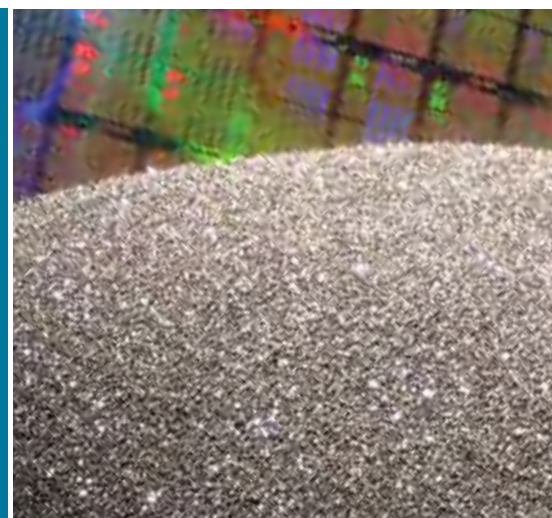
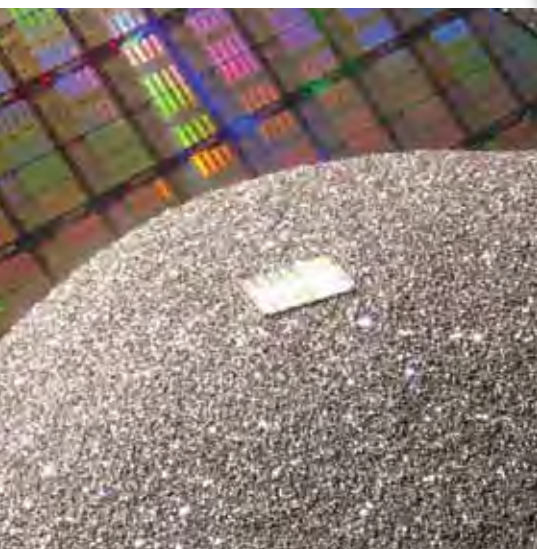
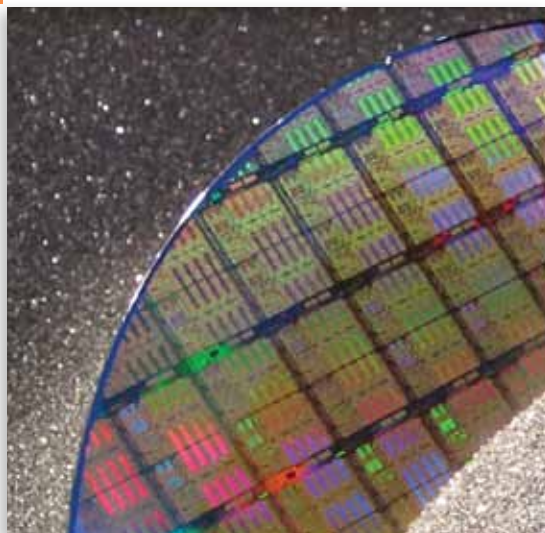


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December 19, 2011  
to save \$150.

# Electronic Materials and Applications 2012



[www.ceramics.org/ema2012](http://www.ceramics.org/ema2012)

# Electronic Materials and Applications 2012

DoubleTree by Hilton Orlando at Sea World®  
Orlando, Florida, USA

## SCHEDULE

### WEDNESDAY, JANUARY 18, 2012

Registration	7:30 a.m. to 7 p.m.
Welcome and Opening Remarks	8:45 to 9 a.m.
Plenary Session I	9 to 10 a.m.
Concurrent Technical Sessions	10:30 a.m. to Noon
Concurrent Technical Sessions	1:30 to 5 p.m.
Poster Session & Welcome Reception	5 to 7 p.m.

### THURSDAY, JANUARY 19, 2012

Registration	7:30 a.m. to 6 p.m.
Plenary Session II	8 to 9 a.m.
Concurrent Technical Sessions	9:30 a.m. to Noon
Concurrent Technical Sessions	1:30 to 5 p.m.
Conference Dinner	7 to 9 p.m.

### FRIDAY, JANUARY 20, 2012

Registration	7:30 a.m. to 5 p.m.
Plenary Session III	8 to 9 a.m.
Concurrent Technical Sessions	9:30 a.m. to Noon
Concurrent Technical Sessions	1:30 to 5 p.m.

#### TECHNICAL PROGRAM CO-SPONSOR



## ORGANIZING COMMITTEE



**Amit Goyal**  
Oak Ridge  
National Lab



**Edward M. Sabolsky**  
West Virginia  
University



**Steven C. Tidrow**  
The University  
of Texas-Pan  
American

### Technical Programming Committee

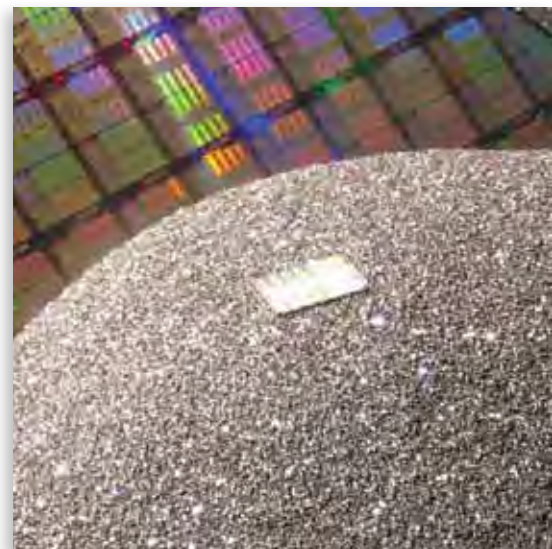
Paul Clem, Sandia National Labs; Amit Goyal, Oak Ridge National Lab; Jacob Jones, Univ. of Florida; Jian Luo, Clemson Univ.; Wolfgang M. Sigmund, Univ. of Florida; Clive Randall, Pennsylvania State Univ.; Susan Troiler-Mckinstry, Pennsylvania State Univ.; Juan Nino, Univ. of Florida; Qi Tan, General Electric; Victoria Knox, PCSA; Nian Sun, North-eastern Univ.; Steven Tidrow, Univ. of Texas Pan American; Kristen Brosnan, General Electric; Alp Sehirlioglu, NASA-Glenn; Jeff Zhand, APC International; Thomas Daue, Smart Material Inc.; Michelle Bell, Radiant Technologies; Ahmad Safari, Rutgers Univ.; and Takaaki Tsurumi, Tokyo Institute of Technology

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Chair-Elect: **Kevin Trumble**  
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**Sahn Nahm**, Korea Univ.  
**Jungho Ryu**, Functional Ceramics Group, Korea Institute of Materials Science (KIMS)

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	Wed AM	Wed PM	Thu AM	Thu PM	Fri AM	Fri PM
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**S1: New Frontiers in Electronic Ceramic Structures, Advanced Electronic Material Devices and Circuit Integration**

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**S2: Advanced Dielectric, Piezoelectric and Ferroic Materials, and Emerging Materials in Electronics**

• • • • •

**S3: Symposium on Thin Film Integration and Processing Science**

• • •

**S4: Advanced Energy Storage Materials and Systems: Lithium and Beyond**

• • • • •

**S5: Unconventional Thermoelectrics: Defect Chemistry, Doping and Nanoscale Effects**

• •

**S6: Technologies for Sustainability and Green Materials Processing**

•

**S7: Metamaterials and Microwave Materials**

•

**S8: Highlights of Student Research in Basic Science and Electronic Ceramics**

• (lunch) • (lunch)

## PLENARY SPEAKERS



Riley

**Dr. Bart Riley**, Co-founder, CTO and VP of R&D, A123 Systems

Title: Advances in Li-ion Technology for Automotive and Grid Application

Biography: Riley has more than twenty years of experience in technology development and commercialization in advanced materials and energy industries. He is currently responsible for R&D at A123 Systems and sits on the board of directors. Prior to co-founding

A123 Systems in 2001, he held a number of key technical and management positions at American Superconductor. He holds more than 45 patents and has published over 85 papers in the fields of advanced materials and energy generation, storage & distribution systems. With commercial success of its first set of battery products, A123 Systems is now poised to play an important role in the greening of the transportation and electric utility industries.



Kung

**Dr. Harriet Kung**, Associate Director of Science for Basic Energy Sciences, DOE

Title: Science to Energy

Biography: Kung has served as the Associate Director of Science for Basic Energy Sciences (BES) since 2008 and has worked for the Department of Energy since 2002. Under her leadership, BES has pursued new funding modalities in advancing the science for the energy research agenda, including the establishment of 46 Energy Frontier Research Centers and the Fuels from Sun-

light Energy Innovation Hub. In 2010, BES also successfully completed the world's first x-ray free electron laser user facility-the Linac Coherent Light Source.



Prater

**Dr. John T. Prater**, Materials Science Division, U.S. Army Research Office

Title: Future Opportunities in Materials Design

Biography: Since joining ARO in 1978, Prater has been a program manager in the Materials Sciences Division at the Army Research Office where he was responsible for overseeing the research portfolio under the Physical Properties of Materials Subfield and

most recently under the Materials by Design Subfield. He was the head of the Materials Sciences Division at the ARO from 1998-2004. He has been an Adjunct Professor at North Carolina State University since 1989 where he has been conducting research on wide band-gap semiconductors. He received his Ph.D. in Metallurgy and Materials Science from the University of Pennsylvania in 1978. Dr. Prater has over 70 journal publications.

## S1: NEW FRONTIERS IN ELECTRONIC CERAMIC STRUCTURES, ADVANCED ELECTRONIC MATERIAL DEVICES AND CIRCUIT INTEGRATION

**Organizers:** Vojislav V. Mitic, Serbian Academy of Science and Arts and Univ. of Nis; Amar Bhalla, Univ. of Texas at San Antonio; J.J. (Jack) Mecholsky, Univ. of Florida; Martha L. Mecartney, Univ. of California, Irvine; Ljubisa Kocic, Univ. of Nis; Hirokazu Chazono, Tai-yo Yuden Co.; Eugene Medvedovski, Umicore Thin Film Products; Vladimir Pavlovic, Serbian Academy of Science and Arts; Guorong Li, Shanghai Institute of Ceramics; Linan An, Univ. of Central Florida

Highlighting the latest advances in synthesis, modeling, simulations, structures and characterization in the field of new ceramic structures, advanced electronic materials integrations, and miniaturization is the goal of this symposium.

## S2: ADVANCED DIELECTRIC, PIEZOELECTRIC AND FERROIC MATERIALS, AND EMERGING MATERIALS IN ELECTRONICS

**Organizers:** Sahn Nahm, Korea Univ.; Jurgen Rödel, Technische Universität Darmstadt; Shashank Priya, Virginia Polytechnic Institute and State Univ.; Pam A. Thomas, Univ. of Warwick; Steven C. Tidrow, Univ. of Texas Pan American

This symposium will showcase the latest advances in synthesis, modeling and characterization of dielectric, piezoelectric, ferroelectric, and multiferroic materials. These materials have a tremendous impact on a variety of civilian and defense applications, including tunable microwave devices, sonar transducers, memories, MEMS devices, high-energy-density capacitors, piezoelectric composites, energy harvesting, actuators and sensors.



### S6: TECHNOLOGIES FOR SUSTAINABILITY AND GREEN MATERIALS PROCESSING

**Organizers:** Paul Clem, Sandia National Labs; Edward M. Sabolsky, West Virginia Univ.

Development of low-carbon, energy-efficient, and environmentally-benign technologies is an emerging issue for economic competitiveness of manufacturing and sustainable energy generation and use. This symposium is a forum for materials issues related to improved materials manufacturing, to new energy efficiency and to energy generation technology development.

### S3: SYMPOSIUM ON THIN FILM INTEGRATION AND PROCESSING SCIENCE

**Organizers:** Jon Ihlefeld, Sandia National Labs; Brady Gibbons, Oregon State Univ.; Jon-Paul Maria, North Carolina State Univ.

This symposium will focus on the role of processing and integration science on structure-property relations in thin ceramic and epitaxial films. Of interest for this symposium are advances in thin film processes that enable integration with non-traditional substrates, processing methods that facilitate epitaxy, and tailoring processing methods to achieve bulk-like responses under limited thermal budgets.

### S4: ADVANCED ENERGY STORAGE MATERIALS AND SYSTEMS: LITHIUM AND BEYOND

**Organizers:** Jagjit Nanda, Oak Ridge National Lab; Yue Qi, General Motors R&D; Sergey Lopatin, Applied Materials; Amit Goyal, Oak Ridge National Lab

This symposium will present the latest advances in electrical energy storage materials and storage systems, ranging from current state of the art lithium-ion batteries, lithium air and sulfur chemistries, all solid-state batteries, novel electrolytes and large scale redox flow batteries.

### S5: UNCONVENTIONAL THERMOELECTRICS: DEFECT CHEMISTRY, DOPING AND NANOSCALE EFFECTS

**Organizers:** Alp Sehirlioglu, Case Western Reserve Univ.; Jon Ihlefeld, Sandia National Labs; Anke Weidenkaff, EMPA

In order to be useful, widespread energy scavenging materials, thermoelectrics must be composed of nontoxic and abundant elements, be stable in air to high temperatures, and display simultaneous large thermopower and low thermal conductivity. This symposium is a forum for discussing defect chemistry, conductivity, thermal conductivity optimization and applications for novel thermoelectrics.

### S7: METAMATERIALS AND MICROWAVE MATERIALS

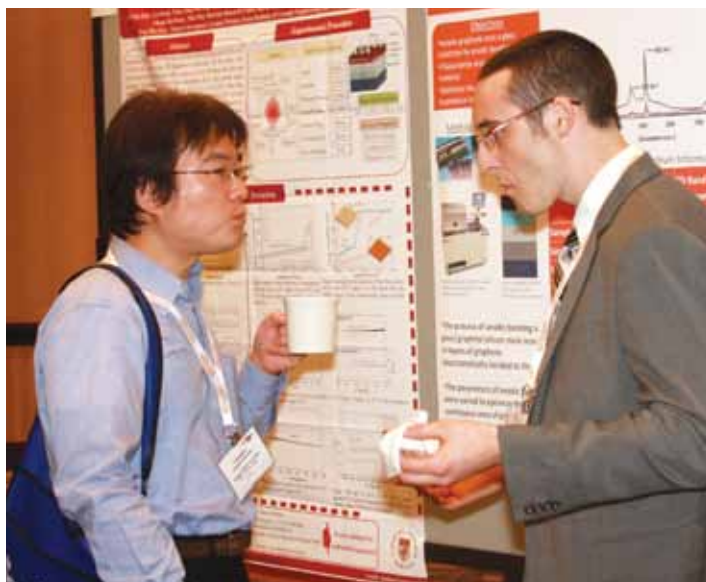
**Organizer:** Paul Clem, Sandia National Labs

This symposium is a forum for emerging electromagnetic phenomena, engineered materials design, structure-property relationships and system performance in these highly engineered artificial electromagnetic structures.

### S8: HIGHLIGHTS OF STUDENT RESEARCH IN BASIC SCIENCE AND ELECTRONIC CERAMICS

**Organizers:** David Shahin, PCSA Council Chair; Jaime George, PCSA Programming Chair; Geoff Brennecka, Sandia National Labs

This symposium will showcase undergraduate as well as graduate research to encourage innovation and involvement of students throughout the ceramics community.



### HOTEL INFORMATION

#### DoubleTree by Hilton Orlando at Sea World®

10100 International Drive, Orlando, FL 32821  
Phone: +1 (407) 352-1100 | 800-327-0363  
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**Rate:** Single/double/triple/quad – \$149.00  
U.S. Government Employees – \$104.00

Reserve your room by December 19, 2011 to secure the conference rate.

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## Electronic Materials and Applications 2012

January 18-20, 2012



DoubleTree by Hilton Orlando at Sea World® Orlando, Florida, USA

### 4 ways to register

Early Registration Deadline:  
December 19, 2011

### MAIL

The American Ceramic Society  
L-2625, PO Box 600001  
Columbus, OH 43260-2625 USA

### FAX

1-240-396-5637  
(Credit Cards Only)

### WWW

www.ceramics.org  
(Credit Cards Only)

### PHONE

1-866-721-3322 US.  
1-240-646-7054 Int'l.  
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### Registration

EMA 2012 Registration	EARLY REG. THROUGH DEC. 19	AFTER DEC. 19
Member†	<input type="checkbox"/> \$515	<input type="checkbox"/> \$665
Member with 12 month membership renewal†	<input type="checkbox"/> \$635	<input type="checkbox"/> \$785
Nonmember‡ (includes one year of ACerS membership)	<input type="checkbox"/> \$635	<input type="checkbox"/> \$785
One Day: Member†	<input type="checkbox"/> \$395	<input type="checkbox"/> \$545
One Day: Nonmember‡ (includes one year of ACerS membership)	<input type="checkbox"/> \$515	<input type="checkbox"/> \$665
Emeritus/Senior Member†	<input type="checkbox"/> \$395	<input type="checkbox"/> \$545
Material Advantage Student Member†	<input type="checkbox"/> \$130	<input type="checkbox"/> \$205
Student: Not in Material Advantage	<input type="checkbox"/> \$165	<input type="checkbox"/> \$240
Companion	<input type="checkbox"/> \$60	<input type="checkbox"/> \$60

Note: All registrations include coffee breaks, Welcome Reception and Conference Dinner.

† Select free division affiliation (if you don't already have one)

Please indicate if you require vegetarian meal

Save 25% – register for EMA 2012 and 36<sup>th</sup> Int'l Conference & Expo on Advanced Ceramics & Composites!

EMA 2012 & ICACC'12 Combined Registration	EARLY REG. THROUGH DEC. 19	AFTER DEC. 19
Member†	<input type="checkbox"/> \$750	<input type="checkbox"/> \$900
Nonmember†	<input type="checkbox"/> \$870	<input type="checkbox"/> \$1,020
Emeritus/Senior Member†	<input type="checkbox"/> \$565	<input type="checkbox"/> \$715
Material Advantage Student Member†	<input type="checkbox"/> \$190	<input type="checkbox"/> \$265
Student: Not in Material Advantage	<input type="checkbox"/> \$225	<input type="checkbox"/> \$300

GRAND TOTAL \$ \_\_\_\_\_ \$ \_\_\_\_\_

### ACerS Membership†

If you are not a member of a division, choose one free division affiliation below.

- Art  Glass & Optical Materials
- Basic Science  Nuclear & Environ. Tech.
- Cements  Refractory Ceramics
- Electronics  Structural Clay Products
- Engin. Ceramics  Whitewares & Materials

Membership includes online access to *Journal of the American Ceramic Society*, *International Journal of Applied Ceramic Technology*, and *International Journal of Applied Glass Science*. Also includes print subscription and online access to *American Ceramic Society Bulletin*.

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**Cancellation Policy:** Full refund less \$50 if cancelled on or before December 19, 2011; 50% refund if cancelled between December 20, 2011 and January 17, 2012; no refunds after the start of the conference.

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