ICACC-S9-040-2015) Highly porous waste-derived glass-ceramics for structural and functional applications**

E. Bernardo<sup>\*</sup>; I. Ponsot<sup>1</sup>; M. Marangoni<sup>1</sup>; 1. University of Padova, Italy

4:50 PM

**(ICACC-S9-041-2015) Porous glassceramic material for building and engineering applications**

J. Aderiyeye<sup>\*1</sup>; 1. Federal Polytechnic Ado-Ekiti, Nigeria

**S10: Virtual Materials (Computational) Design and Ceramic Genome****Ceramic Genome and Modeling of Structure and Property III**

Room: Coquina Salon C

Session Chair: Yanwen Zhang, Oak Ridge National Lab

1:30 PM

**(ICACC-S10-016-2015) Thermodynamic modeling and simulations for Lithium-ion batteries and their materials (Invited)**

H. J. Seifert<sup>\*</sup>; M. Lepple<sup>1</sup>; D. M. Cupid<sup>1</sup>; C. Ziebert<sup>1</sup>; M. Rohde<sup>1</sup>; A. Melcher<sup>1</sup>; 1. Karlsruhe Institute of Technology, Germany

2:00 PM

**(ICACC-S10-017-2015) An ab initio Electronic Structure and Bonding Study of Elemental Boron, Boron Rich Crystals, and Amorphous Hydrogenated Boron Carbide (Invited)**

P. Rulis<sup>\*1</sup>; 1. University of Missouri - Kansas City, USA

2:30 PM

**(ICACC-S10-018-2015) Atomic Structure and Bonding of Metal Atoms Adsorbed on Titania Surfaces (Invited)**

K. Matsunaga<sup>\*1</sup>; 1. Nagoya University, Japan

3:00 PM

Break

**Integrated Materials Computational Engineering**

Room: Coquina Salon C

Session Chairs: Gerard Vignoles, University Bordeaux; Romana Piat, Karlsruhe Institute of Technology

3:20 PM

**(ICACC-S10-019-2015) Image-based modeling of stitched C/C composites (Invited)**

G. L. Vignoles<sup>\*1</sup>; 1. University Bordeaux, France

3:50 PM

**(ICACC-S10-020-2015) Phase field modeling of rapid solidification in thermal spray coatings**

T. Pinomaa<sup>\*1</sup>; N. Ofori-Opoku<sup>2</sup>; A. Laukkanen<sup>1</sup>; N. Provatas<sup>2</sup>; 1. VTT Technical Research Centre of Finland, Finland; 2. McGill University, Canada

4:10 PM

**(ICACC-S10-021-2015) Micro-Computed Tomography Image Based Modeling of MMCs**

Y. Sinchuk<sup>1</sup>; S. Dietrich<sup>2</sup>; M. Merzkirch<sup>\*2</sup>; K. Weidenmann<sup>2</sup>; R. Piat<sup>1</sup>; 1. Karlsruhe Institute of Technology, Germany; 2. Karlsruhe Institute of Technology, Germany

4:30 PM

**(ICACC-S10-022-2015) Multiscale modeling assisted tailoring of thermal spray coatings**

T. Pinomaa<sup>1</sup>; T. Andersson<sup>1</sup>; N. Ofori-Opoku<sup>2</sup>; A. Laukkanen<sup>\*1</sup>; N. Provatas<sup>2</sup>; 1. VTT Technical Research Centre of Finland, Finland; 2. McGill University, Canada

**4:50 PM****(ICACC-S10-023-2015) Structure and Mechanical Properties of Novel Carbon Enriched SiC based Ceramics**

A. Adnan\*; 1. University of Texas, USA

**5:10 PM****(ICACC-S10-024-2015) Sharp Interfacial Energy Driven Phase Ripening in the Presence of Wetting Boundaries**

E. Hernandez\*; V. Tikare\*; L. Noiro\*; 1. University of Michigan, USA; 2. Sandia National Laboratories, USA; 3. Commissariat à l'Énergie Atomique Cadarache, France

**S11: Advanced Materials and Innovative Processing Ideas for the Production Root Technology****Coating Process for Low Friction and Energy Solution I**

Room: Coquina Salon E

Session Chairs: Tim Hosenfeldt, Schaeffler Technologies GmbH &amp; Co. KG; Hiroshi Tamagaki, Kobe Steel, Ltd.

**1:30 PM****(ICACC-S11-008-2015) Extraordinary Friction and Wear Behavior of One-atom-thick Graphene (Invited)**

A. Erdemir\*; D. Berman\*; A. V. Sumant\*; 1. Argonne National Laboratory, USA

**2:00 PM****(ICACC-S11-009-2015) Impact of lubricant chemistry on friction and wear behavior of thin-film ceramic coatings (Invited)**

C. Lorenzo Martin\*; O. Ajayi\*; A. Erdemir\*; G. R. Fenske\*; 1. Argonne National Laboratory, USA

**2:30 PM****(ICACC-S11-010-2015) Deposition technologies of carbon-based coating; unbalanced magnetron sputtering and MF-AC PECVD (Invited)**

H. Tamagaki\*; K. Akari\*; H. Junji\*; 1. Kobe Steel, Ltd., Japan

**3:00 PM****Break****Coating Process for Low Friction and Energy Solution II**

Room: Coquina Salon E

Session Chairs: Ali Erdemir, Argonne National Laboratory; M. Ürgen, Istanbul Technical University

**3:20 PM****(ICACC-S11-011-2015) Surface Technology as Key Technology for Future Mobility (Invited)**

T. Hosenfeldt\*; Y. Musayev\*; 1. Schaeffler Technologies GmbH &amp; Co. KG, Germany

**3:50 PM****(ICACC-S11-012-2015) Innovative process technologies for enhanced product performance (Invited)**

R. Tietema\*; D. Doerwald\*; R. Jacobs\*; J. Landsbergen\*; 1. IHI Hauzer Techno Coating B.V., Netherlands

**4:20 PM****(ICACC-S11-013-2015) Aluminizing-Alloying of Metal Surfaces with Cathodic Arc Plasma Treatment (Invited)**

M. Ürgen\*; 1. Istanbul Technical University Department of Metallurgical and Materials Engineering, Turkey

**4:50 PM****(ICACC-S11-014-2015) near-nanocomposite cermet coatings for corrosion, friction, and wear**

A. Sherman\*; E. Vogli\*; G. Santini\*; 1. Mesocoat Inc, USA; 2. Abakan Inc, USA

**5:10 PM****(ICACC-S11-015-2015) Hard Coatings in a Challenging Tribological Application (Invited)**

O. L. Eryilmaz\*; G. Ramirez\*; A. Erdemir\*; 1. Argonne National Laboratory, USA

**5:40 PM****(ICACC-S11-016-2015) Friction and wear properties of the ZrN/Cu nano composite films fabricated by multicomponent single alloying targets for automobile industry**

J. Sun\*; S. Shin\*; K. Moon\*; 1. Korea Institute of Industrial Technology, Korea (the Republic of)

**S13: International Symposium on Advanced Ceramics and Composites for Sustainable Nuclear Energy and Fusion Energy****Design Properties and Interactions for Nuclear Ceramics**

Room: Tomoka B

Session Chairs: Stephen Gonczy, Gateway Materials Technology; Mark Mitchell, EON Consulting

**1:30 PM****(ICACC-S13-051-2015) Development of a Standard for the use of composites in a High Temperature Reactor (Invited)**

M. N. Mitchell\*; Y. Katoh\*; S. T. Gonczy\*; 1. EON Consulting, South Africa; 2. Oak Ridge National Laboratory, USA; 3. Gateway Materials Technology, USA

**2:00 PM****(ICACC-S13-052-2015) Hoop Tensile Strength of Composite Tubes for LWRS Applications Using Internal Pressurization: Draft ASTM Test Method (Invited)**

M. G. Jenkins\*; J. Salem\*; J. E. Gallego\*; 1. Bothell Engineering and Science Technologies, USA; 2. NASA Glenn Research Center, USA

**2:20 PM****(ICACC-S13-053-2015) Composition, Structure, Manufacture, and Properties of SiC-SiC CMCS for Nuclear Applications: ASME BPVC Section III**

M. G. Jenkins\*; S. T. Gonczy\*; Y. Katoh\*; 1. Bothell Engineering and Science Technologies, USA; 2. Gateway Materials Technology, Inc, USA; 3. Oak Ridge National Laboratory, USA

**2:40 PM****(ICACC-S13-054-2015) An ASTM C28 Standard Guide for the High Temperature Oxidation Exposure Testing of Nonoxide Advanced Ceramics at Atmospheric Pressures and Low Gas Velocities**

S. T. Gonczy\*; Y. Katoh\*; 1. Gateway Materials Technology, USA; 2. Oak Ridge National Laboratory, USA

**3:00 PM****Break****3:20 PM****(ICACC-S13-055-2015) The ASTM C28 Test Standard for the Torsional Shear Strength of Adhesive Bonds for Advanced Ceramics**

S. T. Gonczy\*; Y. Katoh\*; M. Ferraris\*; 1. Gateway Materials Technology, USA; 2. Oak Ridge National Laboratory, USA; 3. Politecnico di Torino, Italy

**3:40 PM****(ICACC-S13-056-2015) Joining SiC for Nuclear Applications: Modeling Miniature Torsion Tests with Experimental Validation**

C. H. Henager\*; B. Nguyen\*; R. Kurtz\*; T. Roosendaal\*; B. Borlaug\*; M. Ferraris\*; A. Ventrella\*; Y. Katoh\*; 1. PNNL, USA; 2. Politecnico di Torino, Italy; 3. ORNL, USA

**4:00 PM****(ICACC-S13-057-2015) Notch effects on silicon carbide matrix composites by various failure modes**

T. Nozawa\*; K. Ozawa\*; H. Tanigawa\*; 1. Japan Atomic Energy Agency, Japan



**4:20 PM****(ICACC-S13-058-2015) Thermal Conductivity of Silicon Carbide Ceramics**Y. Kim<sup>\*</sup>; J. Eom<sup>1</sup>; S. Lee<sup>2</sup>; K. Lim<sup>2</sup>; 1. University of Seoul, Korea (the Republic of); 2. KEPCO Nuclear Fuel, Korea (the Republic of)**4:40 PM****(ICACC-S13-059-2015) Laser Flash Thermal Diffusivity Measurements on Composite Tubes**J. Zhang<sup>\*</sup>; H. E. Khalifa<sup>1</sup>; C. P. Deck<sup>1</sup>; C. A. Back<sup>1</sup>; 1. General Atomics, USA**5:00 PM****(ICACC-S13-060-2015) Irradiation Creep of Silicon Carbide in Medium-to-High Dose Regime**Y. Katoh<sup>\*</sup>; T. Koyanagi<sup>1</sup>; L. L. Snead<sup>1</sup>; T. Hinoki<sup>1</sup>; 1. Oak Ridge National Laboratory, USA; 2. Kyoto University, Japan**FS2: Advanced Ceramic Materials and Processing for Photonics and Energy****Glasses II / Synthesis**

Room: Tomoka A

Session Chairs: Nate Quitoriano, McGill University; Gunnar Westin, Uppsala University

**1:30 PM****(ICACC-FS2-014-2015) Enhanced electrical and structural properties of Antimony doped Cuprous oxide and their application to visible-light photonic device**S. Baek<sup>\*</sup>; H. Cho<sup>1</sup>; 1. Sungkyunkwan University, Korea (the Republic of); 2. Sungkyunkwan University, Korea (the Republic of)**1:50 PM****(ICACC-FS2-015-2015) Development of Polycrystalline Ceramic Core-Clad Fibers for Optical Applications**H. Kim<sup>\*</sup>; G. E. Fair<sup>1</sup>; R. G. Corns<sup>1</sup>; H. Lee<sup>1</sup>; S. A. Potticary<sup>1</sup>; M. O'Malley<sup>1</sup>; N. G. Usechak<sup>1</sup>; R. Hay<sup>1</sup>; 1. Air Force Research Laboratory, USA**2:10 PM****(ICACC-FS2-016-2015) Complex oxides through alkoxide based solution synthesis (Invited)**G. Westin<sup>\*</sup>; 1. Uppsala University, Sweden**2:40 PM****(ICACC-FS2-017-2015) Dynamics of quantum dot uptake into mesoporous TiO<sub>2</sub> thick films through electrophoretic deposition**L. Jin<sup>\*</sup>; H. Zhao<sup>1</sup>; D. Ma<sup>1</sup>; A. Vomiero<sup>2</sup>; F. Rosei<sup>1</sup>; 1. Institut National de la Recherche Scientifique, Canada; 2. CNR-INO SENSOR Lab, Italy**3:00 PM****Break****3:20 PM****(ICACC-FS2-018-2015) Composing Metal Oxide Nanocrystals for Improved Gas-Sensors: from Surface Modification to Inter-Oxide Cross-Talk (Invited)**M. Epifani<sup>\*</sup>; 1. CNR-IMM, Italy**3:50 PM****(ICACC-FS2-019-2015) Analysis of nano structures of In-Ga-Zn-O thin films deposited by sputtering at room temperature**N. Sorida<sup>\*</sup>; K. Dairiki<sup>1</sup>; M. Takahashi<sup>1</sup>; M. Yano<sup>1</sup>; E. Takahashi<sup>1</sup>; T. Hirohashi<sup>1</sup>; Y. Komatsu<sup>1</sup>; M. Sumikawa<sup>1</sup>; S. Yamazaki<sup>1</sup>; 1. Semiconductor Energy Laboratory Co.,Ltd., Japan**4:10 PM****(ICACC-FS2-020-2015) Nano energy conversion phosphors**A. V. Mudring<sup>\*</sup>; A. V. Mudring<sup>1</sup>; 1. Iowa State University, USA; 2. Ames Laboratory, USA**4:30 PM****(ICACC-FS2-021-2015) Thermal Processing and Properties of Conductive Refractory Composites for High-Temperature Electrical Applications**G. A. Yakoboylu<sup>\*</sup>; R. Chockalingam<sup>1</sup>; S. Chockalingam<sup>1</sup>; B. Armour<sup>1</sup>; M. Palmisiano<sup>1</sup>; K. Sabolsky<sup>1</sup>; E. M. Sabolsky<sup>1</sup>; 1. West Virginia University, USA; 2. ANH Refractories Company Technology Center, USA**4:50 PM****(ICACC-FS2-022-2015) Copper Clad Ultra-Thin Flexible Ceramic Substrate for High Power Electronics**J. A. Olenick<sup>\*</sup>; 1. ENRG Incorporated, USA**5:10 PM****(ICACC-FS2-023-2015) Optimization of Barium Chloride Powder Synthesis by Spray-drying for the Fabrication of Transparent Ceramic Scintillators**B. D. Doan<sup>\*</sup>; T. Shoulders<sup>1</sup>; G. Bizarri<sup>2</sup>; E. Bourret-Courchesne<sup>2</sup>; R. M. Gaumé<sup>1</sup>; 1. University of Central Florida, USA; 2. Lawrence Berkeley National Laboratory, USA**FS5: Single Crystalline Materials for Electrical, Optical and Medical Applications****Optical Materials III**

Room: Tomoka C

Session Chair: Alain Largeteau, ICMCB-CNRS

**1:30 PM****(ICACC-FS5-040-2015) Impact of rare-earth ion clustering on the spectroscopic and thermo-mechanical properties of the Yb<sup>3+</sup> and Nd<sup>3+</sup> doped laser crystals (Invited)**R. Moncorge<sup>1</sup>; P. Camy<sup>1</sup>; 1. University of Caen, France**2:00 PM****(ICACC-FS5-041-2015) Recent progress in growth of rare-earth vanadate single crystals by the Edge-Defined Film-Fed-Growth (EFG) technique (Invited)**V. Kochurikhin<sup>\*</sup>; Y. Furukawa<sup>2</sup>; W. Lee<sup>3</sup>; 1. General Physics Institute, Russian Federation; 2. OXIDE Corp., Japan; 3. TPS Corp., Korea (the Republic of)**2:30 PM****(ICACC-FS5-042-2015) Effective segregation coefficient of rare-earth ions in fluorite crystals (Invited)**O. M. Bunoiu<sup>\*</sup>; M. Stef<sup>1</sup>; I. Nicoara<sup>1</sup>; 1. West University of Timisoara, Romania**3:00 PM****Break****New Directions II**

Room: Tomoka C

Session Chair: Xutang Tao, Shandong University

**3:20 PM****(ICACC-FS5-043-2015) Rare Earth Doped Crystals for Quantum Information Storage (Invited)**P. Goldner<sup>\*</sup>; A. Ferrier<sup>1</sup>; 1. Chimie Paristech, France**3:50 PM****(ICACC-FS5-044-2015) Influence of oxygen partial pressure on SrTiO<sub>3</sub> crystal growth from non-stoichiometric melt (Invited)**C. Guguschev<sup>\*</sup>; D. Kok<sup>1</sup>; Z. Galazka<sup>1</sup>; A. Kwasniewski<sup>1</sup>; U. Juda<sup>1</sup>; D. Klimm<sup>1</sup>; R. Uecker<sup>1</sup>; 1. Leibniz Institute for Crystal Growth, Germany**4:20 PM****(ICACC-FS5-045-2015) Terahertz Time-Domain Spectroscopy Application to Non-destructive Quality Evaluation of Industrial Crystalline Materials (Invited)**S. Nishizawa<sup>\*</sup>; T. Nagashima<sup>2</sup>; M. W. Takeda<sup>3</sup>; K. Shimamura<sup>4</sup>; 1. University of Fukui, Japan; 2. Setsunan University, Japan; 3. Shinshu University, Japan; 4. National Institute of Materials Science, Japan

## Friday, January 30, 2015

**S1: Mechanical Behavior and Performance of Ceramics & Composites****Tribology and Wear**

Room: Coquina Salon D

Session Chairs: Kevin Plucknett, Dalhousie University; Oyelayo Ajayi, Argonne National Lab

**8:30 AM****(ICACC-S1-069-2015) Synergy of Ceramic Coatings and Lubricant Technologies on Scuffing of Surfaces (Invited)**O. Ajayi\*; C. Lorenzo-Martin<sup>1</sup>; D. Singh<sup>1</sup>; G. Fenske<sup>1</sup>; 1. Argonne Nat Lab, USA**9:00 AM****(ICACC-S1-070-2015) Nanotribological Behavior of Graphene Nanoplatelet Reinforced Alumina Nanocomposites**A. Nieto\*; L. Huang<sup>1</sup>; Y. Han<sup>1</sup>; J. M. Schoenung<sup>1</sup>; 1. University of California Davis, USA; 2. Yeungnam University, Korea (the Republic of)**9:20 AM****(ICACC-S1-071-2015) Oxides as high temperature abrasives**L. Mendez-Garcia\*; F. Di-Gioacchino<sup>1</sup>; R. J. Stearn<sup>1</sup>; L. W. Pallett<sup>2</sup>; M. E. Hancock<sup>2</sup>; W. J. Clegg<sup>2</sup>; 1. University of Cambridge, United Kingdom; 2. Rolls-Royce plc, United Kingdom**9:40 AM****(ICACC-S1-072-2015) Enhanced mechanical and wear properties of ultrafine-grained Si<sub>3</sub>N<sub>4</sub> doped with Y<sub>2</sub>O<sub>3</sub>**C. A. Lee\*; H. Lu<sup>2</sup>; H. Lin<sup>2</sup>; P. Sajjalik<sup>1</sup>; D. Lii<sup>2</sup>; C. Chen<sup>1</sup>; J. Huang<sup>1</sup>; 1. National Cheng Kung University, Taiwan; 2. National Chin-Yi University of Technology, Taiwan; 3. Oak Ridge National Laboratory, USA; 4. Slovak Academy of Sciences, Slovakia; 5. Cheng Shiu University, Taiwan**10:00 AM****Break****10:20 AM****(ICACC-S1-073-2015) Hierarchical nanocomposite cermets: Next generation ceramic-metal composites**A. Sherman\*; M. grogan<sup>1</sup>; 1. Powdermet Inc, USA**10:40 AM****(ICACC-S1-074-2015) Sliding wear behavior of TiC-stainless steel cermets**K. P. Plucknett\*; C. Onuoha<sup>1</sup>; Z. N. Farhat<sup>1</sup>; G. Kipouros<sup>1</sup>; 1. Dalhousie University, Canada**11:00 AM****(ICACC-S1-075-2015) Nanomechanical testing of Al/Al-Cu-Fe composites: correlation between chemical heterogeneities and mechanical properties**A. Joseph<sup>1</sup>; C. Tomas<sup>1</sup>; V. Gauthier-Brunet<sup>1</sup>; J. Monchoux<sup>2</sup>; A. Joulain\*; S. Dubois<sup>1</sup>; J. Bonneville<sup>1</sup>; 1. Pprime Institute - Poitiers, France; 2. CNRS, France**11:20 AM****(ICACC-S1-076-2015) Hardmetals based on niobium carbide (NbC) versus casted MMCs based on NbC**M. Woydt\*; H. Mohrbacher<sup>2</sup>; 1. BAM Federal Institute for Materials Research and Testing, Germany; 2. Niobelcon bv/ba, Belgium**11:40 AM****(ICACC-S1-077-2015) Indentation damage in TiC-316L stainless steel cermets: The effects of sharp versus blunt indentors**C. Jin\*; K. Plucknett<sup>1</sup>; 1. Dalhousie University, Canada**S2: Advanced Ceramic Coatings for Structural, Environmental, and Functional Applications****Advanced Multifunctional Coatings**

Room: Coquina Salon G

Session Chairs: Dongming Zhu, NASA Glenn Research Center; Gustavo Costa, NASA Glenn Research Center

**9:00 AM****(ICACC-S2-041-2015) CSD and ALD combined opportunities for complex functional oxide bilayers growth and interface engineering**X. Obradors\*; T. Puig<sup>1</sup>; M. Coll<sup>1</sup>; J. Gázquez<sup>2</sup>; J. González<sup>2</sup>; R. Ortega<sup>1</sup>; J. Suñé<sup>2</sup>; 1. ICMA - CSIC, Spain; 2. Univ. Autònoma de Barcelona, Spain**9:20 AM****(ICACC-S2-042-2015) Iron Nitride Thin Films Fabricated by RF Sputtering**X. Wang\*; H. Zeng<sup>2</sup>; J. Parry<sup>2</sup>; H. Kamat<sup>1</sup>; 1. Alfred University, USA; 2. University of Buffalo, USA**9:40 AM****(ICACC-S2-043-2015) Effect of the Processing Variables on TiO<sub>2</sub> Film Formation during Room Temperature Granule Spray in Vacuum**D. Park\*; H. Kim<sup>2</sup>; B. Hahn<sup>1</sup>; J. Ryu<sup>1</sup>; J. Choi<sup>1</sup>; W. Yoon<sup>1</sup>; J. Kim<sup>1</sup>; C. Ahn<sup>1</sup>; C. Park<sup>2</sup>; 1. Korea Institute of Materials Science, Korea (the Republic of); 2. Pukyong National University, Korea (the Republic of)**10:00 AM****Break****10:20 AM****(ICACC-S2-044-2015) Plasma Electrolytic Oxidation of aluminium to produce hard and thick  $\alpha$ -alumina ceramic coatings**J. A. Martin\*; A. Nominé<sup>1</sup>; G. Henrion<sup>1</sup>; T. Belmonte<sup>1</sup>; 1. Université de Lorraine, France; 2. Université de Lorraine, France**10:40 AM****(ICACC-S2-045-2015) Magnetic properties of BiFeO<sub>3</sub>/LaFeO<sub>3</sub> heterostructures**

A. Z. Simoes\*; 1. UNESP, Brazil

**11:00 AM****(ICACC-S2-046-2015) The Effect of Nano-Cobalt Particles on Enamel Metal Interface by Electroplating Method**

M. Jafari\*; 1. Najafabad Branch, Islamic Azad University, Iran (the Islamic Republic of)

**S5: Next Generation Bioceramics and Biocomposites****Bioceramics IV**

Room: Coquina Salon F

Session Chairs: Thierry Azaies, Université Paris 6; Leena Hupa, Åbo Akademi University

**8:30 AM****(ICACC-S5-030-2015) Submicron Spheres of Amorphous Calcium Phosphate forming in a Stirred SBF Solution at 55°C (Invited)**

C. Tas\*; 1. University of Illinois, USA

**8:50 AM****(ICACC-S5-031-2015) Finding Optimized Compositions for Bioactive Glasses in Novel Applications (Invited)**

L. Hupa\*; 1. Åbo Akademi University, Finland

**9:20 AM****(ICACC-S5-032-2015) In vitro bioactivity study of Cobalt-Chromium(Co-Cr) alloys via chemical surface modification**L. Chao<sup>\*</sup>; M. Toshiki<sup>1</sup>; S. Yuki<sup>2</sup>; 1. Kyushu Institute of Technology, Japan; 2. Kyushu Institute of Technology, Japan**9:40 AM****(ICACC-S5-033-2015) Constructing Cell-laden Nanofibrous Scaffolds through Concurrent Electrospinning and Cell Electrospaying**Q. Zhao<sup>\*</sup>; M. Wang<sup>1</sup>; 1. The University of Hong Kong, Hong Kong**10:00 AM****Break****10:20 AM****(ICACC-S5-034-2015) Structural, phase stability and magnetic field assisted osteoinductive behavior of magnetoactive hydroxyapatite-iron oxide composites**S. K. Boda<sup>\*</sup>; B. Sahoo<sup>1</sup>; B. Basu<sup>1</sup>; 1. Indian Institute of Science, India**10:40 AM****(ICACC-S5-035-2015) Synthesis and Characterization of CoCu Ferrite and Bioglass Composites for Hyperthermia Treatment of Cancer**V. Chalisgaonkar<sup>\*</sup>; K. Pandey<sup>1</sup>; A. K. Sampath<sup>1</sup>; H. Tripathi<sup>1</sup>; S. P. Singh<sup>1</sup>; R. Pyare<sup>1</sup>; 1. Indian Institute of Technology (BHU), India**11:00 AM****(ICACC-S5-036-2015) Structure–Bioactivity Relationship of Two Polymorphs of CaSiO<sub>3</sub> Ceramics**B. Beyoglu<sup>\*</sup>; R. E. Riman<sup>1</sup>; B. Javidian<sup>1</sup>; 1. Rutgers, State University of New Jersey, USA**S10: Virtual Materials (Computational) Design and Ceramic Genome****Modeling Defects and Related Properties**

Room: Coquina Salon C

Session Chairs: Paul Rulis, University of Missouri - Kansas City; Xing-Qiu Chen, Institute of Metal Research

**8:30 AM****(ICACC-S10-025-2015) Effects of irradiation and dopants on grain growth in nanocrystalline oxides (Invited)**Y. Zhang<sup>\*</sup>; D. Aidhy<sup>1</sup>; T. Varga<sup>2</sup>; F. Namavar<sup>3</sup>; W. J. Weber<sup>2</sup>; 1. Oak Ridge National Laboratory, USA; 2. University of Tennessee, USA; 3. Pacific Northwest National Laboratory, USA; 4. University of Nebraska Medical Center, USA**9:00 AM****(ICACC-S10-026-2015) Nonlocal Exchange-Interaction Effects in Accurately Determining Vacancy Formation Enthalpy of Solids (Invited)**X. Chen<sup>\*</sup>; 1. Institute of Metal Research, Chinese Academy of Sciences, China**9:30 AM****(ICACC-S10-027-2015) Composition dependent hardness of covalent solid solutions and its electronic structure origin (Invited)**Q. Hu<sup>\*</sup>; L. Vitos<sup>2</sup>; R. Yang<sup>1</sup>; 1. Institute of Metal Research, Chinese Academy of Sciences, China; 2. Royal Institute of Technology, Sweden**10:00 AM****Break****10:20 AM****(ICACC-S10-028-2015) Molecular Dynamic Simulations of Synergistic Effects in Ion Track Formation (Invited)**E. Zarkadoula<sup>\*</sup>; O. Pakarinen<sup>1</sup>; W. J. Weber<sup>2</sup>; Y. Zhang<sup>1</sup>; 1. Oak Ridge National Laboratory, USA; 2. University of Tennessee, USA**10:50 AM****(ICACC-S10-029-2015) Ab initio molecular dynamics approach of early stage oxidation of Cr<sub>2</sub>AlC (001) surface**N. Li<sup>\*</sup>; R. Sakidja<sup>2</sup>; W. Ching<sup>1</sup>; 1. Wuhan University of Technology, China; 2. University of Missouri-Kansas City, USA**11:10 AM****(ICACC-S10-030-2015) Segregation and trapping of oxygen vacancies near the SrTiO<sub>3</sub> Σ3 (112) [-110] tilt grain boundary (Invited)**B. Liu<sup>\*</sup>; V. R. Cooper<sup>1</sup>; Y. Zhang<sup>1</sup>; W. J. Weber<sup>2</sup>; 1. Oak Ridge National Laboratory, USA; 2. University of Tennessee, USA**11:40 AM****(ICACC-S10-031-2015) Evolution of low energy structures in ZrC<sub>x</sub>**Y. Zhang<sup>\*</sup>; B. Liu<sup>2</sup>; J. Wang<sup>1</sup>; 1. Institute of Metal research, China; 2. Oak Ridge National Laboratory, USA**S11: Advanced Materials and Innovative Processing Ideas for the Production Root Technology****Innovative Process Technologies with Enhanced Performances of Products I**

Room: Coquina Salon E

Session Chairs: Ramesh Peelamedu, BTU Internatioal; Sangmok Lee, KAIST

**8:30 AM****(ICACC-S11-017-2015) Fabrication of Barium-Ferrite and Polymer Hybrid System with Highly Regulated 3D micro Structures (Invited)**T. Nakayama<sup>\*</sup>; M. Kanno<sup>1</sup>; H. Cho<sup>1</sup>; T. Suzuki<sup>1</sup>; H. Suematsu<sup>1</sup>; K. Niihara<sup>1</sup>; 1. Nagaoka univ of Tech, Japan**9:00 AM****(ICACC-S11-018-2015) Hybrid microwave drying of battery electrode slurries (Invited)**R. Peelamedu<sup>\*</sup>; D. A. Seccombe<sup>1</sup>; 1. BTU International, USA**9:30 AM****(ICACC-S11-019-2015) Sintering Combined with Coating for Developing High Performance Ceramics (Invited)**T. Goto<sup>\*</sup>; 1. IMR Tohoku University, Japan**10:00 AM****Break****Innovative Process Technologies with Enhanced Performances of Products II**

Room: Coquina Salon E

Session Chairs: Masahiro Yoshimura, National Cheng Kung Univ.; Taejin Hwang, KITECH

**10:20 AM****(ICACC-S11-020-2015) Electrochemical Assisted Microstructure Control for Ceramic Coatings on Metallic Materials by Growing Integration Layer [GIL] Method (Invited)**M. Yoshimura<sup>\*</sup>; 1. Cheng Kung University, Taiwan**10:50 AM****(ICACC-S11-021-2015) Preparation of thick absorbent layer on the aluminum and the copper plate for high-performance heat exchanger**T. Hwang<sup>\*</sup>; S. Cho<sup>1</sup>; 1. KITECH, Korea (the Republic of); 2. Department of Electronic Packaging Engineering(UST), Korea (the Republic of)

**11:10 AM****(ICACC-S11-022-2015) Fabrication of High-Strength Si<sub>3</sub>N<sub>4</sub> Ceramics by Post-reaction Sintering Technique Using Waste Si Sludge (Invited)**J. Tatami\*; H. Sasano<sup>1</sup>; M. Iijima<sup>1</sup>; T. Takahashi<sup>2</sup>; 1. Yokohama National University, Japan; 2. Kanagawa Academy of Science and Technology, Japan**11:40 AM****(ICACC-S11-023-2015) Properties of the metallic glass thin films fabricated by multicomponent single alloying target and its applications in various industrial fields**J. Sun\*; S. Shin<sup>1</sup>; K. Moon<sup>1</sup>; 1. Korea Institute of Industrial Technology, Korea (the Republic of)**FS2: Advanced Ceramic Materials and Processing for Photonics and Energy****Structure and Applications**

Room: Coquina Salon H

Session Chairs: Fiorenzo Vetrone, Université du Québec, Institut National de la Recherche Scientifique; Daniel Chua, National University of Singapore

**8:30 AM****(ICACC-FS2-024-2015) Comparison between c-axis-aligned crystalline (CAAC) and nanocrystalline In-Ga-Zn-O which have different crystal morphologies**M. Takahashi<sup>1</sup>; K. Dairiki\*; K. Akimoto<sup>2</sup>; R. Tokumaru<sup>1</sup>; Y. Yamane<sup>1</sup>; N. Ishihara<sup>1</sup>; M. Tsubuku<sup>1</sup>; M. Nakashima<sup>1</sup>; J. Koezuka<sup>2</sup>; K. Okazaki<sup>2</sup>; S. Yamazaki<sup>1</sup>; 1. Semiconductor Energy Laboratory Co. Ltd., Japan; 2. Advanced Film Device Inc., Japan**8:50 AM****(ICACC-FS2-025-2015) Carbon-based materials by Pulsed Laser Deposition and some applications (Invited)**

D. H. Chua\*; 1. National University of Singapore, Singapore

**9:20 AM****(ICACC-FS2-026-2015) Lanthanide-Doped Nanoparticles: Versatile Near-Infrared Excited Optical Bioprobes (Invited)**

F. Vetrone\*; 1. Université du Québec, Canada

**9:50 AM****Break****10:10 AM****(ICACC-FS2-027-2015) Two photon polymerization of inorganic-organic hybrid materials for medical implant applications (Invited)**

R. Narayan\*; 1. UNC/NCSU Joint Dept of Biomedical Engineering, USA

**10:40 AM****(ICACC-FS2-028-2015) Roll-to-Roll (R2R) Ultrathin Flexible Ceramic for Cost Effective Coating Deposition**

J. A. Olenick\*; 1. ENrG Incorporated, USA

**11:00 AM****(ICACC-FS2-029-2015) in situ Studies of the Thermal Stability of Group IV Binary and Ternary Alloys (Invited)**J. Fournier-Lupien<sup>1</sup>; G. Mussler<sup>2</sup>; S. Wirths<sup>2</sup>; S. Mantl<sup>2</sup>; D. Buca<sup>2</sup>; O. Moutanabbir\*; 1. Ecole Polytechnique de Montreal, Canada; 2. Forschungszentrum Juelich, Germany



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# 2015



## Meetings & Expositions of THE AMERICAN CERAMIC SOCIETY

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**Materials Challenges in Alternative & Renewable Energy (MCARE 2015)**  
Jeju Island, Korea

MARCH 24 – 26

**ACerS St. Louis Section and Refractory Ceramics Division Joint Meeting**  
St. Louis, Missouri USA

APRIL 20 – 23

**International Conference & Exhibition on Ceramic Interconnect & Ceramic Microsystems Technologies (CICMT)**  
Fraunhofer Institute Center, Dresden, Germany

APRIL 28 – 30

**Ceramics Expo**  
Cleveland, Ohio USA

MAY 4 – 6

**Structural Clay Products Division Meeting in conjunction with The National Brick Research Center (Clay 2015)**  
Denver, Colorado USA

MAY 17

**What's New in Ancient Glass Research, hosted by Art, Archaeology and Conservation Science Division**  
Hyatt Regency Miami  
Miami, Florida USA

MAY 17 – 21

**Glass & Optical Materials Division Annual Meeting and Deutsche Glastechnische Gesellschaft Annual Meeting (GOMD-DGG 2015)**  
Hilton Miami Downtown  
Miami, Florida USA

JUNE 14 – 19

**International Conference on Ceramic Materials and Components for Energy and Environmental Applications (11th CMCEE)**  
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Kansas State University  
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AUGUST 30 – SEPTEMBER 4

**11th Pacific Rim Conference on Ceramic and Glass Technology (PACRIM 11)**  
ICC JEJU  
Jeju Island, Korea

SEPTEMBER 15 – 18

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OCTOBER 4 – 8

**Materials Science & Technology 2015, combined with ACerS 117th Annual Meeting (MS&T15)**  
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