

THE AMERICAN CERAMIC SOCIETY'S
2nd Ceramic Leadership

BALTIMORE, MD

Summit

AUGUST 1-3, 2011

FINAL PROGRAM

CERAMIC LEADERSHIP SUMMIT 2011

ACerS 2011-2013 MEETING CALENDAR

October 16-20, 2011

MS&T'11 Materials Science & Technology Conference and Exhibition, combined with
ACerS 113th Annual Meeting
Greater Columbus Convention Center, Columbus, Ohio, USA

October 30-November 2, 2011

UNITECR 2011
Kyoto, Japan

January 18-20, 2012

Electronic Materials and Applications 2012
DoubleTree by Hilton Orlando at Sea World®, Orlando, Florida, USA

January 22-27, 2012

36th International Conference and Expo on Advanced Ceramics and Composites
Hilton Daytona Beach Resort and Ocean Center, Daytona Beach, Florida, USA

February 26-March 1, 2012

Materials Challenges in Alternative and Renewable Energy
Hilton Clearwater Beach Resort, Clearwater, Florida, USA

May 20-24, 2012

GOMD 2012 - Glass & Optical Materials Division Spring Meeting
Hilton St. Louis at the Ballpark, St. Louis, Missouri, USA

July 15-19, 2012

ICC4-International Congress on Ceramics, including Ceramic Leadership Summit Track
Sheraton Chicago Hotel & Towers, Chicago, Illinois, USA

September 11-13, 2012

Innovations in Biomedical Materials
Hilton North Raleigh-Midtown, Raleigh, North Carolina, USA

October 7-11, 2012

MS&T'12: Materials Science & Technology Conference and Exhibition, combined with
ACerS 114th Annual Meeting
David L. Lawrence Convention Center, Pittsburgh, Pennsylvania, USA

January 23-25, 2013

Electronic Materials and Applications 2013
DoubleTree Resort Orlando International Drive, Orlando, Florida, USA

January 27-February 1, 2013

37th International Conference and Expo on Advanced Ceramics and Composites
Daytona Beach, Florida, USA

June 2-7, 2013

PACRIM 10 - The 10th International Meeting of Pacific Rim Ceramic Societies
Hotel Del Coronado, San Diego, California, USA

August 4-7, 2013

ICCP-13: International Conference on Ceramic Processing Science
Hilton Portland & Executive Tower, Portland, Oregon, USA

September 10-13, 2013

UNITECR 2013
The Fairmont Empress and Victoria Conference Centre, Victoria, British Columbia, Canada

October 27-31, 2013

MS&T'13: Materials Science & Technology Conference and Exhibition, combined with
ACerS 115th Annual Meeting
The Palais des congrès de Montréal, Montréal, Québec, Canada



Welcome to the second annual **Ceramic Leadership Summit**, a unique and powerful meeting. Over the course of the next two days, we will focus on some of the most important strategic issues confronting the ceramics and glass community. **CLS 2011** will address diverse business and technology topics, and connect you to major trends and opportunities that are currently developing.

Invited speakers include some of the most respected leaders in our community, and the highly interactive format will take advantage of the expertise of those in attendance. **CLS 2011** is organized into four general sessions and three concurrent tracks that cover Energy Innovations, Business of Ceramics, and Innovative Applications for Ceramic Materials. Most of the topics and speakers were identified by participants in the inaugural **Ceramic Leadership Summit**, with strong input from ACerS corporate members.

We would like to thank David W. Johnson, Jr., Editor, *Journal of the American Ceramic Society*, and Peter Wray, Editor, *American Ceramic Society Bulletin*, for serving as CLS 2011 moderators. Dr. Johnson and Mr. Wray will facilitate audience participation in our general sessions along with moderating the Energy Innovations and Business of Ceramics concurrent tracks. We would also like to thank Steve Freiman, Freiman Consulting, for serving as moderator of the Innovative Applications for Ceramic Materials track.

In addition to the networking opportunities for senior executives, CLS 2011 features a Young Professionals Program designed to develop future talent within the ceramic and glass materials community.

Finally, we would like to invite you to “Shape the Future of Ceramics” by participating in the **4th International Congress on Ceramics** [www.ceramics.org/icc4], which is being held July 15-19, 2012 in Chicago. ACerS is pleased to be hosting and organizing this global event, which is convened every two years by the International Ceramic Federation in cooperation with ACerS, the European Ceramic Society, and the Ceramic Society of Japan. The **2012 Ceramic Leadership Summit** will be part of ICC4 as a one-day event focusing on business, entrepreneurship and technology transfer. We look forward to seeing you in Chicago in July 2012.

Enjoy this second annual **Ceramic Leadership Summit**, and please let us know how we can make future Summits even more productive for you.


Marina Pascucci
ACerS President


Charlie Spahr
ACerS Executive Director

CERAMIC LEADERSHIP SUMMIT 2011

Hyatt Regency



Note:
Pratt/Calvert is located on the 3rd floor.

MONDAY, AUGUST 1, 2011

5:00 - 7:00 p.m. Welcome Reception and Networking Event - Harborview

TUESDAY, AUGUST 2, 2011

- 7:30 - 9:30 a.m. Senior Executive Forum (Invitation Only) - Annapolis
7:30 - 9:30 a.m. Future Leaders Breakfast (Invitation Only) - Pratt/Calvert
9:00 - 9:45 a.m. Coffee - Foyer
9:45 - 10:00 a.m. Opening Remarks - Constellation Ballroom D, E, F
10:00 a.m. - Noon **GENERAL SESSION 1:** Advancing Materials Technology in a Complex World - Constellation Ballroom D, E, F
Noon - 1:30 p.m. Networking Lunch - Harborview
1:30 - 3:15 p.m. **GENERAL SESSION 2:** Entrepreneurial Case Studies - Constellation Ballroom D, E, F
3:15 - 3:45 p.m. Coffee - Foyer
3:45 - 5:15 p.m. **GENERAL SESSION 3:** Business Opportunities and Strategies in Emerging Markets - Constellation Ballroom D, E, F
7:00 - 9:00 p.m. Conference Dinner - Constellation Ballroom D, E, F



WEDNESDAY, AUGUST 3, 2011

7:30 - 8:30 a.m.

Coffee - [Foyer](#)

TRACK 1: ENERGY INNOVATIONS

[Constellation Ballroom E, F](#)

TRACK 2: BUSINESS OF CERAMICS

[Constellation Ballroom D](#)

TRACK 3: INNOVATIVE APPLICATIONS FOR CERAMIC MATERIALS

[Constellation Ballroom C](#)

8:30 - 9:25 a.m.

Advances in Solid State Batteries

Emerging Nanomaterials and Nanotechnology Applications, Industry Trends and Current/Future Markets

Ultrahigh Temperature Ceramics for Extreme Environmental Applications

9:30 - 10:25 a.m.

Ceramic Components for Fuel Cells and Other Energy Applications

Raw Materials Trends Impacting the Ceramics and Glass Community

Bioengineering Soft Tissue with Ceramics

10:25 - 10:45 a.m.

Coffee - [Foyer](#)

10:45 - 11:40 a.m.

The Market Outlook for Energy-Related Technologies

Raw Material Scarcity and its Impact on the U.S. Advanced Ceramic Technological Development

Advances in Glass Strength and the Impact on Society

11:45 a.m. - 1:00 p.m.

Networking Lunch - [Harborview](#)

1:00 - 1:55 p.m.

Small Modular Nuclear Reactors

Business Valuation (Part 1)

Ceramic Applications in the Automotive Industry

2:00 - 2:55 p.m.

Material Needs in Alternative & Renewable Energy for the Auto Industry

Business Valuation (Part 2)

Innovative "Multi-Use" Technologies and National Laboratories—Medical Initiatives from the Nuclear Community

2:55 - 3:15 p.m.

Coffee - [Foyer](#)

3:15 to 5 p.m.

CLOSING GENERAL SESSION: Connecting Research, Technology and Manufacturing - [Constellation Ballroom E, F](#)

CERAMIC LEADERSHIP SUMMIT 2011

TUESDAY, AUG. 2, 2011

GENERAL SESSION 1 10:00 A.M. – NOON Constellation Ballroom D, E, F

Advancing Materials Technology in a Complex World

Two corporate leaders provide their perspectives on the global economic, technological and environmental challenges and opportunities facing the ceramic materials and technologies community. Each talk will be followed by a facilitated dialogue with Summit participants.



Wolfgang Rossner

Advanced Ceramics for Sustainability - View from Siemens Corporate Technology

Predicted megatrends like climate change, population growth, demographic change and scarcity of resources require more sustainable global development. Sustainability is not only a highly demanded property, but it is also a powerful innovation driver for technologies. Within this context advanced materials are expected to provide new solutions for the environment, the economy and society. Advanced ceramics can contribute to achieving higher sustainability by improving the efficiency, functionality and lifetime of technical systems. Stimulated by their multidisciplinary character, ceramic materials can open options for new solutions in power generation, energy saving and energy storage, or self-adapting components using more 'intelligent' materials.

Speaker: **Wolfgang Rossner**, Technology Leader, Ceramics, Siemens AG Corporate Technology



Krishan L. Luthra

Emerging Applications and Challenges in Using Ceramics at General Electric

Ceramics play a critical role in the performance of many energy systems, including gas turbines, batteries and SOFCs. Ceramic matrix composites can lead to improved performance of gas turbines, both for land-based and aircraft engines, because of their lighter weight and higher temperature capability. Key components of SOFCs are ceramics, such as the yttria-stabilized zirconia electrolyte and the perovskite cathode. High-energy-density sodium metal halide battery is another emerging application, relying on a beta alumina electrolyte and other ceramics. Key challenges in commercializing these applications are component life and cost. This presentation will discuss applications and challenges in the use of ceramics in these three applications, focusing on CMCs.

Speaker: **Krishan L. Luthra**, Technology Leader, Ceramics & Metallurgy, GE Global Research

Entrepreneurial Case Studies

Start-up businesses are an integral part of the ceramic and glass materials community. Many entrepreneurs have started with a research focus and successfully transitioned into launching/managing a business. Three tech-savvy leaders will provide case studies on building businesses, followed by a facilitated panel discussion.

Case Study 1

Founded in 2001, A123 Systems has developed a revolutionary new Li-ion cell technology based on a novel nanophosphate™ chemistry. By selecting a material with intrinsic safety and stability, A123 Systems worked with MIT to create a nanoscale cathode material with high intrinsic power density. Subsequent work at A123 Systems resulted in the development and commercialization of a new class of Li-ion cell products that were ideally suited for high power applications such as power tools, hybrid electro vehicles and certain grid storage applications.

Speaker: **Bart Riley**, CTO, Co-founder, A123 Systems



Bart Riley

Case Study 2

MO-SCI Corporation was started in 1985 as a spin-off from Missouri University of Science and Technology. Throughout its history, MO-SCI has been handed many challenges that small companies normally face and has weathered them well. After 26 years in business, it has grown into a world recognized small business serving the majority of the Fortune 500 on a sole supplier basis. MO-SCI's unique business philosophy—using partnering as its main focus in business relationships—has served the company well. MO-SCI now serves over 1500 customers in 50 countries worldwide.

Speaker: **Ted Day**, President, MO-SCI Corporation



Ted Day

Case Study 3

CeraNova is a privately held company that was founded in 1992 as a developer and manufacturer of ceramic superconductors. Since then, the company has grown into a leading innovator of ceramic processing solutions and engineered components for high technology systems. Today CeraNova's major focus is on fine-grained, transparent ceramics (monolithic, composite and fibers) that are essential for an increasing number of military, industrial and commercial products. CeraNova's experienced staff and well-equipped facility make it well positioned to provide contract technology development and small-scale manufacturing when it may not be economically viable internally at other firms.

Speaker: **Marina Pascucci**, President, CeraNova Corporation



Marina Pascucci

CERAMIC LEADERSHIP SUMMIT 2011

TUESDAY, AUG. 2, 2011

GENERAL SESSION 3 3:45 TO 5:15 P.M. Constellation Ballroom D, E, F

Business Opportunities and Strategies in Emerging Markets

This session showcases two real-world case studies from business development leaders at two ceramics-related companies. Each case study will be followed by a facilitated dialog with CLS participants.



Thomas A. Cole

Case Study 1: A Small U.S. Company's Approach to China

It's a challenge for a \$20M revenue company to expand into China. This case study summarizes the five-year effort of Minco, Inc. before it was purchased by Ceradyne, Inc. in 2007. Minco produced fused silica with a proprietary process and also had proprietary products used in the precision investment casting industry that were quite advanced compared to the Chinese practices at the time. The study details how classes, books and consultants were used to prepare and execute the plan of finding a Chinese partner, structuring and financing the enterprise, beginning sales, and building a plant.

Speaker: **Thomas A. Cole**, VP of Business Development, Ceradyne, Inc.



Donald J. Bray

Case Study 2: Exploring Emerging Markets and the Advanced Materials Industry

There are several emerging markets where advanced materials will play a significant role. Bray will describe the analysis and approach that a larger, diversified materials company is taking to capitalize on these new markets – energy production (solar and wind), energy storage, energy conservation, soldier survivability, and electronics.

Speaker: **Donald J. Bray**, Business Director, NP Aerospace, Inc. (a Morgan Crucible Company)



CLS 2011 features three concurrent tracks: **Energy Innovations**, **Business of Ceramics** and **Innovative Applications for Ceramic Materials**.

WEDNESDAY, AUG. 3, 2011

8:30 – 9:25 A.M. Constellation Ballroom E, F

Energy Track: Advances in Solid-State Batteries

Recently, a new method of inexpensive, non-vacuum electroless deposition has been developed by Planar Energy to fabricate solid-state batteries using a roll-to-roll approach. This process has been combined with a new solid thio-LISICON electrolyte and novel approaches to the cathode and anode to produce solid-state batteries with greatly increased capacity. These recent developments offer the potential development of low cost solid-state LIBs for use in electric drive vehicles (EDVs). This presentation will review solid-state LIB technology from the first viable micro-batteries to the current technology being developed for use in EDVs and future applications.

Speaker: **Kevin S. Jones**, Professor MSE, University of Florida, Co-Director, Software & Analysis of Advanced Materials Processing Center and Collaborator with Planar Energy



Kevin S. Jones

8:30 – 9:25 A.M. Constellation Ballroom D

Business Track: Emerging Nanomaterials and Nanotechnology Applications, Industry Trends and Current and Future Markets

With large-scale current and potential use of nanostructured materials in applications, such as chemical mechanical polishing, magnetic recording and ferro fluids, sunscreens, catalysts, biodetection/labeling, cancer treatment, imaging, conductive coatings, optical fibers, FEDs, chips and nanocomposites, the nanotechnology industry is taking off with commercial markets. This presentation will provide an overview of the markets for nanomaterials and nanotechnology segments, such as nanoelectronics, nanophotonics, nanomagnetics, nanopatterning and lithography, nanomedicine, nano-enabled packaging, energy generation, and storage devices.

Speaker: **Thomas Abraham**, President, Innovative Research and Products, Inc.



Thomas Abraham

CERAMIC LEADERSHIP SUMMIT 2011

WEDNESDAY, AUG. 3, 2011

8:30 – 9:25 A.M. Constellation Ballroom C



Sylvia M. Johnson

Applications Track: Ultrahigh Temperature Ceramics for Extreme Environmental Applications

Ultrahigh temperature ceramics, which include the diborides of hafnium and zirconium have seen a resurgence in research and development interest. There is particular interest in these materials for aerospace applications especially leading edges for entry vehicles. These materials are refractory and have attractive thermal properties; however, they are brittle and oxidize. Efforts to improve these properties are underway in many institutions. This talk will give some background on these materials and describe the application. The majority of the presentation will discuss progress being made towards improving the mechanical and oxidation-resistance properties.

Speaker: **Sylvia M. Johnson**, Chief Materials Technologist, Entry Vehicle and Systems Division, NASA Ames Research Center

9:30 – 10:25 A.M. Constellation Ballroom E, F



John Olenick

Energy Track: Ceramic Components for Fuel Cells and Other Energy Applications

Since 1960, the planet has changed due to increasing levels of carbon dioxide in the atmosphere. Similar increases over the next 50 years will reach a level beyond that which is comfortable for all species. At the same time, the global demand for energy, water and food will soar. Today's commercialization efforts of fuel cell technology and other advanced energy methods can be an important piece of the overall solution to provide more clean energy. Ceramic components are becoming increasingly important in the cleantech market space providing means for ion transport, thermal management, catalysis of gases and liquids, power generation, energy storage, hydrogen purification and storage generation of light, and energy from waste processes.

Speaker: **John Olenick**, CEO and President, ENrG Incorporated



9:30 – 10:25 A.M. Constellation Ballroom D

Business Track: Raw Materials Trends Impacting the Ceramics and Glass Community

We currently live in a technologically rich culture where the existence and operation of reliable infrastructure and devices is, for the most part, taken for granted. With what might be considered as the reluctant acceptance of climate change and the effect our species is having on our own environment, society has become aware of the need for sustainable solutions to the choices we make and the industries we support. Many raw materials necessary to support our critical technologies are imported and so there exists a risk as to their long-term supply and availability. Current initiatives to ensure supply chain security and how technology might better be used to deliver a sustainable tomorrow will be discussed.

Speaker: **Mark Patterson**, Director Research Initiatives, College of Engineering, University of Arizona



Mark Patterson

9:30 – 10:25 A.M. Constellation Ballroom C

Applications Track: Bioengineering Soft Tissue with Ceramics

For much of the last 40 years, a hydroxyapatite-based material or a bioactive glass that formed hydroxyapatite in-vivo was thought to be the ideal material for an orthopedic implant. Forming an appropriate end material in-vitro or in-vivo and the material's ability to stimulate bone cells were the main areas of study. A new way of looking at regenerative materials is not just focusing on bone specific criteria, but also understanding the role soft tissue plays in the healing process. Connective tissue heals in a similar fashion; therefore, understanding how to stimulate soft tissue growth (i.e. angiogenesis) with implant materials can be used to enhance healing in both hard and soft tissue applications.

Speaker: **Steve Jung**, Senior Research & Development Engineer, MO-SCI Corporation



Steve Jung

CERAMIC LEADERSHIP SUMMIT 2011

WEDNESDAY, AUG. 3, 2011

10:45 – 11:40 A.M. Constellation Ballroom E, F



Kevin See

Energy Track: The Market Outlook for Energy-Related Technologies

Emerging markets provide great opportunity for materials' suppliers and researchers, as they spur the growth of new supply chains for novel applications. Here we review the drivers creating opportunities for ceramic materials in several areas, including electric vehicles, advanced coatings and composites, and water treatment. The presentation will sort through the hype surrounding these markets, examine trends in each of these areas and discuss the economic, regulatory, and technical factors that affect adoption now and in the future.

Speaker: **Kevin See**, Analyst, Lux Research

10:45 – 11:40 A.M. Constellation Ballroom D



Michael Hill

Business Track: Raw Material Scarcity and its Impact on the U.S. Advanced Ceramic Technological Development, An Industrial Perspective

The impact of current raw materials scarcity issues, such as indium and the rare earth elements are central considerations for a number of advanced technology applications. Data will be presented that can serve as a predictive model for the supply and demand for various raw materials in the 5-30 year timeframe. Various approaches taken by industries and governments around the world to address these issues will be reviewed. Finally, proactive strategies will be discussed on handling scarcity issues with an emphasis on aligning research and development activities to address current and potential future issues involving the supply of critical raw materials.

Speaker: **Michael Hill**, Technical Director, Research and Development, Trans-Tech, Inc.



10:45 – 11:40 A.M.

Constellation Ballroom C

Applications Track: Advances in Glass Strength and the Impact on Society

Glass is prized for its ability to transmit light, be formed into miraculous shapes and resist chemical corrosion. Today's commercial glass fails to tap 99.5% of its theoretical strength and has one major flaw—it breaks. The vision of the Usable Glass Strength Coalition is to bridge the gap between the lab strength of glass and the usable commercial strength of glass, enabling dramatic innovations in design and sustainability. The presentation will discuss the challenge of forming a pre-competitive research coalition of industry, university and government agencies to support a fundamental research agenda to improve usable glass strength.

Speaker: **Louis Mattos Jr.**, Senior Scientist, The Coca-Cola Company



Louis Mattos Jr.

1:00 – 1:55 P.M.

Constellation Ballroom E, F

Energy Track: Small Modular Nuclear Reactors

The small modular reactor concept is changing paradigms in nuclear power by providing small, grid-appropriate reactors with enhanced features, including passive safety controls. Additionally, SMRs are generally shop-fabricated, greatly reducing capital costs and opening new opportunities in the manufacturing sector, including materials manufacturing. The presentation will discuss these opportunities and cover recent SMR developments.

Speaker: **Terry Michalske**, Laboratory Director, Savannah River National Laboratory



Terry Michalske

1:00 – 2:55 P.M.

Constellation Ballroom D

Business Track: Business Valuation

Business owners and entrepreneurs will get practical tools and learn how to package their business to make it attractive to a buyer; how to maximize the future potential of the business; how to increase sales through Marketing/Market Research; organizational planning; how to substantiate goodwill; and more. In addition, the step-by-step process will cover practical aspects of the sale-of-business process; how to negotiate an increase in price on the basis of favorable deal structuring; and practical examples on the sale-of-business process.

Speaker: **Allen Oppenheimer**, President, A.M. Oppenheimer, Inc.



Allen Oppenheimer

CERAMIC LEADERSHIP SUMMIT 2011

1:00 – 1:55 P.M.

Constellation Ballroom C



Michael J. Hoffmann

Applications Track: Ceramic Applications in the Automotive Industry

Certain ceramic parts have been developed but never used in mass production, due to high costs, insufficient reliability or only minor benefits to system performance. The presentation will cover potential uses of engineering ceramics for local strengthening of light-weight metal parts with porous ceramic preforms, or corrosive and tribologically highly stressed pump components. The current status of piezoelectric actuators for fuel injection systems and PTC heaters, as well as the challenges for alternative materials to lead containing compounds will also be discussed.

Speaker: **Michael J. Hoffmann**, Professor and Head of the Institute of Ceramics for Mechanical Engineering, Karlsruhe Institute of Technology

WEDNESDAY, AUG. 3, 2011

2:00 TO 2:55 P.M.

Constellation Ballroom E, F



Mark Verbrugge

Energy Track: Material Needs in Alternative & Renewable Energy for the Automotive Industry

It is critically important to understand phenomena governing the durability of lithium ion cells within the context of traction applications and to identify improved electrode materials. The presentation will focus on (1) the combined mechanical and chemical degradation of lithium ion electrode materials, including both recent theoretical and experimental methods to clarify the governing phenomena, (2) new materials offering promising high energy/high power applications, and (3) how global energy challenges, trends in personal transportation, and electrochemical energy storage technologies relate.

Speaker: **Mark Verbrugge**, Director, Chemical Sciences and Materials Systems Lab, General Motors Research & Development Center



2:00 TO 2:55 P.M.

Constellation Ballroom D

Applications Track: Innovative "Multi-Use" Technologies and National Laboratories - Medical Initiatives from the Nuclear Community

The Nuclear complex in the DOE system has made many significant contributions through its National Laboratories to areas of National Security, Environmental Remediation, Waste Management and Energy, as well as many other uses, for more than a half century of operations. During this time period, creative and innovative technologies have been developed and successfully applied within the complex. Many of these technologies also have applicability to the commercial sector and some from industry have referred to the National Laboratories as a "gold mine" of new technologies needing commercialization. Discussed will be one group of recent initiatives between SRNL and the GA Health Sciences University, using "multi-use technologies" from the nuclear complex, that are being tailored for potential uses in the medical field, with examples in digital imaging, robotics, sensor technologies, microbiology and advanced ceramics and other materials.

Speaker: **George G. Wicks**, Consulting Scientist, Savannah River National Laboratory



George Wicks

CERAMIC LEADERSHIP SUMMIT 2011

CLOSING GENERAL SESSION 3:15 TO 5:00 P.M. Constellation Ballroom E, F

Connecting Research, Technology and Manufacturing

Research and innovation are critical to development of technology that can transform the world. This session features presentations from two leaders from organizations within the United States and Europe that help connect research, technology and manufacturing. Each presentation will be followed by a facilitated dialog with Summit participants.



Case Study 1

The National Science Foundation is the primary source of support for basic research and education in science and engineering throughout the US academic community. At NSF, the Directorate for Engineering has historically occupied a unique and interesting space within the Foundation, and today is no different. Like other directorates, most of ENG investments support basic research and discovery. But a portion of the ENG portfolio of investments directly addresses the important translation of the fruits of successful basic research into products and processes of societal benefit. What can one federal agency (the NSF)

Thomas W. Peterson

reasonably do to stimulate innovation and economic development through strategic investments in our nation's colleges and universities?

Speaker: **Thomas W. Peterson**, Assistant Director for Engineering, National Science Foundation



Case Study 2

Advanced ceramics have enormous potential for high-tech markets, such as energy and environmental technology. Several case studies of Fraunhofer projects and of industrial partners will show how technology transfer can be expedited within the Fraunhofer model. One important feature of those projects is that R&D is done along the whole value chain, including not only proof of principle up to prototyping but also up-scaling to pre-series production. This approach leads to shorter time to market and reduces risks, such as retentivity costs. As examples, fuel cell storage and filtration applications will be covered.

Alexander Michaelis

Speaker: **Alexander Michaelis**, Director, Fraunhofer Institute for Ceramic Technologies and Systems



CERAMIC LEADERSHIP SUMMIT SPEAKERS (Alphabetical)

Thomas Abraham, President, Innovative Research and Products, Inc.

Business of Ceramics: Emerging Nanomaterials and Nanotechnology Applications, Industry Trends and Current and Future Markets

Abraham is president of Innovative Research and Products, Inc., an industry and market analysis company based in Stamford, CT. Abraham is experienced both as a materials scientist and technical economic analyst in the field of advanced and nano materials and nanotechnology. He has completed over 50 multi-client market research studies in advanced materials and systems, advanced ceramics, nanomaterials and nanotechnology. A graduate of Columbia University, he had worked earlier for Brookhaven National Laboratory, University of Denver and Business Communications Company.

Donald J. Bray, Business Director, Armor, NP Aerospace, Inc. (a Morgan Crucible Company)

General Session 3: Business Opportunities and Strategies in Emerging Markets

Bray holds a Bachelors Degree in Ceramic Engineering from Iowa State University and a Co-Masters Degree in Ceramic Engineering and Metallurgy from Iowa State University. He completed a Global Leadership EMBA from the University of Texas, Dallas. He began his career at the Alcoa Research Center and worked on armor, com-

posites, and materials for aerospace. His past experience includes heading up R&D and Business development at Advanced Refractory Technologies, General Manager, Technology and Development for Poco Graphite. In October of 2006, he joined Morgan Carbon Americas. He has 30 publications, 8 patents and over 40 presentations with 6 of them invited. He is an ACerS Fellow and past board member.

Thomas A. Cole, Vice President of Business Development, Ceradyne Inc.

General Session 3: Business Opportunities and Strategies in Emerging Markets

Prior to joining Ceradyne, Inc., Cole served as President and CEO of Minco, Inc. until Ceradyne Inc. acquired it in 2007. Cole's early career was with Corning Inc. for 17 years in various manufacturing and operating roles, mostly in technical ceramics and advanced refractories. He left Corning in 1987 when he participated in a buyout of Corning's Corhart Refractories Division and since then he had engaged in fixing troubled technical manufacturing businesses and selling them. He successfully completed the cycle with seven companies over the last 20 years before joining Ceradyne. Cole received a BS from Alfred University in 1969 and an MBA from The University of Buffalo in 1971.

CERAMIC LEADERSHIP SUMMIT 2011

Ted Day, CEO/President, MO-SCI Corporation

General Session 2: Entrepreneurial Case Studies

Day is president/CEO & owner of MO-SCI Corporation, Rolla, MO. He received a B.S. in pharmacy from University of Missouri-Kansas City. His research interests include continued development of new treatments for inoperable cancers using radioactive glass bead technologies and the development of new bone-forming treatments for patients suffering from orthopedic injuries or disease.

Michael Hill, Technical Director Research and Development, Trans-Tech

*Business of Ceramics: Raw Material Scarcity and its Impact on the U.S.
Advanced Ceramic Technological Development, An Industrial Perspective*

Hill received his Bachelor of Science in Materials Engineering from Virginia Tech in 1986, his Masters Degree in Materials Science and Engineering from Virginia Tech in 1988 and his PhD in Materials Science and Engineering from the University of Maryland in 1996. He joined NIST in 1989 and published papers on Crystal Chemistry of High Tc Superconductors and Synthesis of Lead-based Perovskites. In 1996 he joined Trans-Tech where he worked on new formulations for microwave dielectric and magnetic materials as well as specialty advanced materials and has developed numerous new formulations for these applications. He is currently responsible for all new products in the dielectric ceramics, magnetic ceramics and advanced materials product lines. He authored several technical publications and is listed as an inventor on several patents.

Michael Hoffmann, Professor and Head of the Institute of Ceramics for Mechanical Engineering, Karlsruhe Institute of Technology

Innovative Applications for Ceramic Materials: Ceramic Applications in the Automotive Industry

Hoffmann earned his diploma in technical mineralogy from the Technical University of Darmstadt and his Ph.D. in chemistry from Universität Stuttgart, Germany. Before he joined KIT as a professor and managing director of the Institute of Ceramics for Mechanical Engineering, he was a researcher at the Max-Planck-Institut für Metallforschung in Stuttgart. He received the Hsun Lee lecture award from the Institute of Metal Research, Chinese Academy of Science and an honorary doctorate from the Slovak Academy of Sciences. He is member of the World Academy of Ceramics and an ACerS Fellow. He has published over 170 technical papers and holds several patents.

David W. Johnson Jr., Editor, *Journal of the American Ceramic Society*

CLS 2011 Moderator

Johnson received his PhD in Ceramic Science and Engineering from Pennsylvania State University in 1968. He had a long and distinguished career at Bell Laboratories with important contributions in optical and superconducting ceramics, as well as rising to department manager. Fellow and Past President of ACerS, Johnson is currently the Editor of the *Journal of the American Ceramic Society*.



Sylvia M. Johnson, Chief Materials Technologist in the Entry Vehicles and Systems Division, NASA Ames Research Center

Innovative Applications for Ceramic Materials: Ultrahigh Temperature Ceramics for Extreme Environmental Applications

Johnson received a B.Sc. in ceramic engineering from the Univ. of New South Wales and an M.S. and Ph.D in materials science & engineering from the Univ. of California, Berkeley. She worked at SRI International in Menlo Park California primarily in the area of ceramic and composite processing and characterization. Her own research focuses on ultrahigh temperature ceramics, composites and other thermal protection materials. She has served ACerS as a vice president and an elected director and a chair of PACRIM 5. In 2008 she became a lifetime National Associate of the National Research Council. She received the 2011 James I Mueller award from ACerS.

Kevin S. Jones, Professor MSE, University of Florida, Co-Director, Software & Analysis of Advanced Materials Processing Center and Collaborator with Planar Energy

Energy Innovations: Advances in Solid State Batteries

Jones has spent the past 24 years as a professor, recently expanding his research into the energy storage area. For the past eight years he has been chair of the MSE

Department at the University of Florida. He is also Chairman of the International Committee on Ion Implantation Technology and is co-Director of an SWAMP Center. He has published over 350 articles and has won many awards including the 1990 Presidential Young Investigator award from NSF, several teacher of the year awards and the 2006 Triple Point Award and the 2011 College of engineering Graduate Mentor of the Year Award. He is a fellow of ASM International and IEEE

Steve Jung, Senior Research & Development Engineer, MO-SCI Corporation

Innovative Applications for Ceramic Materials: Bioengineering Soft Tissue with Ceramics

Jung graduated from Missouri S&T with a Ph.D. in Materials Science and Engineering in December 2010. During his time at Missouri S&T, he studied bioactive glasses for hard and soft tissue regeneration. He is currently a Senior Research and Development Engineer at MO-SCI Corporation, located in Rolla MO, developing glass and ceramic materials for tissue regeneration and other biological applications.

CERAMIC LEADERSHIP SUMMIT 2011

Krishan L. Luthra, Technology Leader, Ceramics & Metallurgy, GE Global Research

General Session 1: Emerging Applications and Challenges in Using Ceramic Materials at General Electric

Luthra earned his Ph.D. in Metallurgy & Materials Science from the University of Pennsylvania in 1976. Since then he has been at GE Global Research, where he has had a variety of roles. In his current role, he leads an organization of over 130 scientists and engineers. He is well recognized for his work on high temperature thermochemistry, oxidation of high-temperature materials, and ceramic matrix composites. He has presented over 100 talks at conferences, has authored over 100 technical papers and has 32 patents based on his research activities. He became an ACerS Fellow in 2000.

Louis Mattos Jr., Senior Scientist, The Coca-Cola Company

Innovative Applications for Ceramic Materials: Advances in Glass Strength and Its Impact on Society

Mattos is the lead glass scientist for The Coca-Cola Company in Atlanta, Ga. In his current role, he focuses on glass strength and coating systems to deliver increased functionality for glass packaging. Prior to joining The Coca-Cola Company, he served as a research scientist and technical manager with Saint-Gobain Abrasives and the

Ferro Corporation. He is a graduate of Alfred University, where he earned a B.S. in Ceramic Engineering and a M.S. and Ph.D. in Ceramic Science. He currently serves as the co-chair for the "Usable Glass Strength Coalition," an industry/university/government partnership formed to advance fundamental, pre-competitive research to increase usable strength across all glass sectors.

Alexander Michaelis, Director, Fraunhofer Institute for Ceramic Technologies and Systems

Closing General Session: Connecting Research, Technology, and Industry

Michaelis studied physics at Heinrich-Heine University Düsseldorf. He earned his Ph.D. in electrochemistry. He spent one year as a faculty member at the University of North Carolina at Chapel Hill. In 1996, he changed towards industry and took a position as a process integration engineer at Siemens AG working in the field of microelectronics. He was delegated to the DRAM Development Alliance in East Fishkill, New York. After four years he returned to Germany and changed to Bayer AG in Leverkusen and then to the Bayer subsidiary H.C. Starck GmbH, where he was head of the departments Electroceramics and New Business Development.



Terry A. Michalske, Laboratory Director, Savannah River National Laboratory

Energy Innovations: Small Modular Nuclear Reactors

Michalske is responsible for the management, operations and planned growth of the laboratory. Currently, the lab has approximately 900 employees and conducts research and development on a diversified portfolio of projects in the areas of Environmental Management, National Security and Energy Security. He has over 30 years of experience in the fields of energy science, solar energy, nanotechnology and biomolecular analysis. He has a Ph.D. in Ceramic Science from Alfred University. He holds seven patents, authored 90 journal publications, and has collaborated on several books. He is a member of several technical societies, panels, and advisory boards and has chaired numerous technical workshops and symposia.

John Olenick, CEO & President, ENrG Incorporated

Energy Innovations: Ceramic Components for Fuel Cells and Other Energy Applications

Olenick has 31 years of experience in the electronics, ceramics, and energy industry segments with Westinghouse, Mobay Corporation, Rogers Corporation, Eastman Kodak, and Tyco Electronics. He is currently the President of ENrG Incorporated, which develops and manufactures ceramic components for clean energy applications.

Mr. Olenick graduated from Pennsylvania State University with a B.S. in Ceramic Science and Engineering. He also studied business administration at both the Johns Hopkins University and University of Connecticut, and is a graduate of the Center for Entrepreneurial Learning Program at The University of Buffalo.

Allen Oppenheimer, President, A.M. Oppenheimer, Inc.

Business of Ceramics: Business Valuation

Oppenheimer is the Founder and President of A. M. Oppenheimer, Inc. Prior to founding A. M. Oppenheimer, Inc., he was Vice-President of Geneva Corporation. Prior to his position as Vice-President, Allen was with Peat, Marwick, Mitchell & Company and Ernst & Ernst in New York City. With both these firms he worked in Management Consulting. Allen is a Certified Public Accountant. He is also licensed to perform as a Business Broker and is a Registered Securities Principal. He is a prize winning author and his financially related articles have been published in leading magazines. He holds an undergraduate degree in Industrial Engineering and received his Master's degree from Stanford University.

CERAMIC LEADERSHIP SUMMIT 2011

Marina Pascucci, President, CeraNova Corporation

General Session 2: Entrepreneurial Case Studies

Pascucci earned a B.S. in ceramic science and B.A. in chemistry from Alfred University, and M.S. and Ph.D. degrees in ceramics/materials science from Case Western Reserve University. She received the F.H. Norton Distinguished Ceramist Award from the New England Section, the Alfred University Career Achievement Award presented by the Alfred University Alumni Association and was one of five invited female speakers at the International Workshop for Women Ceramists held in conjunction with the 50th Anniversary of the Korean Ceramic Society in Seoul, South Korea. An ACerS Fellow, she is currently president of ACerS and a member of the Basic Science and Engineering Ceramics Divisions and the National Institute of Ceramic Engineers.

Mark Patterson, Director Research Initiatives, College of Engineering, University of Arizona

Business of Ceramics: Raw Materials Trends Impacting the Ceramics and Glass Community

Patterson obtained his B.Sc. from the Camborne School of Mines, UK, his M.Sc. from Queens University, Canada and his doctorate in Materials Science from the University of Cambridge, UK. He has dedicated his 25 year professional career to R&D starting with Alcan International, Canada and more recently with innovation-driven, small businesses in the US. He has worked closely with government agencies and was the technical secretariat for the MIL-17 Handbook of CMCs from 1997 to 2002. He has

published articles or patents in areas of optical ceramics, propulsion materials, armor, autonomous platforms, bio-engineered implants, sensors, mineral characterization, geothermal brines and knowledge management systems for counter IED activities.

Thomas W. Peterson, Assistant Director for Engineering, National Science Foundation

Closing General Session: Connecting Research, Technology, and Industry

Prior to joining NSF, he was dean of the College of Engineering at the University of Arizona. He received his Bachelor of Science from Tufts University, his Master of Science from the University of Arizona, and his doctorate from the California Institute of Technology, all in Chemical Engineering. He has served on the faculty of the University of Arizona since 1977, as head of the chemical and environmental engineering department from 1990 to 1998, and as dean from 1998 until January 2009. He is a fellow of the American Institute of Chemical Engineers and a recipient of the Kenneth T. Whitby Award from the American Association for Aerosol Research.

Bart Riley, Co-founder, CTO & Vice President of R&D, A123 Systems, Inc.

General Session 2: Entrepreneurial Case Studies

Riley has more than twenty years of experience in technology development and commercialization in advanced materials and energy industries. Dr. Riley 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 manage-



ment 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. He holds Ph.D. and M.S. degrees in Materials Science and Engineering from Cornell University and a B.A. in Physics and Geology from Middlebury College.

Wolfgang Rossner, Technology Leader, Ceramics, Siemens AG Corporate Technology

General Session 1: Advancing Materials Technology in A Complex World

Rossner is R&D manager at Siemens AG, Corporate Technology, Munich, Germany, heading the global technology field 'ceramic materials and devices' with focus on structural and functional ceramics. He received his M.S. and Ph.D. degrees in Materials Science from Friedrich-Alexander-University Erlangen-Nuremberg. In 1984 he joined Siemens AG, Corporate R&D, and was responsible for developments in various fields, such as piezoelectrics, scintillators and lighting phosphors. He received the Siemens Innovation Prize for the development of the scintillating ceramic "Lightning UFC" in 1997 and was awarded Siemens Top Innovator in 2007.

Kevin See, Analyst, Lux Research

Business of Ceramics: The Market Outlook for Energy-Related Technologies

See contributes to the Alternative Power and Energy Storage intelligence practice, conducting extensive primary and secondary research on topics ranging from novel energy storage technologies to emerging smart grid solutions. Prior to Lux, he was a joint postdoctoral researcher at The Molecular Foundry at Lawrence Berkeley National Lab and University of California, Berkeley, where he worked on novel nanocomposite materials for thermoelectric conversion of waste heat into electricity. He earned his Ph.D. in Materials Science and Engineering from Johns Hopkins University and has authored articles on nanocomposites, organic electronics, sensors, and thermoelectrics.

CERAMIC LEADERSHIP SUMMIT 2011

Mark Verbrugge, Director, Chemical Sciences and Materials Systems Lab,
General Motors Research & Development

Energy Innovations: Material Needs in Alternative & Renewable Energy for the Automotive Industry

Verbrugge began his GM career in 1986 with the GM Research Labs after receiving his doctorate in Chemical Engineering from University of California, Berkeley. Verbrugge has published and patented in areas of electroanalytical methods, polymer electrolytes, advanced batteries and supercapacitors, fuel cells, high-temperature air-to-fuel-ratio sensors, surface coatings, compound semiconductors, and automotive applications of structural materials. Verbrugge is a Board Member of the U.S. Automotive Materials Partnership LLC and the U.S. Advanced Battery Consortium LLC, and an adjunct professor for the Department of Physics, University of Windsor.

George Wicks, Consulting Scientist, Savannah River National Lab

Applications Track: Innovative "Multi-Use" Technologies and National Laboratories - Medical Initiatives from the Nuclear Community

Wicks is a consulting scientist at Savannah River National Laboratory, Aiken, SC. He currently holds a Clinical/Adjunct Faculty appointment at the Medical College of Georgia. He earned a B.S. in engineering science and S.M. in materials science from Florida State University, M.S. in applied physics & engineering from Harvard University and Ph.D. in metallurgy & materials science from MIT. An ACerS Fellow, Wicks

previously served on the ACerS Board of Directors and currently is president-elect. He received the Arthur L. Friedberg, D.T. Rankin and Arthur Frederick Greaves-Walker Awards. Among numerous honors, he received the 2010 South Carolina Governor's Award for Excellence in Scientific Research.

Peter Wray, Editor, *American Ceramic Society Bulletin*

CLS 2011 Moderator

Wray is the communications director of The American Ceramic Society, and serves as the editor of the Society's Bulletin. Wray, who has a bachelor's degree in chemistry and an MBA from Ohio State University, also serves as editor of Ceramic Tech Today, the only daily online service that covers the news in the field of advanced ceramics and glass R&D.



SAVE THE DATE:

3RD CERAMIC LEADERSHIP SUMMIT TRACK AT 4TH INTERNATIONAL CONGRESS ON CERAMICS
JULY 15–19, 2012 | CHICAGO, ILLINOIS