

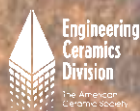
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39<sup>TH</sup> INTERNATIONAL CONFERENCE AND EXPOSITION ON  
**ADVANCED CERAMICS  
AND COMPOSITES**

January 25 – 30, 2015 | Hilton Daytona Beach Resort and Ocean Center, Daytona Beach, Florida, USA

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

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



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**Soshu Kirihara**

Joining and Welding Institute  
Osaka University, Japan

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Mention The American Ceramic Society to obtain the special rate. Room rates are effective until December 21, 2014, and are based on availability.



## SCHEDULE OF EVENTS

### Sunday, January 25

Conference registration	2:00 p.m. – 7:00 p.m.
Welcome reception	5:00 p.m. – 7:00 p.m.

### Monday, January 26

Conference registration	7:00 a.m. – 6:00 p.m.
Member and publication center	7:00 a.m. – 6:00 p.m.
Companion coffee	8:00 a.m. – 10:00 a.m.
Opening awards ceremony and plenary session	8:30 a.m. – Noon
Lunch on own	Noon – 1:20 p.m.
Concurrent technical sessions	1:30 p.m. – 5:30 p.m.
Student & young professional mixer	7:00 p.m. – 9:00 p.m.

### Tuesday, January 27

Concurrent technical sessions	7:00 a.m. – 6:00 p.m.
Member and publication center	7:00 a.m. – 6:00 p.m.
Concurrent technical sessions	8:00 a.m. – Noon
Exhibitor move-in	Noon – 4:00 p.m.
Lunch on own	Noon – 1:20 p.m.
Concurrent technical sessions	1:30 p.m. – 5:20 p.m.
Poster session A move-in	3:00 p.m. – 4:30 p.m.
Exhibits & poster session A – including reception	5:00 p.m. – 8:00 p.m.

### Wednesday, January 28

Conference registration	7:30 a.m. – 5:30 p.m.
Member and publication center	7:30 a.m. – 5:30 p.m.
Concurrent technical sessions	8:00 a.m. – Noon
Lunch on own	Noon – 1:20 p.m.
Concurrent technical sessions	1:30 p.m. – 5:00 p.m.
Poster session B move-in	3:00 p.m. – 4:30 p.m.
Exhibits & poster session B – including reception	5:00 p.m. – 7:30 p.m.

### Thursday, January 29

Conference registration	7:30 a.m. – 6:00 p.m.
Member and publication center	7:30 a.m. – 6:00 p.m.
Concurrent technical sessions	8:00 a.m. – Noon
Lunch on own	Noon – 1:20 p.m.
Concurrent technical sessions	1:30 p.m. – 6:00 p.m.
Mechanical Properties of Ceramics and Glass short course	8:00 a.m. – 4:00 p.m.

### Friday, January 30

Conference registration	7:30 a.m. – 12:30 p.m.
Concurrent technical sessions	8:00 a.m. – Noon
Mechanical Properties of Ceramics and Glass short course	8:00 a.m. – 4:00 p.m.



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## AWARD AND PLENARY SPEAKERS

### Mueller Award



Clarke

**David R. Clarke**, Extended Tarr Family Professor of Materials, School of Engineering and Applied Sciences, Harvard University

Title: *Materials selection for the next-generation thermal barrier coatings*

### Bridge Building Award



Mathur

**Sanjay Mathur**, chair, Institute of Inorganic Chemistry, University of Cologne, Germany

Title: *Chemically processed nanostructured ceramics: Opportunities for energy and health applications*

### Global Young Investigator Award



Castro

**Ricardo H. R. Castro**, associate professor, University of California, Davis

Title: *TBA*

### Plenary Speaker



Laurencin

**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

Title: *Regenerative engineering: The theory and practice of a next generation field*

### Plenary Speaker



Ohno

**Kazushige Ohno**, executive officer, chief director of technology development and director, IBIDEN Co., Ltd

Title: *Next generation diesel particulate filter (DPF) development and implementation strategy*

## CONCURRENT TECHNICAL SESSIONS

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

Sessions	Date	Time	Location
Mechanics, Characterization Techniques, and Equipment	January 26, 2015	1:30 – 5:30 p.m.	Coquina Salon D (Hilton North Tower)
Processing - Microstructure - Mechanical Properties Correlation I	January 27, 2015	8:30 a.m. – 12:10 p.m.	Coquina Salon D (Hilton North Tower)
Processing - Microstructure - Mechanical Properties Correlation II	January 27, 2015	1:30 – 5:00 p.m.	Coquina Salon D (Hilton North Tower)
CMCs	January 28, 2015	8:30 - 11:50 a.m.	Coquina Salon D (Hilton North Tower)
Environmental Effects	January 28, 2015	1:30 – 5:00 p.m.	Coquina Salon D (Hilton North Tower)
Mechanical Behavior of CMCs	January 29, 2015	8:30 a.m. – Noon	Coquina Salon D (Hilton North Tower)
Reliability and Small Scale Testing	January 29, 2015	1:30 – 5:45 p.m.	Coquina Salon D (Hilton North Tower)
Tribology and Wear	January 30, 2015	8:30 a.m. – Noon	Coquina Salon D (Hilton North Tower)

### Organizers:

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

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## CONCURRENT TECHNICAL SESSIONS

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

Sessions	Date	Time	Location
Advanced Thermal Barrier Coatings: Processing and Development	January 27, 2015	1:30 – 5:20 p.m.	Coquina Salon G (Hilton North Tower)
Thermal Barrier Coatings: Characterization and NDE Methods	January 28, 2015	8:30 – 10:40 a.m.	Coquina Salon G (Hilton North Tower)
CMAS-related Degradation and Mitigation Strategies I	January 28, 2015	10:40 – 11:50 a.m.	Coquina Salon G (Hilton North Tower)
CMAS-related Degradation and Mitigation Strategies II	January 28, 2015	1:30 – 5:00 p.m.	Coquina Salon G (Hilton North Tower)
Environmental Barrier Coatings I	January 29, 2015	9:00 – 11:50 a.m.	Coquina Salon G (Hilton North Tower)
Environmental Barrier Coatings II	January 29, 2015	1:30 – 3:20 p.m.	Coquina Salon G (Hilton North Tower)
Multifunctional, Corrosion and Wear	January 29, 2015	3:20 – 5:30 p.m.	Coquina Salon G (Hilton North Tower)
Advanced Multifunctional Coatings	January 30, 2015	9:00 – 11:20 a.m.	Coquina Salon G (Hilton North Tower)

#### Organizers:

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

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

Sessions	Date	Time	Location
Status and Perspectives of SOFC and SOEC	January 26, 2015	1:30 – 5:20 p.m.	Crystal (South Tower, Lobby Level)
Materials for SOFC, Reversible (SOFC/SOE) and SOE Operation / Electrode Materials	January 27, 2015	8:00 a.m. – Noon	Crystal (South Tower, Lobby Level)
Interconnects and Coatings	January 27, 2015	1:30 – 5:00 p.m.	Crystal (South Tower, Lobby Level)
Surface and Interfacial Reactions	January 28, 2015	8:00 a.m. – 12:20 p.m.	Crystal (South Tower, Lobby Level)
Oxygen Ion, Proton and Mixed Conductors	January 28, 2015	1:30 – 4:30 p.m.	Crystal (South Tower, Lobby Level)
Electrical and Mechanical Reliability / Electrochemical Performance and Stability	January 29, 2015	8:30 a.m. – Noon	Crystal (South Tower, Lobby Level)
Degradation, Modeling and Simulation / Novel Processing and Design	January 29, 2015	1:30 – 6:10 p.m.	Crystal (South Tower, Lobby Level)

#### Organizers:

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

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## S4: Armor Ceramics: Challenges and New Developments

Sessions	Date	Time	Location
Materials Characterization	January 26, 2015	1:30 – 6:00 p.m.	Coquina Salon E (Hilton North Tower)
Synthesis and Processing I	January 27, 2015	8:30 a.m. – Noon	Coquina Salon E (Hilton North Tower)
Synthesis and Processing II	January 27, 2015	1:20 – 5:20 p.m.	Coquina Salon E (Hilton North Tower)
Modeling / Testing and Evaluation / Quasi-Static and Dynamic Behavior I	January 28, 2015	8:30 a.m. – Noon	Coquina Salon E (Hilton North Tower)
Modeling / Testing and Evaluation / Quasi-Static and Dynamic Behavior II	January 28, 2015	1:20 – 5:00 p.m.	Coquina Salon E (Hilton North Tower)

### Organizers:

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

## S5: Next Generation Bioceramics and Biocomposites

Sessions	Date	Time	Location
Bioceramics I	January 28, 2015	1:30 – 5:00 p.m.	Coquina Salon F (Hilton North Tower)
Bioceramics II	January 29, 2015	8:30 a.m. – Noon	Coquina Salon F (Hilton North Tower)
Bioceramics III	January 29, 2015	1:30 – 6:00 p.m.	Coquina Salon F (Hilton North Tower)
Bioceramics IV	January 30, 2015	8:30 a.m. – Noon	Coquina Salon F (Hilton North Tower)

### Organizers:

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

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

Sessions	Date	Time	Location
Li-ion Battery	January 26, 2015	1:30 – 5:30 PM	Tomoka A (Hilton South Tower, Lobby Level)
Beyond Li-ion Battery: Sodium-ion Battery, Li-S and Li-air battery	January 27, 2015	8:30 a.m. – 12:10 p.m.	Tomoka A (Hilton South Tower, Lobby Level)
Energy Harvesting and Storage	January 27, 2015	1:30 – 5:10 p.m.	Tomoka A (Hilton South Tower, Lobby Level)
Solid Electrolytes and Characterization	January 28, 2015	8:30 – 11:30 a.m.	Tomoka A (Hilton South Tower, Lobby Level)

### Organizers:

- Hua-Tay Lin, Guangdong University of Technology, China
- Palani Balaya, National Univ. of Singapore, Singapore
- Sean Li, Univ. 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 Univ., USA
- Kuan-Zong Fung, National Cheng Kung Univ., Taiwan

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## CONCURRENT TECHNICAL SESSIONS

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

Sessions	Date	Time	Location
Nanotoxicity, Drug-delivery and Health Aspects of Engineered Nanostructures	January 27, 2015	8:30 – 10:30 a.m.	Coquina Salon B (Hilton North Tower)
Integration of Functional Metal Oxide Nanostructures in Devices	January 27, 2015	10:30 a.m. – 12:10 p.m.	Coquina Salon B (Hilton North Tower)
One-dimensional Nanostructures for Energy Applications	January 27, 2015	1:30 – 3:20 p.m.	Coquina Salon B (Hilton North Tower)
Nanostructures Thin-films and Composites for Energy Applications	January 27, 2015	3:20 – 5:00 p.m.	Coquina Salon B (Hilton North Tower)
Nanomaterials for Water-splitting I	January 28, 2015	8:30 – 10:30 a.m.	Coquina Salon B (Hilton North Tower)
Nanomaterials for Water-splitting II	January 28, 2015	10:30 a.m. – 12:20 p.m.	Coquina Salon B (Hilton North Tower)
Nanomaterials for Water-splitting III	January 28, 2015	1:30 – 3:30 p.m.	Coquina Salon B (Hilton North Tower)
Nanomaterials for Solar Energy Harvesting	January 28, 2015	3:30 – 5:40 p.m.	Coquina Salon B (Hilton North Tower)
Solution Synthesis, Functionalization and Assembly of Metal Oxide Nano-materials I	January 29, 2015	8:30 – 10:30 a.m.	Coquina Salon B (Hilton North Tower)
Solution Synthesis, Functionalization and Assembly of Metal Oxide Nano-materials II	January 29, 2015	10:30 a.m. – 12:10 p.m.	Coquina Salon B (Hilton North Tower)
Solution Synthesis, Functionalization and Assembly of Metal Oxide Nano-materials III	January 29, 2015	1:30 – 3:20 p.m.	Coquina Salon B (Hilton North Tower)
Metal Oxide Nanostructures for Chemical and Biological Sensors	January 29, 2015	3:20 – 5:50 p.m.	Coquina Salon B (Hilton North Tower)

#### Organizers:

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

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

Sessions	Date	Time	Location
Novel Ceramic Processing I	January 26, 2015	1:30 – 5:20 p.m.	Coquina Salon A (Hilton North Tower)
Novel Ceramic Processing II	January 27, 2015	8:30 a.m. – 12:10 p.m.	Coquina Salon A (Hilton North Tower)
Novel Ceramic Processing III	January 27, 2015	1:30 – 5:00 p.m.	Coquina Salon A (Hilton North Tower)
Novel Ceramic Processing IV	January 28, 2015	8:30 a.m. – Noon	Coquina Salon A (Hilton North Tower)
Advanced Sintering Technologies	January 28, 2015	1:30 – 5:10 p.m.	Coquina Salon A (Hilton North Tower)
Integration and Joining	January 29, 2015	8:30 a.m. – Noon	Coquina Salon A (Hilton North Tower)
Advanced Composite Manufacturing	January 29, 2015	1:30 – 5:30 p.m.	Coquina Salon A (Hilton North Tower)

### Organizers:

- **Tatsuki Ohji**, National Institute of Advanced Industrial Science and Technology (AIST), Japan
- **Mrityunjay Singh**, Ohio Aerospace Institute, USA
- Jerzy Lis, AGH Univ. of Science and Technology, Poland
- Surojit Gupta, Univ. of North Dakota, USA
- 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 Univ. of Technology, Japan
- Yiquan Wu, Alfred Univ., USA

## S9: Porous Ceramics: Novel Developments and Applications

Sessions	Date	Time	Location
Innovations in Processing Methods and Synthesis of Porous Ceramics I	January 27, 2015	1:30 – 3:20 p.m.	Coquina Salon H (Hilton North Tower)
Membranes and High SSA Ceramics I	January 27, 2015	3:20 – 4:50 p.m.	Coquina Salon H (Hilton North Tower)
Membranes and High SSA Ceramics II	January 28, 2015	8:30 – 10:20 a.m.	Coquina Salon H (Hilton North Tower)
Innovations in Processing Methods and Synthesis of Porous Ceramics II	January 28, 2015	10:20 – 11:50 a.m.	Coquina Salon H (Hilton North Tower)
Innovations in Processing Methods and Synthesis of Porous Ceramics III	January 28, 2015	1:30 – 3:20 p.m.	Coquina Salon H (Hilton North Tower)
Innovations in Processing Methods and Synthesis of Porous Ceramics IV	January 28, 2015	3:20 – 5:10 p.m.	Coquina Salon H (Hilton North Tower)
Modeling and Properties of Porous Ceramics	January 29, 2015	8:30 – 10:30 a.m.	Coquina Salon H (Hilton North Tower)
Mechanical Properties of Porous Ceramics	January 29, 2015	10:30 a.m. – Noon	Coquina Salon H (Hilton North Tower)

### Organizers:

- **Paolo Colombo**, Univ. of Padova, Italy
- **James W. Zimmermann**, Corning Incorporated, USA
- Tobias Fey, Univ. 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 Zeng, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China



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## CONCURRENT TECHNICAL SESSIONS

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

Sessions	Date	Time	Location
Ceramic Genome and Modeling of Structure and Property I	January 28, 2015	1:30 – 5:00 p.m.	Coquina Salon C (Hilton North Tower)
Ceramic Genome and Modeling of Structure and Property II	January 29, 2015	8:30 a.m. – Noon	Coquina Salon C (Hilton North Tower)
Ceramic Genome and Modeling of Structure and Property III	January 29, 2015	1:30 – 3:20 p.m.	Coquina Salon C (Hilton North Tower)
Integrated Materials Computational Engineering	January 29, 2015	3:20 – 5:20 p.m.	Coquina Salon C (Hilton North Tower)
Modeling Defects and Related Properties	January 30, 2015	8:30 – Noon	Coquina Salon C (Hilton North Tower)

#### Organizers:

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

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

Sessions	Date	Time	Location
New Concept & Emerging Technology	January 29, 2015	8:30 – 10:20 a.m.	Coquina Salon E (Hilton North Tower)
Shaping & Thermal Process	January 29, 2015	10:20 a.m. – 12:10 p.m.	Coquina Salon E (Hilton North Tower)
Coating Process for Low Friction and Energy Solution I	January 29, 2015	1:30 – 3:20 p.m.	Coquina Salon E (Hilton North Tower)
Coating Process for Low Friction and Energy Solution II	January 29, 2015	3:20 – 6:00 p.m.	Coquina Salon E (Hilton North Tower)
Innovative Process Technologies with Enhanced Performances of Products I	January 30, 2015	8:30 – 10:20 a.m.	Coquina Salon E (Hilton North Tower)
Innovative Process Technologies with Enhanced Performances of Products II	January 30, 2015	10:20 a.m. – Noon	Coquina Salon E (Hilton North Tower)

#### Organizers:

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

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

Sessions	Date	Time	Location
Materials Design, New Composition and Composite I	January 26, 2015	1:30 – 3:20 p.m.	Ponce DeLeon (Hilton North Tower, Lobby Level)
Structural-property Relationships of Existing Systems I	January 26, 2015	3:20 – 5:30 p.m.	Ponce DeLeon (Hilton North Tower, Lobby Level)
Structure-property Relationships of Existing Systems II	January 27, 2015	8:30 – 10:20 a.m.	Ponce DeLeon (Hilton North Tower, Lobby Level)
Structural Stability under Extreme Environments	January 27, 2015	10:20 a.m. – 12:10 p.m.	Ponce DeLeon (Hilton North Tower, Lobby Level)
Materials Design, New Composition and Composites II	January 27, 2015	1:30 – 3:20 p.m.	Ponce DeLeon (Hilton North Tower, Lobby Level)
Methods for Improving Damage Tolerance, Oxidation and Thermal Shock Resistance	January 27, 2015	3:20 – 5:00 p.m.	Ponce DeLeon (Hilton North Tower, Lobby Level)
Novel Characterization Methods and Lifetime Assessment	January 28, 2015	8:30 – 10:20 a.m.	Ponce DeLeon (Hilton North Tower, Lobby Level)
Novel Processing Methods (Bulk, Coatings and Thin Film)	January 28, 2015	10:20 a.m. – Noon	Ponce DeLeon (Hilton North Tower, Lobby Level)
Methods to Improve the Oxidation Resistance and Damage Tolerance	January 28, 2015	1:30 – 3:20 p.m.	Ponce DeLeon (Hilton North Tower, Lobby Level)
New Precursors for Powders, Coatings and Matrix or Fibers of Composites	January 28, 2015	3:20 – 5:00 p.m.	Ponce DeLeon (Hilton North Tower, Lobby Level)
Structure-property Relationships of Existing Systems III	January 29, 2015	8:30 – 10:20 a.m.	Ponce DeLeon (Hilton North Tower, Lobby Level)
Novel Processing Methods	January 29, 2015	10:20 a.m. – Noon	Ponce DeLeon (Hilton North Tower, Lobby Level)

### Organizers:

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

### MECHANICAL PROPERTIES OF CERAMICS AND GLASS SHORT COURSE

Instructors: George D. Quinn, NIST; Richard C. Bradt, University of Alabama

**Thursday and Friday, January 29 – 30, 2015**

This two-day course covers:

- Mechanical properties of ceramics and glasses for elastic properties, strength measurements, fracture parameters, and indentation hardness;
- Fundamentals of properties for each topical area;
- Relation of properties to structure and crystal chemistry of materials;
- And more.

Visit [ceramics.org/icacc2015](http://ceramics.org/icacc2015) for rates.

# 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

## CONCURRENT TECHNICAL SESSIONS

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

Sessions	Date	Time	Location
Ceramics and Composites Technology for Accident-tolerant LWR Fuels I	January 26, 2015	1:30 – 5:30 p.m.	Tomoka B (Hilton South Tower, Lobby Level)
Ceramics for Advanced Fission Concepts	January 27, 2015	8:30 – 10:20 a.m.	Tomoka B (Hilton South Tower, Lobby Level)
Joining Technology for Nuclear Ceramics I	January 27, 2015	10:20 a.m. – Noon	Tomoka B (Hilton South Tower, Lobby Level)
Joining Technology for Nuclear Ceramics II	January 27, 2015	1:30 – 3:20 p.m.	Tomoka B (Hilton South Tower, Lobby Level)
Accident Tolerant Nuclear Fuels	January 27, 2015	3:30 – 5:10 p.m.	Tomoka B (Hilton South Tower, Lobby Level)
Thermo-structural Ceramics for Nuclear Systems	January 28, 2015	8:30 a.m. – Noon	Tomoka B (Hilton South Tower, Lobby Level)
SiC Composites R&D for Fusion Energy	January 28, 2015	1:30 – 3:20 p.m.	Tomoka B (Hilton South Tower, Lobby Level)
Ceramic and Glass Technology for Nuclear Waste Management	January 28, 2015	3:20 – 5:00 p.m.	Tomoka B (Hilton South Tower, Lobby Level)
Radiation Effects in Ceramics and Composites	January 29, 2015	8:30 a.m. – Noon	Tomoka B (Hilton South Tower, Lobby Level)
Design Properties and Interactions for Nuclear Ceramics	January 29, 2015	1:30 - 5:20 p.m.	Tomoka B (Hilton South Tower, Lobby Level)

#### Organizers:

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



# Register by December 23, 2014 to save!

## FOCUSED SESSIONS

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

Sessions	Date	Time	Location
Synthesis, Processing and Microstructure, Porosity, Composites I	January 27, 2015	8:30 a.m. – Noon	Oceanview (Hilton North Tower, Lobby Level)
Composites II and Conversion to Ceramics I	January 27, 2015	1:30 – 4:50 p.m.	Oceanview (Hilton North Tower, Lobby Level)
Conversion to Ceramics II	January 28, 2015	8:30 – 10:20 a.m.	Oceanview (Hilton North Tower, Lobby Level)
Novel Applications and Construction Materials I	January 28, 2015	10:20 – 11:40 a.m.	Oceanview (Hilton North Tower, Lobby Level)
Construction Materials II	January 28, 2015	1:30 – 5:00 p.m.	Oceanview (Hilton North Tower, Lobby Level)

#### Organizers:

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

### FS2: Advanced Ceramic Materials and Processing for Photonics and Energy

Sessions	Date	Time	Location
Solar Cells	January 28, 2015	1:30 – 5:00 p.m.	Tomoka A (Hilton South Tower, Lobby Level)
Glasses I	January 29, 2015	8:30 a.m. – Noon	Tomoka A (Hilton South Tower, Lobby Level)
Glasses II / Synthesis	January 29, 2015	1:30 – 5:30 p.m.	Tomoka A (Hilton South Tower, Lobby Level)
Structure and Applications	January 30, 2015	8:30 – 11:30 a.m.	Coquina Salon H (Hilton North Tower)

#### Organizers:

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

## Registration Rates

	Through Dec. 23	Early Reg. After Dec. 23
ACerS Member*	\$555	\$705
ACerS Member plus 12 month membership renewal*	\$675	\$825
Nonmember*	\$675	\$825
ACerS Emeritus/Senior/Associate Member*	\$445	\$595
One Day Member	\$445	\$595
One Day Nonmember	\$565	\$715
Material Advantage Student Member	\$150	\$225
Nonmember Student	\$190	\$265
Exhibit Only	\$75	\$75
Guest	\$75	\$75

#### Optional Short Course: Mechanical Properties of Ceramics and Glass (January 29 – 30, 2015)

ACerS Member	\$850	\$1,000
Nonmember	\$940	\$1,090
Student	\$425	\$500

*Cancellation policy: Full refund less \$50 if cancelled on or before December 23, 2014; 50% refund if cancelled between December 24, 2014 and January 24, 2015; no refunds after the start of the conference.*

NOTE: All registrations include welcome reception and exhibit receptions.

\*Registration includes Conference Proceedings on CD.



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## FOCUSED SESSIONS

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

Sessions	Date	Time	Location
Materials Diagnostics and Structural Health Monitoring of Ceramic Components and Systems	January 26, 2015	1:30 – 5:00 p.m.	Coquina Salon B (Hilton North Tower)

#### Organizers:

- Joerg Opitz, Fraunhofer Institute for Ceramic Technologies and Systems, Germany
- Andrew L. Gyekenyesi, Ohio Aerospace Institute, USA
- Qiwen Zhan, Univ. 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

### FS4: Additive Manufacturing and 3D Printing Technologies

Sessions	Date	Time	Location
Additive Manufacturing and 3D Printing Technologies I	January 26, 2015	1:30 – 4:30 p.m.	Coquina Salon G (Hilton North Tower)
Additive Manufacturing and 3D Printing Technologies II	January 27, 2015	8:30 – 11:30 a.m.	Coquina Salon G (Hilton North Tower)

#### Organizers:

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





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

Sessions	Date	Time	Location
Scintillator	January 26, 2015	1:30 – 5:40 p.m.	Tomoka C (Hilton South Tower, Lobby Level)
Semiconductor I	January 27, 2015	8:30 – 11:50 a.m.	Tomoka C (Hilton South Tower, Lobby Level)
Semiconductor II	January 27, 2015	1:30 – 3:20 p.m.	Tomoka C (Hilton South Tower, Lobby Level)
Ferro/piezo-electric I	January 27, 2015	3:20 – 4:50 p.m.	Tomoka C (Hilton South Tower, Lobby Level)
Ferro/piezo-electric II	January 28, 2015	8:30 – 10:20 a.m.	Tomoka C (Hilton South Tower, Lobby Level)
Optical Materials I	January 28, 2015	10:20 - 11:50 a.m.	Tomoka C (Hilton South Tower, Lobby Level)
New Directions I	January 28, 2015	1:30 – 5:00 p.m.	Tomoka C (Hilton South Tower, Lobby Level)
Optical Materials II	January 29, 2015	8:30 a.m. – 12:10 p.m.	Tomoka C (Hilton South Tower, Lobby Level)
Optical Materials III	January 29, 2015	1:30 – 3:20 p.m.	Tomoka C (Hilton South Tower, Lobby Level)
New Directions II	January 29, 2015	3:20 – 5:20 p.m.	Tomoka C (Hilton South Tower, Lobby Level)

### Organizers:

- **Kiyoshi Shimamura**, National Institute for Materials Science (NIMS)
- **Noboru Ichinose**, Waseda Univ., Japan
- **Robert Feigelson**, Stanford Univ., USA
- **Richard Moncorgé**, Univ. of Caen, France
- **Reinhard Uecker**, The Leibniz Institute for Crystal Growth (IKZ), Germany
- **Alain Largeteau**, Institute for Solid State Chemistry Bordeaux (ICMCB), France
- **Mauro Tonelli**, Univ. of Pisa, Italy

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

Sessions	Date	Time	Location
Flash Sintering Phenomena and Mechanisms	January 26, 2015	1:30 – 5:30 p.m.	Coquina Salon H (Hilton North Tower)
Field Assisted Sintering Phenomena	January 27, 2015	8:30 a.m. – Noon	Coquina Salon H (Hilton North Tower)

### Organizers:

- **Rishi Raj**, Univ. of Colorado at Boulder, USA
- **Claude Estournès**, Université Paul Sabatier CIRIMAT-LCMIE

## 2ND EUROPEAN UNION - USA ENGINEERING CERAMICS SUMMIT

Sessions	Date	Time	Location
Advanced Ceramic Technologies: Challenges and Future Prospects I	January 26, 2015	1:30 – 5:20 p.m.	Coquina Salon F (Hilton North Tower)
Advanced Ceramic Technologies: Current Status and Future Prospects II	January 27, 2015	8:30 a.m. – 12:10 p.m.	Coquina Salon F (Hilton North Tower)
Advanced Ceramic Technologies: Current Status and Future Prospects III	January 27, 2015	1:30 – 4:50 p.m.	Coquina Salon F (Hilton North Tower)
Advanced Ceramic Technologies: Current Status and Future Prospects IV	January 28, 2015	8:30 a.m. – Noon	Coquina Salon F (Hilton North Tower)

### Organizers:

- **Sanjay Mathur**, Univ. of Cologne, Germany
- **Mrityunjay Singh**, Ohio Aerospace Institute, USA
- **Monica Ferraris**, Polytechnic of Torino, Italy
- **Hua-Tay Lin**, Oak Ridge National Lab, USA
- **Anja Verena Mudring**, Iowa State Univ., Ames, USA
- **Girish M. Kale**, Univ. of Leeds, UK
- **Xavier Obrados**, Institute of Materials Science of Barcelona
- **Pavol Sajgalik**, Slovak Academy of Sciences, Slovakia
- **Jerzy Lis**, AGH Univ. of Technology, Poland

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## 4<sup>TH</sup> GLOBAL YOUNG INVESTIGATOR FORUM

Sessions	Date	Time	Location
GYIF Award Lecture	January 26, 2015	1:30 – 3:20 p.m.	Coquina Salon C (Hilton North Tower)
Novel Concepts for Solar Cells	January 26, 2015	3:20 – 5:50 p.m.	Coquina Salon C (Hilton North Tower)
Theoretical Modeling and Applications	January 27, 2015	8:30 – 10:30 a.m.	Coquina Salon C (Hilton North Tower)
Additive Manufacturing	January 27, 2015	10:30 a.m. – 12:10 p.m.	Coquina Salon C (Hilton North Tower)
Ceramic Composites	January 27, 2015	1:30 – 3:30 p.m.	Coquina Salon C (Hilton North Tower)
Biomaterials and Biophotonics	January 27, 2015	3:30 – 5:30 p.m.	Coquina Salon C (Hilton North Tower)
New Materials for Energy Applications	January 28, 2015	8:30 – 10:30 a.m.	Coquina Salon C (Hilton North Tower)
Mechanical Properties of Ceramics and Composites	January 28, 2015	10:30 a.m. – 12:10 p.m.	Coquina Salon C (Hilton North Tower)

### Organizers:

- **Thomas Fischer**, Univ. 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, Univ. 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 Univ., Taiwan
- Ryo Ishikawa, Univ. of Tokyo, Japan
- Peter W. Olupot, Makerere Univ., Uganda
- Gustavo Costa, NASA Glenn Research Center, USA
- Yakup Gönüllü, University of Cologne, Germany

### MENTORSHIP FOR YOUNG SCIENTISTS

January 29, 2015, 1:30 p.m. – 3:00 p.m. | Ponce DeLeon

Frederico Rosei, INRS-EMT, will present “Mentorship for young scientists: Developing scientific survival skills.” Recognizing that success requires “soft professional skills” beyond those needed in the lab, the lecture gives guidance and mentoring on the job market, research funding, publishing, ethics, alternative careers, and more.



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## EXPOSITION



Take advantage of this exceptional opportunity to showcase your company's latest products, services and technology to a sophisticated audience sharply focused on this market.

Reserve your booth space today! Contact Mona Thiel at [mthiel@ceramics.org](mailto:mthiel@ceramics.org) or at 614-794-5826.

### Exhibits Open:

Tuesday, January 27, 2015, 5 – 8 p.m.

Wednesday, January 28, 2015, 5 – 7:30 p.m.

### Exposition Location:

Ocean Center Arena, 101 North Atlantic Avenue,  
Daytona Beach, Fla.

Exhibitor	Booth No.	Exhibitor	Booth No.
Alfred University	315	Keith Company	205
AVS Inc.	107	Linseis Inc.	202
BTU International	307	Lithoz	323
C-Therm Technologies Ltd.	222	MEL Chemicals	306
Carbolite Inc.	206	Microtrac	325
Centorr Vacuum Industries Inc.	200	Netzsch Instruments North America LLC	300
Ceramics Expo	115	New Lenox Machine Co. Inc.	302
CM Furnaces Inc.	311	NIST	113
Custom Process Service	324	Oxy-Gon Industries Inc.	320
Dorst America	301	Powder Processing & Technology	304
Eirich Machines Inc.	203	PremaTech Advanced Ceramics	210
ESL ElectroScience	223	PTX-Pentronix - Gasbarre Presses	207
Florida Institute of Technology	204	R.D. Webb Company Inc.	216
GE Aviation	410	Sonoscan Inc.	221
H.C. Starck North American Trading LLC	305	Swindell Dressler International	303
Haiku Tech Inc.	313	TA Instruments	322
Harper International	317	TevTech	214
Harrop Industries Inc.	201	Thermal Wave Imaging	321
Heraeus Thick Film Division	212	Zircar Ceramics Inc.	224
Imerys Fused Minerals	220		

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