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

39TH INTERNATIONAL CONFERENCE AND EXPOSITION ON

ADVANCED CERAMICS AND COMPOSITES

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

www.ceramics.org/icacc2015

Call for Papers

Abstracts Due July 16, 2014

The American Ceramic Society
www.ceramics.org

Engineering Ceramics Division
The American Ceramic Society

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INTRODUCTION

The 39th International Conference and Exposition on Advanced Ceramics and Composites continues the strong tradition as the leading international meeting on advanced structural and functional ceramics, composites, and other emerging ceramic materials and technologies. Since its inception in 1977, this prestigious conference has been organized by The American Ceramic Society's Engineering Ceramics Division and ACerS. Since then, the conference has experienced tremendous growth in interest and participation from ceramic researchers and developers from national, regional, and global technical communities.

The technical program consists of thirteen symposia, six focused sessions, the 4th Global Young Investigator Forum, and the 2nd European Union - USA Engineering Ceramics Summit. These technical sessions, consisting of both oral and poster presentations, will provide an open forum for scientists, researchers, and engineers from around the world to present and exchange findings on recent advances on various aspects related to ceramic science and technology.

The technical program encompasses diverse areas of ceramics and advanced composites, with particular attention to topics that address the current trends in the research, development, engineering, and application of advanced ceramics. The well-established symposia at this conference include Mechanical Behavior and Performance of Ceramics & Composites, Advanced Ceramic Coatings, Solid Oxide Fuel Cells, Armor Ceramics, Bioceramics, Nanostructured Materials and Nanocomposites, Advanced Processing & Manufacturing Technologies (APMT), Advanced Materials and Technologies for Energy Generation and Rechargeable Energy Storage, and Porous Ceramics. 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 to build upon past success. The nuclear and fusion materials symposium is co-sponsored by the ACerS Nuclear and Environmental Technology Division. In addition, the symposium entitled Virtual Materials (Computational) Design and Ceramic Genome will again form part of the strong technical program. We welcome the addition of a new symposium entitled Industrial Root Technologies (IRT) for Ceramics and Composites.

Two focused sessions which have been gaining interest are Geopolymers, and Advanced Ceramic Materials and Processing for Photonics and Energy. New focused session includes 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. We are pleased to announce that the 2nd European Union - USA Engineering Ceramics Summit will be held at the ICACC'15. This successful international summit is entering its fifth year and returns its focus to the EU-US after focusing on the Americas in 2013 and on the Pacific Rim region in 2014. The goal of this summit is to provide a forum for the information exchange on current status and emerging trends in various ceramic technologies in EU-US countries.

The ECD Executive Committee and volunteer organizers sincerely hope you will join us at ICACC'15 for a stimulating and enjoyable conference. We look forward to seeing you in Daytona Beach, Florida in January 2015!

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Abstract Submission Instructions

Visit www.ceramics.org/icacc2015 to review the session topics and select the "Submit Abstract" hyperlink to be directed to the Abstract Central website.

If you have questions, please contact **Marilyn Stoltz** at mstoltz@ceramics.org or +1 614-794-5868.

ACerS Engineering Ceramics Division Leadership

- Trustee: **Tatsuki Ohji**, National Institute of Advanced Industrial Science and Technology (AIST), Japan; t-ohji@aist.go.jp
- Chair: **Sujanto Widjaja**, Corning Incorporated, USA; widjajas@corning.com
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- Secretary: **Andrew L. Gyekenyesi**, Ohio Aerospace Institute, USA; AndrewGyekenyesi@oai.org

S1: Mechanical Behavior and Performance of Ceramics & Composites

Ceramics and composites have applications in areas including energy generation, environment, space, transportation, and microelectronics. Long-term mechanical reliability is a key issue in their ultimate use for a specific application. Correlations between processing and service conditions/environment to failure of ceramics and composites by fracture, fatigue, thermal shock, or deformation are key aspects. Extreme environments and challenging applications of ceramic materials have necessitated new approaches for characterization. This symposium solicits abstracts related to the diverse aspects of mechanical behavior of ceramics and composites and their correlations to processing and component performance and reliability.

Proposed Session Topics

- Processing - microstructure - mechanical properties correlation
- Ceramics & composites for energy generation and environment
- Functionally graded materials and systems with multi-functional properties
- Mechanics, characterization techniques, & equipment
- Design, reliability, and life prediction modeling of devices and components
- Virtual and small-scale testing and applications
- Fiber, matrices, coatings, and interfaces
- Environmental effects and thermo-mechanical performance
- In situ characterization using x-rays & neutrons
- Testing of joined and integrated components and structures
- NDE of ceramic components & failure analysis
- Mechanical applications of transparent ceramics
- Manufacturing of composite structures for gas turbine applications
- Tribological performance of ceramics and composites

Symposium Organizers

- **Dileep Singh**, Argonne National Lab, USA; dsingh@anl.gov
- **Jonathan A. Salem**, NASA Glenn Research Center, USA; jonathan.a.salem@nasa.gov
- **Dietmar Koch**, German Aerospace Center, Germany; dietmar.koch@dlr.de
- 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 Wereszcak, Oak Ridge National Lab, USA
- Yu Zhou, Harbin Institute of Technology, China

Tentative Schedule of Events

Sunday – January 25

Welcome Reception	5 p.m. – 7 p.m.

Monday – January 26

Opening Awards Ceremony and Plenary Session	8:30 a.m. – Noon
Concurrent Technical Sessions	1:30 p.m. – 6 p.m.

Tuesday – January 27

Concurrent Technical Sessions	8 a.m. – 6:00 p.m.
Exposition and Reception	5 p.m. – 8 p.m.
Poster Session A	5 p.m. – 8 p.m.

Wednesday – January 28

Concurrent Technical Sessions	8 a.m. – 5:30 p.m.
Exposition and Reception	5 p.m. – 7:30 p.m.
Poster Session B	5 p.m. – 7:30 p.m.

Thursday – January 29

Concurrent Technical Sessions	8 a.m. – 6 p.m.

Friday – January 30

Concurrent Technical Sessions	8 a.m. – Noon

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

This symposium will provide an open forum for researchers from around the world to discuss recent advances in coating sciences and technologies, processing, microstructure and property characterization, harsh environmental resistance and life prediction. Special sessions will be dedicated to advanced ceramic coating and component developments for aerospace, automotive, and energy applications. Integrated structural, environmental properties and functionality through advanced coating composition development, innovative processing and structural design are particularly emphasized.

Proposed Session Topics

- Thermal and environmental barrier coatings
- Coatings to resist CMAS, wear, erosion, corrosion and tribological loadings
- Advanced coating component systems for extreme environments
- Vibration damping coatings
- Functionally graded coatings and materials
- Advanced coating processing methods and modeling
- Advanced testing and non-destructive evaluation methodologies
- Nanostructured and multifunctional coating system integration and durability
- Interface phenomena, adhesion and fundamental coating properties
- Multi-scale modeling of coating properties and life prediction

Symposium Organizers

- **Dongming Zhu**, NASA Glenn Research Center, USA; dongming.zhu@nasa.gov
- **Marie-Hélène Vidal-Sétif**, ONERA, France; marie-helene.vidal-setif@onera.fr
- **Peter Mechnich**, German Aerospace Center, Germany; peter.mechnich@dlr.de
- 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: 12th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology

Solid oxide fuel cells (SOFC) offer potential for clean and efficient power generation from a wide variety of fuels ranging from hydrocarbons to renewables and coal derived fuels. Advanced systems configurations are currently being developed for applications in centralized and distributed stationary generation using SOFCs. Considerable progress has been made in automotive auxiliary power generation as well as in man portable and unmanned operation. With demonstrated advantages of high electrical efficiency, lower emissions (greenhouse gas, SOx, NOx, VOC and particulate matters) and ease of products configurability, major focus of interest continues to be on systems research and development, products engineering and cost effective manufacturing under the sponsorship of government agencies and private industries. Although significant progress has been made in the areas of cell and stack materials, component fabrication, stack and systems simulation and design, fuel processing and systems operation on a wide variety of liquid and gaseous hydrocarbons, technology development continues towards the identification of bulk and interfacial modifications for performance enhancement, understanding of ageing phenomena, accelerated testing and minimization of degradation as well as cost reduction at both materials and process levels. Significant challenges still exist in the areas of stacking cells, fracture mechanics of ceramic components, thermal management, and BOP component development at both sub-kWe and large multi-kWe levels.

Future energy systems should cope with randomly distributed renewable energy sources (wind, sun) under certain circumstances, as power generation cannot be planned or predicted and the storage of any excess energy

is only possible to a limited extent. High-temperature electrolysis can solve this problem providing highest efficiency for generation of chemicals and products from excessive power. In electrolysis, the regenerative energy is directly converted into hydrogen or/and into a synthesis gas which can be further processed into any fuel. The production of methane, synthetic oils or diesel, in particular, provides promising synergies. So, it will be possible to couple electricity grid, natural gas grid and chemicals production. For this reason the research on Solid Oxide Electrolysis is important task which helps to understand the opportunities and limitations of this new technology for future energy systems.

The primary purpose of this symposium is to provide an international forum for scientists and engineers to present recent technical progress, and to exchange ideas and technical information on various aspects of solid oxide fuel cells.

Proposed Session Topics

- Electrolytes; oxygen ion, proton and mixed conductors; conduction mechanisms
- Electrode materials and microstructural engineering; electrode processes, defect chemistry, analytical techniques
- Ceramic and metallic interconnects; degradation mechanisms, coatings, accelerated testing and life prediction
- Sealing materials, designs and approaches; compatibility and interactions
- Novel processing and design of cell and stack materials
- Mechanical and thermal properties, electrochemical performance and stability
- Electrical and structural reliability
- Surface and interfacial reactions; materials transport and electrode poisoning; catalytic degradation, carbon formation
- Degradation modeling and computational simulation of cells and stacks
- High temperature electrolysis: steam, steam and CO_2, chemical process engineering utilizing SOEC
- Fuel processing; reforming using supported/unsupported catalysts; carbon and sulfur contaminations, gas separation membranes
- System design and demonstration
- Applications: Centralized and distributed generation, CHP and μ-CHP, Hydrogen production, portable and unmanned operations

Symposium Organizers

- **Narottam P. Bansal**, NASA Glenn Research Center, USA; Narottam.P.Bansal@nasa.gov
- **Mihails Kusnezoff,** Fraunhofer IKTS, Germany; mihails.kusnezoff@ikts.fraunhofer.de
- 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
- Mogens 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

S4: Armor Ceramics: Challenges and New Developments

When properly combined with other materials, ceramic and glass materials can exhibit ballistic penetration resistances significantly higher than conventional monolithic armor materials. As a result, a number of armor technologies have been developed based on ceramic and glass materials, providing levels of protection against a wide array of ballistic threats. Despite this reality, current knowledge on the effect of a ceramic body's physical, chemical, structural, and mechanical characteristics on its response to high pressure, large deformation, transient loading conditions typical of ballistic events is limited. Clearly, the lack of a comprehensive understanding of processing-structure-properties-performance relationships has been a hindrance to the development of new materials through conventional and advanced processes, as well as materials-by-design strategies. This symposium is an opportunity for attendees from industry, academia, and government organizations to meet and participate in open discussions on the myriad of scientific and engineering problems associated with the development and application of ceramic and glass materials for ballistic protection. Problems of interest

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include (but are not limited to) the synthesis and processing of new materials, new synthesis and processing methods, materials-by-design paradigm, microstructural characterization, quasi-static and dynamic mechanical behavior and mechanisms, fracture and fragmentation, phase transformations, ballistic behavior and phenomena, advanced characterization/test methods and analyses, process and materials modeling, and bonding of materials. Proposed general symposium topics are listed below.

Proposed Session Topics

- Ballistic behavior
- Synthesis & processing
- Materials characterization
- Quasi-static and dynamic behavior
- Materials and process modeling
- Bonding of materials

Symposium Organizers

- **Jerry LaSalvia**, ARL, USA; jerry.c.lasalvia.civ@mail.mil
- **Jeffrey Swab**, ARL, USA; jeffrey.j.swab.civ@mail.mil
- 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

Novel bioceramic materials are being developed that will provide improvements in diagnosis and treatment of medical and dental conditions. In addition, the development and use of nanostructured materials, bio-inspired materials, biomimetic materials, and inorganic-organic structures has generated considerable scientific interest. This symposium will allow for discussion among the many groups involved in the development and use of bioceramics, including ceramic researchers, medical device manufacturers, and clinicians.

Proposed Session Topics

- Porous bioceramics (joint with Symposium 9)
- Advanced processing of bioceramics
- Bio-synthetic interfaces
- Biomineralization and tissue-material interactions
- Bioactive and resorbable ceramics
- Bio-inspired and biomimetic ceramics
- Self-assembled bioceramics
- Ceramics for drug and gene delivery
- Antibacterial surfaces
- In vitro and in vivo characterization of bioceramics
- Mechanical properties of bioceramics
- Medical and dental applications of bioceramics
- Nanostructured bioceramics (joint with Symposium 7)
- Magnetic nanoceramics for biomedical applications
- Ceramic biosensors

Symposium Organizers

- **Roger Narayan**, Univ. of North Carolina, USA; roger_narayan@unc.edu
- 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

Hilton Daytona Beach Resort

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Rates:

One to Four Occupants	$157
Students:	$129
US Government Employee:	Prevailing Rate

Mention The American Ceramic Society to obtain the special rate. Room rates are effective until December 14, 2014 and are based on availability.

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

The significant increases in demand of world energy consumption as well as clean and efficient energy resources have prompted the imperative searches of new materials and technologies. The technologies aiming for clean energy generation with zero-emission will require advances in materials developments for electricity generation as well as efficient and reliable energy storage. This symposium will focus on the advanced engineering ceramics and technologies that could help the global community to achieve the stated goals. As for the electric energy generation focuses will be on materials for energy harvesting and renewable energy generation. On the other hand, energy storage improvements in materials design, electrodes architecture, and cell chemistry are key factors to extend the life, enhance the safety, and lower the cost of rechargeable batteries that are regarded as the most efficient energy storage systems for portable electronics, renewable energy storage, smart grid, and transportation applications. A deeper understanding of the battery materials/property relationship, electrode/electrolyte interface phenomena, and cell failure mechanisms is critically needed to face these challenges. The search for advanced high capacity electrode materials and the implementation of the very challenging lithium sulfur and lithium-air batteries will be necessary to overcome the energy density shortfall in currently commercial batteries.

Proposed Session Topics

- Stationary rechargeable batteries for grid, solar and wind technologies
- Thermoelectric materials for energy harvesting
- Materials for thermionic and thermovoltaic applications
- Materials for solar-thermal applications
- Advanced anode and cathode materials for lithium batteries
- Materials design, screening, and electrode architectures for lithium batteries
- Diagnostics and materials characterization for lithium batteries
- Electrode/electrolyte interface characterization for lithium batteries
- Applications focused lithium batteries
- Lithium metal-air battery technology
- Sodium batteries and beyond lithium batteries
- Materials of capacitive energy storage (super-capacitors)

Symposium Organizers

- **Hua-Tay Lin**, Oak Ridge National Lab, USA; linh@ornl.gov
- **Palani Balaya**, National Univ. of Singapore, Singapore; mpepb@nus.edu.sg
- **Sean Li**, Univ. of New South Wales, Australia; sean.li@unsw.edu.au
- 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

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

This symposium will focus on the functional inorganic and hybrid materials and techniques that offer advanced processing, improved properties, and low-cost/low-temperature synthesis, with a strong focus on the recent innovation in nanotechnological approaches and the assessment of their industrial impact. In particular, special emphasis will be given to novel synthesis approaches, functionalization, processing, and characterization of nanoparticles, nanowires, nanoscopic films and their heterostructures. Application of nanostructures in drug-delivery, catalysis, energy and sensing applications, nanostructured coatings for photovoltaic, bio-medical and optical applications will form the major thrust areas. Contributions related to energy applications such batteries, fuel cells, water splitting, as well as transparent conductors and challenges related to the large-scale production and integration of functional and structural nanomaterials will be given particular attention. Interested and committed individuals from academia, national laboratories, industries and start-up companies are invited to contribute by submitting their abstracts on the following and related topics:

Proposed Session Topics

- Synthesis, functionalization and assembly of metal oxide nanomaterials
- Metal oxide nanostructures for chemical and biological sensors
- One-dimensional nanostructures for energy applications
- Nanotoxicity, drug-delivery and health aspects of engineered nanostructures
- Transparent conducting oxides for energy harvesting
- Nanomaterials for photocatalysis, solar hydrogen and thermoelectrics
- Integration of functional metal oxide nanostructures in devices
- Nanodevices: fabrication and large-scale integration
- Innovative techniques for characterization and manipulation of nanostructures
- Industrial development and application of nanomaterials

Symposium Organizers

- **Sanjay Mathur**, Univ. of Cologne, Germany; sanjay.mathur@uni-koeln.de
- 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: 9th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT9)

The properties and performance of structural and multifunctional materials largely depend on their processing and manufacturing routes. Manufacturing processes carefully designed with sufficient understanding of forming/sintering behaviors lead to reliable performance of components and products of large size and complex shapes. On the other hand, recently developed new processing and fabrication techniques of ceramic materials and systems give us unique properties which cannot be achieved from the conventional routes. The aim of this international symposium is to discuss global advances in the research and development of advanced processing and manufacturing technologies for a wide variety of fiber reinforced and particulate composites, non-oxide and oxide based structural ceramics, and multifunctional materials, as well as their components and devices. Current advances and state-of-the-art in various eco-friendly processing approaches will be covered. Advances in various processing and manufacturing technologies for fine scale MLCCs and transparent or electronic ceramic devices will also be presented.

Proposed Session Topics

- Rapid prototyping, patterning, templates and self assembly
- Micro-electronics devices and systems
- Advanced composite manufacturing technologies, hybrid processes
- Advanced fiber fabrication
- Nano-reinforcement processing (CNT, graphene, BN, etc.)
- Novel forming/sintering technologies
- Microwave or microwave-assisted processing, SPS
- Advanced powder synthesis and processing
- Aqueous synthesis and processing, colloidal processing
- Polymer-based processing
- Design-oriented manufacturing and processing
- Large scale/complicated shape processing
- Joining, integration, machining, repair, and refurbishment technologies
- Green manufacturing; global environmental issues and standards
- Global mineral resources issues; geo-politics, and supply chain management
- Life cycle assessment, recycling, and reuse technologies

Symposium Organizers

- **Tatsuki Ohji**, National Institute of Advanced Industrial Science and Technology (AIST), Japan; t-ohji@aist.go.jp
- **Mrityunjay Singh**, Ohio Aerospace Institute, USA; mrityunjaysingh@oai.org
- 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

Porous materials are utilized in many applications including but not limited to thermal insulation, catalysts, catalyst supports, filters, adsorbers and sensors. This symposium aims to bring together the technical community to share recent advances in the formation, characterization, properties and modeling of porous ceramic, carbon, glass and glass-ceramic components for any application.

These materials contain pore sizes from the nanometers to millimeters, and can have textured to random porosity or hierarchical porosity and be based on various pore architectures, such as foams, honeycombs, fiber networks, bio-inspired structures.

This symposium will be the ideal showcase for the research activities of many groups involved in the development and use of porous materials including but not limited to the areas of ceramics, chemistry, mechanics, fluid dynamics, modeling and simulation and application engineering.

Proposed Session Topics

- Innovations in processing methods & synthesis of porous ceramics
- Structure and properties of porous ceramics
- Modeling of porous structures and properties
- Novel characterization tools of porous structures
- Mechanical behavior of porous ceramics
- Micro-porous and meso-porous ceramics
- Ceramic membranes
- Ceramics with hierarchical porosity
- Porous ceramics for environmental applications; energy applications; biological applications; functional applications; emission control

Symposium Organizers

- **Paolo Colombo**, Univ. of Padova, Italy; paolo.colombo@unipd.it
- **James W. Zimmermann**, Corning Incorporated, USA; ZimmermaJW@corning.com
- 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

S10: Virtual Materials (Computational) Design and Ceramic Genome

Recent progress in computational materials science has significantly enhanced the efficiency with which the understanding of fundamental phenomena, the improvement of materials performance, the optimization of processing, the discovery of new materials, and the design of structural components can be achieved. This symposium will focus on the design, modeling and simulation of ceramics and composites so as to further optimize their behavior and facilitate the design of new ceramics and composites with tailored properties. A broader perspective is desired including the interest related to ceramic genome, virtual materials design for new innovative materials and thermo-structure, integrated materials computational engineering, prediction of the structure and properties of crystals and defects, modeling materials behavior under extreme/harsh environments, application of novel simulation methods for materials processing and performance, simulation of novel ceramics for functional applications, and the modeling of surfaces, interfaces and grain boundaries at multiple scales.

Proposed Session Topics

- Ceramic genome
- Integrated materials computational engineering
- Novel simulation methods for materials processing and performance
- Multi-scale modeling approaches
- Modeling materials behavior under extreme/harsh environments (ultra-high temperature, radiation, environmental damages and severe mechanical load and stresses)
- Model-aided design of thermal insulating and thermo-structural materials
- Modeling and design of new innovative ceramics for functional applications
- Prediction of the crystal structure and properties of new ceramics
- Modeling defects and amorphous matter
- Modeling of surfaces, interfaces, and grain boundaries at multiple scales

Symposium Organizers

- **Jingyang Wang**, Institute of Metal Research, Chinese Academy of Sciences, China; jywang@imr.ac.cn
- 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

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

"Production Root Technology" symbolically refers to an integration of six production technology groups; casting, molding, forming, welding, heat treatment, and surface treatment. The Production Root Technology includes both materials and process technologies, which are hidden behind products, and do not frequently, appear outward; however, are very important fundamental backgrounds greatly influencing the features. As the functions of product are becoming more and more complex and robust, the importance of the Production Root Technology is growing concurrently.

Unlike other technology fields, the Production Root Technology has an interdisciplinary nature in itself, since it inevitably includes a broad spectrum of skills from material synthesis all the way up to parts and modules manufacturing. Also, when the development of industrial components with improved features is demanded especially by employing the novel materials such as Eco-Al, Eco-Mg and ceramics & composites, or by employing functional (low-friction, protective or decoration) coating methods, the interdisciplinary approach is playing even greater role. Therefore, this symposium is designated to properly serve to provide precious chances for the world's leading scientists and engineers from many fields to exchange ideas and to build up new collaborations in the field of Production Root Technology. Many successful stories and noteworthy examples of transforming 3 D (Dangerous, Dirty, and Difficult) aspects of Production Root Technology into ACE (Automatic, Clean and Easy) form would also be the perfect topic.

Proposed Session Topics

- Shaping process
- Thermal process for advanced materials
- Recycling & reuse process
- Coating process for low friction and energy solution
- New concept & emerging technology
- Innovative process technologies with enhanced performances of products

Symposium Organizers

- **Kyoung Il Moon**, KITECH, Korea; kimoon@kitech.re.kr
- 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

OFFICIAL NEWS SOURCES OF ICACC'15

bulletin

CERAMIC TECH TODAY

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CERAMIC APPLICATIONS
Components for high performance

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

Ultrahigh temperature ceramics (UHTCs) and nano-laminated ternary carbides and nitrides (MAX phases) are potential materials for use in extreme environments such as scramjet engine components, leading edges and thermal protection systems for hypersonic vehicles, and cladding materials in generation IV nuclear reactors. However, their thermal/chemical stability in extreme environments, the ability to be formed into complex shapes/sharp edges, thermal shock resistance, irradiation resistance, and damage tolerance are all critical challenges limiting near-term industrial applications of these materials. Consequently, further research is needed to understand multi-scale structure-property relationships of existing systems; design new compositions/composites; investigate new approaches for improving the thermal shock resistance, thermochemical stability, damage tolerance and machinability; and develop novel processing methods for bulk ceramics and coatings. This symposium will focus on design, processing, structure-property relationships, thermal and mechanical properties, oxidation resistance, machining and joining, and stability of UHTCs and MAX phases both from fundamental and application-oriented perspectives.

Proposed Session Topics

- New precursors for powders, coatings, and matrix or fibers of composites
- Structure-property relationships of existing systems
- Materials design, new composition and composites
- Novel processing methods (bulk, coatings and thin films)
- Novel characterization methods and lifetime assessment
- Methods for improving damage tolerance, oxidation and thermal shock resistance
- New methods for joining and machining of components
- Structural stability under extreme environments (irradiation, ultra-high temperature)

Symposium Organizers

- **Yanchun Zhou**, Aerospace Research Institute of Material & Processing Technology, China; yczhou714@gmail.com
- 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

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

Ceramics and ceramic composites continue to attract growing attention as the key enabling materials for the safer and sustainable nuclear energy and for future fusion energy systems. This symposium provides a venue for material scientists and nuclear engineers to discuss the opportunities and needs for advanced ceramics and composites in such energy systems, and the current state-of-the-art science and technology of these materials ranging from materials design, processing and properties to their performance in harsh nuclear environments. We will also debate prospects of their commercial development, and qualification and licensing requirements. This symposium, co-sponsored by the ACerS Nuclear and Environmental Technology Division, incorporates the 11th International Energy Agency Workshop on SiC/SiC Ceramic Composites for Fusion Energy Applications and the 4th International Workshop on Ceramic Composites for Advanced Fission.

Proposed Session Topics

- SiC/SiC ceramic composites for fusion energy
- Ceramics and composites for advanced fission reactors
- Ceramics and composites technology for accident-tolerant LWR fuels and core
- Ceramics and composites for detection of nuclear radiation
- Joining and coating for reactor components
- Graphite and carbon materials
- Crystalline, amorphous and composite materials for waste immobilization
- Fuel reprocessing and management of fission product elements
- Fundamental science of radiation damage, defect production, evolutions, and interactions
- Theory, modeling, and simulation of radiation effects in ceramics and composites
- Fuel and cladding evolution and performance modeling
- Codes and standards, design methodology

Symposium Organizers

- **Yutai Katoh**, Oak Ridge National Lab, USA; katohy@ornl.gov
- **Josef Matyáš**, Pacific Northwest National Lab, USA; Josef.Matyas@pnnl.gov
- 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 Tsin-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

Call for Papers Abstracts Due July 16, 2014

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

Ceramic-like inorganic polymers can be made under low energy conditions such as ambient temperatures and pressures. These materials include alumino-silicates or "geopolymers", phosphates and other chemically bonded inorganic compounds. The use of waste products or natural materials as starting compounds or as reinforcements in composites demonstrates the eco-friendly and sustainable nature of these materials. Novel potential applications of such composites include hydrogen storage, water purification and biocidal activity, porous materials for CO_2 sequestration, thermal insulation, fire resistance, building materials, structural ceramic composites.

Proposed Session Topics

- Synthesis, processing microstructure
- Porosity (nano-, meso-, micro-)
- Mechanical properties, thermal shock resistance
- Other inorganic analogues
- Composites
- Conversion to ceramics
- Waste encapsulation
- Construction materials
- Coatings (fire resistant, acid resistant)
- Novel applications
- Sustainable materials

Session Organizers

- **Waltraud M. Kriven**, Univ. of Illinois at Urbana-Champaign, USA; kriven@illinois.edu
- 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

In the past few years significant progress has been reported on the synthesis as well as on the structural, physical and chemical characterization of self-assembled metal oxide nanostructures with sizes in the range of 1-100 nm that exhibit size-dependent properties and on novel glass based materials for optical lasers and amplifiers. The field of nanostructured materials (e.g. nanowires, nanorods, nanotetrapods) has become one of the most active research areas within the nano-science community. Such materials are leading to fundamental new discoveries as well as applications in Photovoltaics, Optical sources, Electroceramics, Multi-ferroic materials, Catalysis and Solar Hydrogen. Optical glasses have been employed in the fabrication of high power fiber lasers with unprecedented performance and for optical waveguide based devices with multiple functionalities.

This session focuses on synthesis, structural and functional characterization of self-organized materials and nanostructures of all ceramic materials with application potentials as functional materials, with particular consideration given to the capability to tailor and control material properties via surface and structural modifications. The session also includes novel optical glass based materials with new functionalities, new emission wavelengths and with an overview toward integration with other classes of materials (polymers, metals). Furthermore, this focused session will also be devoted to new nanotechnology tools and technological procedures useful for the development of new functional devices integrating bottom-up and top-down technologies.

Proposed Session Topics

- Multi-functional materials
- Advanced and nanostructured materials for photonics; electronics; sensing; photo-voltaics and solar fuels
- Advanced glass based materials for laser sources and non linear applications

Session Organizers

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

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

Advanced ceramics, composite materials and ceramic structures are utilized in critical components for many modern systems, such as batteries, fuel cells, sensors, high temperature electronics, membranes, as well as for traditional applications, like seals, valves, implants, high temperature components and others. Furthermore, ceramic components while being subjected to increasingly extreme conditions are being pushed to their performance limits. The dependable performance of these ceramic components is often the crucial basis for the reliability of the entire system. The properties and performance of structural and multifunctional materials largely depend on the processing and manufacturing procedure. Through careful design and fabrication experience, a general reliability has been achieved for ceramic components of various sizes and complexities. On the other hand, with the development of new processing and fabrication techniques, unique properties, which cannot be achieved via the conventional routes, can now be attained. These novel processes and materials require new methods for process control, materials diagnostics and structural health monitoring in order to assure functional reliability.

The aim of this international symposium is to discuss global advances in the research and development of sophisticated and novel characterization technologies for structural ceramics, particulate and fiber reinforced ceramics composites, and multifunctional materials, as well as their components and devices. Current advances and state-of-the-art in various optical, X-ray, ultrasound- and acoustic-based, nanoparticle-based, and ultra-high resolution technologies will be covered.

Proposed Session Topics

- Novel ceramic characterization technologies
- Materials diagnostics for ceramics
- Structural health monitoring
- Fatigue evaluation
- Emerging optical characterization technologies
- Characterization by high resolution X-ray technique

- Ultrasound and acoustic characterization
- Nanoparticle-based monitoring
- Ultra-high resolution technologies
- Nondestructive evaluation of ceramic components
- Modeling and simulation

Session Organizers

- **Joerg Opitz**, Fraunhofer Institute for Ceramic Technologies and Systems, Germany; joerg.opitz@ikts-md.fraunhofer.de
- **Andrew L. Gyeknyesi**, Ohio Aerospace Institute, USA; AndrewGyekenyesi@oai.org
- 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

Additive manufacturing and 3D printing are novel fabrication processes of ceramic components with functional structures. The processes allow for innovative complex part fabrication, client customization, rapid prototyping, and distributed manufacturing. Three-dimensional models are designed minutely according to theoretical concepts in computer graphic applications, and two-dimensional cross sections are created by slicing operations automatically. High resolution laser beams are scanned on a spread ceramic powder bed with or without resin binders to form solid planes of two-dimensional cross sections. Through layer stacking, ceramic precursors or components with the three-dimensional models are fabricated rapidly and exactly. In other processes, paste materials with ceramic particles dispersed are fused from nozzles moving freely in three dimensions to create composite precursors. Various functional components of dielectric lattices to control electromagnetic waves, bio-materials components for medical applications and ceramics electrode with large surface area will be newly developed. Large scale structural components for aerospace and other high temperature applications can be fabricated with internal cooling path networks formed without casting molds. This symposium focuses on superiority of design, efficient processing, and perspicuous evaluations in the additive manufacturing and 3D printing processes.

Proposed Session Topics

- Selective laser sintering (SLS)
- Stereolithography
- Direct writing technologies
- Fused deposition modeling (FDM)
- Laminated object manufacturing/green tape stacking
- Ink jet printing technologies
- Powder bed fusion process
- Emerging additive manufacturing technologies

Session Organizers

- **Soshu Kirihara**, Osaka Univ., Japan; kirihara@jwri.oska-u.ac.jp
- **Mrityunjay Singh**, Ohio Aerospace Institute, USA; mrityunjaysingh@oai.org
- **Michael Halbig**, NASA Glenn Research Center, USA: michael.c.halbig@nasa.gov
- Nahum Travizky, Univ. Erlangen-Nürnberg, Germany
- Junichi Tatami, Yokohama National Univ., Japan
- Johannes Homa, Lithoz GmbH, Austria
- Hiroya Abe, Osaka Univ., Japan

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

This session on single crystalline materials will provide a forum for the presentation and discussion of recent research and development activities in bulk crystals and thin films. The session will cover all aspects, from basic research and material characterization, through physicochemical aspects of growth and deposition techniques, to the technological development of industrialized materials. For this purpose, world-wide experts in the different topics will be invited to introduce their most recent activities. The broad scope of the session assures a wide overview of the state-of-the-art issues on crystalline materials, aiming to stimulate interdisciplinary discussions and collaborations in a wide range of fields.

Proposed Session Topics

- Semiconductor crystals for LED/LD, power device, sensor
- Optical crystals for laser, nonlinear optics, optical isolator, phosphor
- Scintillator crystals for X-, gamma- and neutron detection
- Piezo-, ferro- and magneto-electric materials
- Nano and bio-crystals
- Phase diagrams, defect chemistry, crystalline quality

Session Organizers

- **Kiyoshi Shimamura**, National Institute for Materials Science (NIMS), Japan; SHIMAMURA.Kiyoshi@nims.go.jp
- 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

Call for Papers Abstracts Due July 16, 2014

FS6: Field Assisted Sintering and Related Phenomena at High Temperatures

The influence of electrical fields on various phenomena in ceramic science is an emerging area. This focused session seeks to bring together investigators from various points of view, as listed under "Session Topics" for instilling discussion and new ideas in this interdisciplinary field of research.

Proposed Session Topics

- Spark plasma sintering (SPS)
- Flash sintering
- Microwave sintering
- Grain growth
- Phase transformations
- Joule heating
- Defect chemistry and diffusion
- Electrical conductivity and photoemission

Session Organizer

- **Rishi Raj**, Univ. of Colorado at Boulder, USA; rishi.raj@colorado.edu
- **Claude Estournès**, Université Paul Sabatier CIRIMAT-LCMIE; estournes@chimie.ups-tlse.fr

2ND EUROPEAN UNION - USA ENGINEERING CERAMICS SUMMIT

This transatlantic EU-USA Ceramics Summit on "Innovative engineering for functional and value-added materials – towards green and sustainable solutions" will bring together a wide class of experts from academia, industries and research institutions to critically analyze the opportunities and bottlenecks related to research, development, engineering, manufacturing, and application of ceramic and novel functional materials. The first EU-US summit was held at ICACC'12.

During the last 50 years, a wide ranging ground breaking research, technology development, and commercialization in the field of engineering and functional ceramics took place on the European and American continents. These seminal contributions enabling design and engineering of ceramics for multifunctional properties, led to their wide scale applications in energy, aerospace, healthcare, communication, infrastructure, transportation, environmental, and other industries. These break-through ceramic technologies and systems led to significant improvements in living standards and quality of life for people from all over the world.

This summit will particularly address the integration and application of recent technological advances essential to maintain the competitive edge by keeping the technologies green, sustainable and cost-effective. It will provide a forum for the information exchange on current status and emerging trends in innovative ceramic technologies and to identify strategic elements and new materials technology pathways for a sustainable future. The technical program will address:

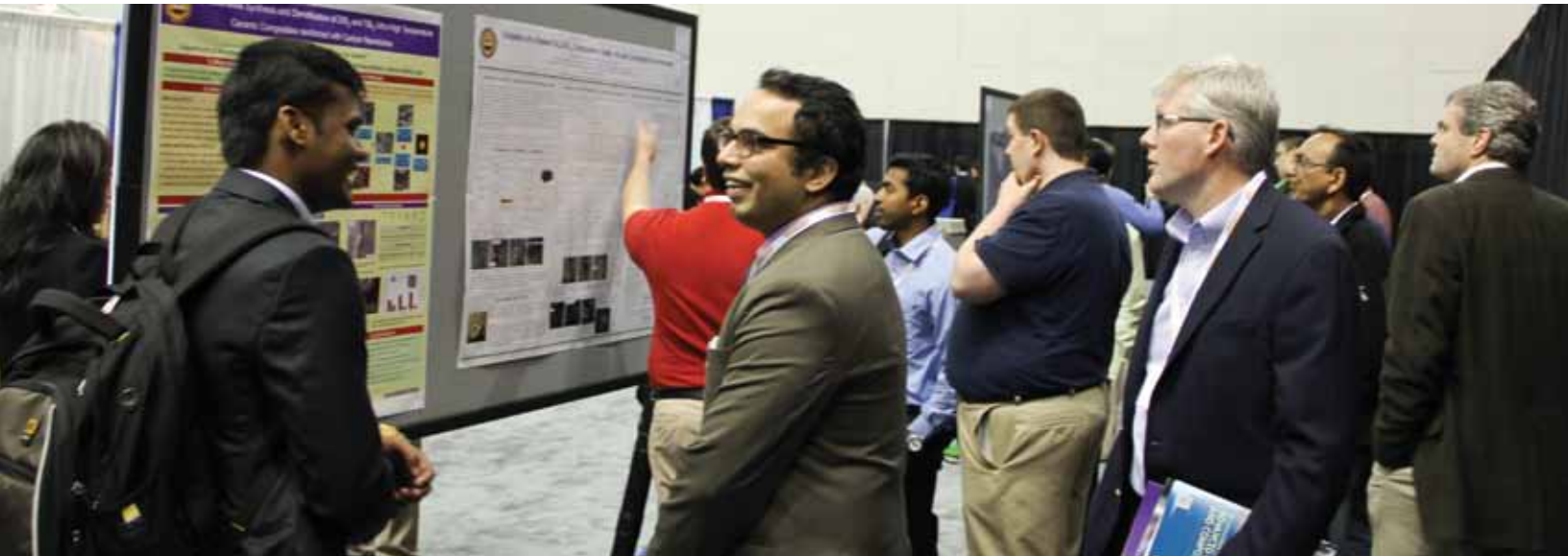
Proposed Topics

- Current trend and future directions for materials research and technology
- Challenges and prospects for various ceramic technologies
- Energy and environmental issues and role of ceramics
- Critical resources and substitution materials
- Ceramic education, training and knowledge management
- Overview of major ceramics efforts in the region
- New strategies and technologies for sustainable and self-sufficient solutions
- Reducing environmental footprint
- EU-USA collaborative efforts
- Open Innovation and industrial R & D

The technical program of the summit will consist of invited and contributed presentations. We hope that this forum will serve as a global stage for the information exchange on the latest emerging ceramic technologies and facilitate open dialogue and discussion with leading experts.

Organizers

- **Sanjay Mathur**, Univ. of Cologne, Germany; sanjay.mathur@uni-koeln.de
- **Mrityunjay Singh**, Ohio Aerospace Institute, USA; mrityunjaysingh@oai.org
- 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



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

www.ceramics.org/icacc2015

4TH GLOBAL YOUNG INVESTIGATOR FORUM

The Global Young Investigators Forum (GYIF) aims to bring together young researchers from around the world by facilitating scientific discussions to promote the exchange of ideas essential to identifying emerging global challenges at the forefront of ceramic science and engineering research. Young researchers, including students, postdoctoral researchers, young professionals and faculty, below 35 years of age are invited to join this event. The GYIF symposium will help establish global cooperation and networking among young scientists and engineers to approach current and future challenges in ceramic science and technology as well as provide GYIF participants a unique forum at which to showcase their research.

In addition to connecting with young researchers, all GYIF participants will be invited to attend a private luncheon hosted by the President of The American Ceramic Society. The American Ceramic Society will also provide complimentary student registration for a select number of eligible student GYIF presenters. The Global Young Investigator Award laureate will deliver the opening keynote lecture.

Proposed Topics

This interdisciplinary symposium will feature research from a variety of thematic areas, including, but not limited to:

- Frontiers in ceramic chemistry and physics: new precursors for functional ceramics, ceramics and catalysis, functional surfaces
- Ceramic hybrid materials and composites for aerospace, armor, biological and medical applications
- Advanced ceramics and coatings for structural, environmental and functional applications
- Novel ceramic processing methods and synthesis routes
- Nanocomposites and nanostructured materials
- Computational materials prediction and design
- Applications: ceramic sensors and actuators, energy generation and storage, photo-catalysis
- Young researchers' mobility and networks

Organizers

- **Thomas Fischer**, Univ. of Cologne, Germany; t.fischer@uni-koeln.de
- **Eva Hemmer**, Institut National de la Recherche Scientifique (INRS), Canada; eva.hemmer@emt.inrs.ca
- **Valerie Wiesner,** NASA Glenn Research Center, USA; valerie.l.wiesner@nasa.gov
- 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

Exhibition Information

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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.

Visit www.ceramics.org/icacc2015 for more details or contact Mona Thiel at mthiel@ceramics.org or at 614-794-5834.