

Where Business and Manufacturing Meet Strategy

Final Program

4TH CERAMIC LEADERSHIP SUMMIT

APRIL 7–9, 2014 | BALTIMORE, MD

www.ceramics.org/cls2014



The
American
Ceramic
Society
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4TH CERAMIC LEADERSHIP SUMMIT

Where Business and Manufacturing Meet Strategy

Thank you for participating in the **4th Ceramic Leadership Summit (CLS)**. We are fortunate this year to have an especially talented line-up of presenters covering multiple aspects of strategic manufacturing.

The first morning of general sessions will focus on the current business climate, technology trends, and strategic open innovation. Following a networking lunch, our presenters will address manufacturing sustainability and opportunities, as well as workforce recruitment and retention. We round out the evening with a relaxing dinner and a guest speaker presenting an interesting perspective on 3D printing.

Day two opens with a general session on additive manufacturing. The group will then split into two concurrent tracks: (1) Innovation and (2) Manufacturing and Workforce Sustainability. The day will conclude with a wrap up session, including summaries of key points raised in the Summit, and an opportunity for questions and suggestions.

We would like to thank the CLS Advisory Group for helping to put together this outstanding program:

Mike Alexander, Riverside Refractories Inc.

Ken Bartelt, Powder Processing & Technology LLC

Don Bray, Morgan AM&T

Lora Cooper Rothen, Du-Co Ceramics Company

Dana Goski, Allied Mineral Products

Christine Heckle, Corning Incorporated

James Houseman, Harrop Industries, Inc.

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

Edgar Lara-Curzio, Oak Ridge National Laboratory

Charles Lewinsohn, Ceramtec, Inc.

Lynnette Madsen, National Science Foundation

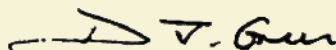
S.K. Sundaram, Alfred University

Richard Weber, Materials Development, Inc.


We would like to thank **David W. Johnson, Jr.** for serving as the CLS 2014 moderator, along with **Christine Heckle** for serving as the Innovation Track moderator and **Richard Weber** and **Lora Cooper Rothen** for serving as the Manufacturing and Workforce Sustainability Track co-moderators.

Finally, we invite you to participate in an exciting, new ceramic and glass manufacturing tradeshow called **Ceramics Expo**, which is being held April 28-30, 2015, in Cleveland, Ohio. ACerS is partnering with SmarterShows to launch this one-stop-shop for all raw materials, equipment, machinery and technology used within the ceramic manufacturing supply chain. We are happy to report that we plan to host the **5th Ceramic Leadership Summit** in conjunction with the second Ceramics Expo, which is being held in Cleveland, Ohio, April 26-28, 2016.

We hope that you enjoy this **4th Ceramic Leadership Summit**. Please let us know how we can make future Summits even more productive for you.



David J. Green
ACerS President



Charlie Spahr
ACerS Executive Director

SHERATON INNER HARBOR FLOORPLANS

2nd Level

4A Camden II

6 Harborview Ballroom



3rd Level

2 Potomac Room

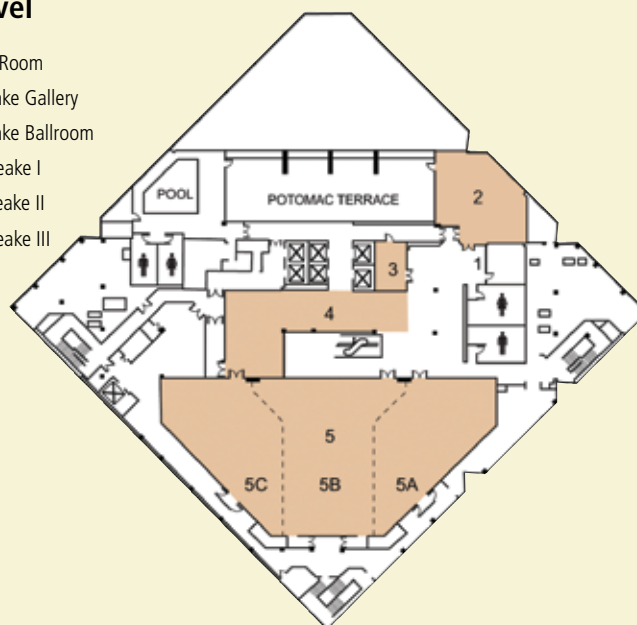
4 Chesapeake Gallery

5 Chesapeake Ballroom

5A Chesapeake I

5B Chesapeake II

5C Chesapeake III



SCHEDULE

MONDAY, APRIL 7, 2014

- 3 – 5 p.m. Future Leaders Panel with Industry Leaders, Chesapeake II
- 3 – 7 p.m. CLS Registration, Chesapeake Gallery
- 5 – 7 p.m. **WELCOME RECEPTION AND NETWORKING EVENT**, Chesapeake Gallery

TUESDAY, APRIL 8, 2014

- 7 a.m. – 6 p.m. CLS Registration, Chesapeake Gallery
- 7:30 – 9:15 a.m. Senior Executive Forum Breakfast (by invitation only), Chesapeake III
- 7:45 – 9:15 a.m. Future Leaders Programming, Potomac Room
- 9:30 – 10:55 a.m. **Business Climate Overview**, Chesapeake I & II
- 11 – 11:45 a.m. **Strategic Open Innovation**, Chesapeake I & II
- 11:45 a.m. – 1:15 p.m. Networking Lunch, Harborview Ballroom
- 1:15 – 2 p.m. **Strategic Manufacturing: Sustainability**, Chesapeake I & II
- 2 – 3:30 p.m. **Strategic Manufacturing: Opportunities**, Chesapeake I & II
- 3:30 – 4 p.m. Coffee
- 4 – 5:30 p.m. **Strategic Manufacturing: Workforce Development**, Chesapeake I & II
- 7 – 9 p.m. **CONFERENCE DINNER AND PRESENTATION**, Harborview Ballroom

WEDNESDAY, APRIL 9, 2014

- 7:15 – 8:15 a.m. Future Leaders Programming, Potomac Room
- 7:30 a.m. – 4:30 p.m. CLS Registration, Chesapeake Gallery
- 8:30 – 9:25 a.m. **Additive Manufacturing Technologies**, Chesapeake I & II
- 9:25 – 9:45 a.m. Coffee
- 9:45 – 11:40 a.m. **CONCURRENT TRACKS**
 - Innovation Track**, Chesapeake I & II
 - Manufacturing and Workforce Sustainability Track**, Chesapeake III
- 11:45 a.m. – 12:55 p.m. Networking Lunch, Morton's
- 1 – 2:55 p.m. **CONCURRENT TRACKS**
 - Innovation Track**, Chesapeake I & II
 - Manufacturing and Workforce Sustainability Track**, Chesapeake III
- 3 – 4:30 p.m. **WRAP-UP SESSION**, Chesapeake I & II

THURSDAY, APRIL 10, 2014

- 10 – 11:30 a.m. **Optional Tour – THE WALTERS ART MUSEUM**

4TH CERAMIC LEADERSHIP SUMMIT

TUESDAY, APRIL 8, 2014

BUSINESS CLIMATE OVERVIEW | 9:30 – 10:55 A.M. | CHESAPEAKE I & II



David W. Johnson, Jr.

CLS 2014 Introduction

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



James P. Meil

Perspectives on Manufacturing: U.S. Competitiveness Today, and Prospects Ahead

Speaker: **James P. Meil**, vice president, chief economist, Eaton

Commentary and opinions abound on an American manufacturing renaissance; the “reshoring” phenomenon; energy independence and what it implies for lowering domestic production costs; all suggesting the revival of a dormant U.S. manufacturing giant on the global stage. Amid claims and counter-claims, it’s hard to discern fact from hyperbole. Over the course of this presentation, we will examine the current competitive state of U.S. manufacturing, attempting an even-handed review of strengths and weaknesses. We will also look a little more deeply into sub-sectors and try to identify potential winners and losers. We will then engage in a crystal ball exercise, attempting to discern what the future may hold, based on the trends we see taking place today.



Katharine Frase

Technology Trends

Speaker: **Katharine Frase**, vice president, CTO, Global Public Sector, IBM Corporation

It is difficult to remember a world in which our daily tasks and businesses were not dominated by technology, particularly communications and information technology. The rate and pace of change seem to accelerate, and we are bombarded by new sources of “data” and new gadgets every day. In this session we will explore how these technology trends can create new insights and intelligence, while managing operational risk, to transform how we conduct our business and make decisions every day.

KEYNOTE | 11 – 11:45 A.M. | CHESAPEAKE I & II



Andy Zynga

Strategic Open Innovation – Connecting with the Outside World to Advance Your Company’s Technology and Product Innovation

Speaker: **Andy Zynga**, CEO, NineSigma

Open Innovation, also known as external or networked innovation, is focused on quickly finding technology solutions, reducing risk, and shortening time to market by leveraging resources that others have invested in developing. With a better understanding of “what is out there,” a company is able to combine external capabilities and solutions with internal innovation resources and become more effective and efficient at innovating. Zynga will share relevant examples of how companies have been able to use Open Innovation to create tangible value and will highlight the key learnings from thousands of projects done over the past 14 years.

STRATEGIC MANUFACTURING: SUSTAINABILITY, MANUFACTURING OPPORTUNITIES AND WORKFORCE DEVELOPMENT | 1:15 – 5:30 P.M. | CHESAPEAKE I & II

1:15 – 2 p.m. | *Sustainability – The Path to Wealth Creation*

Speaker: **Frank O'Brien-Bernini**, vice president, chief sustainability officer, Owens Corning

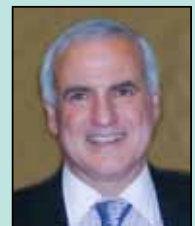


Frank O'Brien-Bernini

The path to corporate success has always been about solving problems and developing new opportunities. These solutions must create specific value for a particular customer. Similarly, there is a social, environmental, and economic consequence beyond the direct relationship with that particular customer...either positive or negative. Sustainability, which is about meeting the needs of the present without compromising the world that we leave, seeks to understand, account for, and ultimately maximize the net-positive impact of these complex relationships. As any product or process developer will confirm, it is a gift when a problem is so well defined that creativity and innovation can emerge from a foundation of what's known. This is clearly the case for the global macro challenges of sustainability, whether considering climate, energy, emissions, solid waste, clean water, population, natural resource depletion, land use, food. These are clear and urgent challenges that only corporations can solve at the scale needed. This discussion will look at how a commitment to sustainability will enhance product innovation and marketability, increase manufacturing efficiencies, reduce energy/resource consumption and environmental impact, increase profitability, and engage employees. Learnings will be shared in a practical synopsis of the four key sustainability business strategies of Owens Corning: (1) *Operations Sustainability*, (2) *Product and Supply Chain Sustainability*, (3) *Innovation and Collaboration to Deliver Energy Efficiency and Durable Material Solutions at Scale*, and (4) *Employee Safety, Health and Engagement and Community Vitality*.

2 – 3:30 p.m. | *Manufacturing in the United States of America...A Vehicle for National Economic Prosperity*

Speaker: **Al T. Lubrano**, president, Materion Technical Materials and chairman, National Association of Manufacturers' Small to Medium Manufacturers



Al T. Lubrano

Lubrano will highlight facts and figures on the manufacturing economy, jobs and what has transpired over the last 15 years. The effects of the "Great Recession" on manufacturing will be discussed. Structural costs and other related manufacturing encumbrances will also be addressed, as well as the roadmap for increasing manufacturing competitiveness in the United States.

4 – 5:30 p.m. | *Finding and Developing Engineering Talent*

Over the past 10-15 years, a move away from United States-based manufacturing resulted in a significant decrease in a workforce with production skills. As manufacturing returns to the United States, the shortage of qualified candidates is an increasing problem. This session will feature four speakers with perspectives from both large and mid-size businesses, a university, and a technical training organization. The discussion will focus on how to reinforce and reinvigorate the manufacturing workforce with appropriate skills and knowledge, particularly for current ceramics and glass manufacturing needs. Ideas for pre-employment training, recruitment and in-house skill development will be explored in opening remarks, a presentation, and a structured Q&A from the audience.

Panel Members:



Eric Urruti



Wayne G. Butscher



R. Allen Kimel



Laura Cooper Rothen

Eric Urruti, vice president, research & technology development, SCHOTT NA

Wayne G. Butscher, director, BioSTART and Lab Associates Program, BioTechnical Institute of Maryland, Inc.

R. Allen Kimel, assistant professor and associate head for Undergraduate Studies, Pennsylvania State University

Lora Cooper Rothen, CEO, Du-Co Ceramics Company

4TH CERAMIC LEADERSHIP SUMMIT

TUESDAY, APRIL 8, 2014

CONFERENCE DINNER SPEAKER | 7 – 7:30 P.M.



John Balistreri

Ceramic 3D Printing—Art, Invention and Industry

Speaker: **John Balistreri**, professor, Bowling Green State University

Professor Balistreri will describe how his practice as a ceramic artist led to innovations in ceramic 3D printing, culminating in two patents, a startup company and ever expanding commercial applications. The talk will emphasize creativity in problem solving and the challenges of commercializing technology through academia. Balistreri will explore the many potentials of the technology from aesthetic objects to practical applications that will transform industries, including biomedical, metal casting, and aerospace, as well as expand many disciplines such as architecture and design.

WEDNESDAY, APRIL 9, 2014

STRATEGIC MANUFACTURING: ADDITIVE MANUFACTURING | 8:30 – 9:25 A.M. | CHESAPEAKE I & II



Steve Rengers

Additive Manufacturing Technologies

Speaker: **Steve Rengers**, R&D manager, Additive Development Center, GE Aviation

Over the course of the past few years, there has been an increasing amount of interest in additive manufacturing/3D printing with much press coverage. Although additive manufacturing can be considered a 'disruptive technology' in many ways, it is still a relatively young technology that is just beginning to demonstrate the promise of changing how we think about manufacturing certain components. In this session, Rengers will provide a high-level overview of various additive manufacturing technologies. He will cover applications of the technologies and review how GE is leveraging the technology to innovate and accelerate their product introductions.

INNOVATION TRACK | 9:45 A.M. – 2:55 P.M. | CHESAPEAKE I & II



Christine Heckle

Track Leader and Moderator: **Christine Heckle**, research director, crystalline materials, Corning Incorporated



Martin J. Curran

9:45 – 10:40 a.m. | *Innovation Strategies to Leverage Your Business*

Speaker: **Martin J. Curran**, executive vice president, innovation officer, Corning Incorporated

Innovation converts inventions into dollars. Successful innovation takes great inventions, rigorous processes, talented scientists, commercial leaders and the "right" customers. Many technology companies employ a gated approach to commercialize inventions while optimizing resource deployment. Corning Incorporated has been innovating for more than 160 years and is well known for inventions such as Thomas Edison's light bulb, ceramic substrates for diesel engines, optical fiber for telecommunications and Corning® Gorilla® Glass for consumer electronics. While Corning uses a five stage innovation process for most of its programs, it also uses an "agile innovation process" for selected projects. Curran will talk about "agile innovation" and how Corning uses it strategically to advance new innovations with key customers.

10:45 – 11:40 a.m. | *Patent Law in 2014: Act Fast or Get Left Behind*

Speaker: **Steven M. Ritchey**, partner, Thompson Coburn LLP

The 2011 America Invents Act was arguably the most significant change to U.S. patent law in more than 200 years. Join Thompson Coburn intellectual property partner Steve Ritchey for a look at the changes wrought by the AIA and other recent patent law developments. He'll explain how innovators are responding and detail the strategies you can employ to take advantage of the new patent landscape. How much do you have to disclose about your innovation? Why is it more problematic than ever to discuss your invention publicly before filing for a patent? This session will answer these questions, cover patent fundamentals and coach you on the roadblocks and shortcuts you may encounter on the post-AIA "race" to the patent office.



Steven M. Ritchey

1 – 1:55 p.m. | *Ecosystem Approach to Disruptive Innovation*

Speaker: **Anthony Nickens**, vice president, energy and new business, Ceramatec, Inc.

Disruptive innovation is an overused word in today's corporate America. Generating disruptive ideas and following through to ultimate commercialization of those is a daunting task to say the least. Since the challenge is so large and risks are high, many companies practice incremental innovation typically orchestrated in the stage gate or similar processes. But are these companies missing the opportunity to revolutionize their industries and significantly grow their businesses? Often times, core capabilities become core rigidities thereby preventing any out-of-the-box successes. Innovation challenges have become complex and disruptive solutions may exist only in the white space, generally considered outside of the sphere of influence of any given corporation. The talk will focus upon key ingredients and enablers to commercialize disruptive technologies. These enablers include the six "Ps"—People, Passion, Persistence, Patience, Partners and Pesos. Nickens will "peel back the onion" on each of these "Ps" and highlight how Ceramatec generates innovative ideas and works with strategic partners to commercialize these ideas. The talk will include specific examples of past successes and lessons learned.



Anthony Nickens

2 – 2:55 p.m. | *Material Sourcing Challenges and Strategies*

Speaker: **Michael N. Silver**, CEO, American Elements

Today it is a constant refrain that the only way to rebuild middle class jobs in America is through new cutting edge innovation. It is said America simply needs to get back in the business of making things. While much of this is true, innovation is only the starting point. To manufacture the products flowing from great ideas, a nation must also have access to the critical materials on which the discoveries are based. The innovations of the 21st century will require massive amounts of advanced metals that are very different from those that mattered in the 20th century; metals often controlled by a single nation. Mr. Silver will explain how the growing power of these sovereign monopolies will impact high technology manufacturing in both developed and emerging nations in the 21st Century.



Michael N. Silver



Ceramics Expo offers a comprehensive marketplace for ceramic materials and component manufacturing. The event provides a shop floor for all equipment, products and services used throughout the ceramic supply chain.

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April 28-30, 2015
Cleveland, Ohio

**The manufacturing tradeshow
for advanced ceramic
materials and technologies**

Founding Partner



“Ceramics Expo establishes
a crucial marketplace for
ceramic and glass manufacturing
and supply chain products”

Charlie Spahr, Executive Director,
The American Ceramic Society

MANUFACTURING AND WORKFORCE SUSTAINABILITY TRACK | 9:45 – 11:40 A.M. | CHESAPEAKE III



Lora Cooper Rothen

Track Leader and Moderator: **Lora Cooper Rothen**, CEO, Du-Co Ceramics Company



Daniel E. Tipsord

9:45 – 10:40 a.m. | *Global Manufacturing Panel Discussion*

Speaker: **Daniel E. Tipsord**, director of engineering, Trans-Tech, Inc, a subsidiary of Skyworks Solutions, Inc
Maximizing the Benefit of Manufacturing Outside the U.S. While Protecting Intellectual Property

Today's ceramic manufacturing environment finds many companies employing manufacturing outside the U.S. to remain cost-competitive and to better serve their customers. However, the risk of losing valuable intellectual property is rarely acceptable and must be addressed by technology companies wishing to explore the possibilities afforded outside the U.S. This talk posits that manufacturing outside the U.S. is not an all or nothing proposition. Operations do not necessarily need to be moved outside the U.S. in their entirety to still benefit the company and its customers. A well constructed manufacturing plan can allow for high intellectual property processes and materials to remain protected while transferring low risk operations to others.



Bud Cass

Speaker: **Bud Cass**, managing member, Bud Cass Consulting LLC, and former president and chairman, Advanced Cerametrics (ACI)
The Plusses and Minuses of Expanding Outside of the U.S. Where? Why? And When?

Locating an off-shore operation is attractive for many reasons, such as lax laws, cheap labor or proximity to customers. Once the logistics of locating in a foreign locale are completely vetted and the plusses outweigh the minuses, the underlying issues need to be looked at thoroughly before making the decision. It's important to understand that if you are not in the U.S., you will not be covered by U.S. laws. You will not be able to locate employees with similar labor skills or ethics and the political/cultural environment generally has a significant influence on your profitability. Cass will relate first-hand experience and make suggestions of what to expect, where to look and who should take the risk.



Petra Mitchell

10:45 – 11:40 a.m. | *The Resurgence of Manufacturing, Including Four Trends You Should Not Ignore*

Speaker: **Petra Mitchell**, president, CEO, Catalyst Connection

Mitchell will provide an overview of the macroeconomic metrics associated with manufacturing in the United States and in southwestern Pennsylvania, and an introduction to a national resource for manufacturing called the Manufacturing Extension Partnership (MEP). She will then cover four trends that anyone working in or supporting manufacturing should consider, including shale gas, innovation management, additive manufacturing and social media. While appearing to be random trends, they are actually highly interrelated, which Mitchell will discuss.

MANUFACTURING AND WORKFORCE SUSTAINABILITY | 1 – 2:55 P.M. | CHESAPEAKE III

Track Leader and Moderator: **Richard Weber**, founder & president, Materials Development, Inc.



Richard Weber

1 – 1:55 p.m. | *Public – Private Partnerships To Build a Competitive Workforce*

Speaker: **Richard Norment**, executive director, National Council for Public-Private Partnerships

Manufacturers face challenges in recruiting competent people for a wide range of positions, but particularly for skilled individuals for the production level of operations. Today's manufacturing technologies require people with the necessary math and language skills, often difficult to find in the current local labor pool. This presentation will discuss the use of partnerships with public and private educational institutions, beyond philanthropic contributions, to help develop those critical resources and relevant skills. Providing both 'in-kind' and 'shared resource' assistance will be outlined, with examples of how this has already worked for a number of companies.



Richard Norment

2 – 2:55 p.m. | *A New Role for The American Ceramic Society: Educating Engineers Before and After That First Job*

Speaker: **Richard K. Brow**, Curators' Professor of Ceramic Engineering, Missouri University of Science & Technology

The traditional ceramic engineering curriculum differs from a typical materials science and engineering curriculum in many ways, including the number of courses devoted to ceramic materials and the applications of traditional ceramic engineering tools, like phase diagrams. Ceramic-related industries that hire new engineers may prefer skills or experiences that are no longer offered in typical MSE programs. The American Ceramic Society has recently created the Ceramic and Glass Industry Foundation (CGIF) to work with universities to develop those skills in undergraduate programs and to help train engineers already in the workforce. The CGIF model will be described and discussions of the key roles played by industry, academia and ACerS will be encouraged.



Richard K. Brow

WRAP UP SESSION – REVIEW AND NEXT STEPS | 3 – 4 P.M. | CHESAPEAKE I & II

The Ceramic Leadership Summit moderator will provide a summary on main points from the first day general sessions. A moderator from each of the concurrent tracks (Innovation and Manufacturing and Workforce Sustainability) will provide a summary of major discussions and conclusions in these sessions. In addition, questions and comments from the audience will be considered, including what are next steps for ACerS to address some of the key points raised.

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

SPEAKER BIOGRAPHIES

John Balistreri, professor, Bowling Green State University

Biography: Since 1996, Balistreri has been the head of the ceramic program at Bowling Green State University. He received his BFA from the Kansas City Art Institute in 1986 and his MFA from Kent State University in 1988. He also serves on the Board of Directors of the Archie Bray Foundation. He has had his work published in a number of periodical publications, including "Ceramic: Art and Perception," "Ceramics Monthly," and "American Craft". He was selected as an "Emerging Talent" at the 1995 NCECA. Balistreri's work has appeared in five books related to Ceramic Art. He has conducted over 50 workshops and lectures throughout the U.S. and China. Balistreri has had nine solo exhibitions of large scale ceramic work and has been included in dozens of group exhibitions nationally and internationally. He is best known for his large scale ceramic sculpture, as well as his innovations using digital technology to create ceramic objects. He has received over \$120,000 in technology grants, which have resulted in two patents on innovations related to printing ceramics 3-dimensionally using rapid prototyping technologies. Balistreri and his team lead the world in ceramic 3D printing for applications ranging from biotechnology to art objects.

Richard K. Brow, Curators' Professor of Ceramic Engineering, Missouri University of Science & Technology

Biography: Brow earned a B.S. in ceramic engineering and M.S. in glass science from the New York State College of Ceramics at Alfred University, and a PhD in ceramic science from Pennsylvania State University. An ACerS Fellow, Brow is a former member of the ACerS Board of Directors, past chair and member of the Glass and Optical Materials Division, and associate editor of ACerS International Journal of Applied Glass Science.

Wayne G. Butscher, director, BioSTART and Lab Associates Program, BioTechnical Institute of Maryland, Inc

Biography: Butscher earned his BS in Natural Resources Conservation at the University of Connecticut in 1979, his MS in Tropical Public Health at Johns Hopkins School of Hygiene and Public Health in 1984 and his PhD in Parasitology at McGill University Institute of Parasitology in 1992. He completed a second Postdoctoral Fellowship at The National Cancer Institute at the NIH, Studying T-Cell activation at the Molecular Level from 1995 to 2000. Butscher was a Peace Corps volunteer from 1979-81 where he worked with fishermen in Niger, West Africa. He worked as a Molecular Biology Field Application Specialist for NEN Life Sciences products/PerkinElmer Life Science Products, then became an application specialist supporting Bioinformatics Database and Oligonucleotide design for microarrays for CompuGen. In 2003, he joined BioTechnical Institute of Maryland in 2003 as an instructor and became the director in 2006.

Bud Cass, managing member, Bud Cass Consulting LLC; former president and chairman, Advanced Cerametrics (ACI)

Biography: Cass is the former President and Chairman of Advanced Cerametrics (ACI) and is presently the Managing Member of Bud Cass Consulting LLC. Mr. Cass has authored or co-authored over 100 papers, book chapters, international magazine articles and has been featured in several TV programs (national and international). He established spin off operations in India, Thailand and China. His other successes include: 16 Phase I SBIR and STTR DOD and DOE awards, 7 Phase II SBIR and STTR awards and 5 Phase III awards leading to DARPA's Outstanding Performance by a Small Business Contractor Award. Mr Cass holds 19 patents, including the ceramic fiber invention that is the basis for ACI's current business. He received the 2003 and 2007 R & D 100 Award for ACI and led ACI to receive the 2007 Corporate Technical Achievement Award-the highest technical award from the ceramic industry. Among his many accomplishments, he co-invented smart, self-powered tennis rackets, skis and snow boards that became Head Sport's flagship 'Intelligence' line of products, winning gold medals in the 2006 and 2010 Olympics and being the best selling rackets in the world in 2005 and the top rated skis in 2007, 2008 and 2009 and are the team choice of the 2014 US Ski Team. He currently serves as an officer and Director of several companies, where he provides technical and management support.

Lora Cooper Rothen, CEO, Du-Co Ceramics Company

Biography: Graduating from the University of Pittsburgh in 1974, Cooper Rothen worked for David Morris & Associates, CPA's in Morristown, NJ until 1976 when she discontinued pursuing a career in public accounting and co-founded Your Secretary, a firm offering a wide variety of office services to small and mid size legal, accounting and sales firms. In 1983 she sold her interest in YS to her partner and moved back to PA to accept the position of Controller at Du-Co. She currently serves on the Board of Directors of the American Ceramic Society having served as the Society's Treasurer from 2006-2008. Cooper Rothen is currently Vice President of the American Association of Ceramic Component Manufacturers (AACCM) having served as the AACCM Treasurer in the mid 1990's and President from 2004-2006. She represented AACCM as an invited speaker at the 1st International Congress on Ceramics held in Toronto, Canada in 2006. Lora currently serves on the Board of Directors of Catalyst Connection, the SW Pennsylvania region MEP.

Martin J. Curran, executive vice president, innovation officer, Corning Incorporated

Biography: In his current role, Curran manages a portfolio of programs to increase the probability of success for new business opportunities. Curran joined Corning in 1984 and has held a variety of roles in finance, manufacturing and marketing. He has served as senior vice president, general manager for Corning Cable Systems Hardware and Equipment Operations in the Americas. He led efforts to grow Corning's Connectivity business, including the first major fiber-to-the-home offering with Verizon FiOS. He has also served as senior vice president and general manager for Corning Optical Fiber and has served as Chairman of US Conec, a Corning Connectivity joint venture with Fujikura and NTT-AT. Curran graduated from the University of Notre Dame with a bachelor's degree in finance and received his master's degree from the University of Virginia's Colgate Darden Graduate School of Business.

Katharine Frase, vice president, CTO, Global Public Sector, IBM Corporation

Biography: Frase was appointed vice president and Chief Technology Officer, IBM Public Sector, in March 2013. As CTO, she provides thought leadership for IBM and its customers on innovation and strategic transformation specific to government, education, life sciences, healthcare and cities, driving the creation of new solutions. Prior to this role, she was Vice President, Industry Solutions Research, working across IBM Research on behalf of IBM clients, to create transformational industry-focused solutions, including the application of "Watson" technologies to business applications and the realization of Smarter Planet solutions. Earlier roles included technical and business strategy for IBM's software business, corporate assignments on technology assessment and strategy, and roles in IBM Microelectronics in the management of process development, design/modeling methodology and production of chip carriers, assemblies and test. In 2006, she was elected as a member of the (U.S.) National Academy of Engineering. Dr. Frase received an A.B. in chemistry from Bryn Mawr College and a Ph.D. in materials science and engineering from the University of Pennsylvania. She is a member of the IBM Academy of Technology and sits on numerous external committees and boards.

Christine E. Heckle, research director, crystalline materials, Corning Incorporated

Biography: Heckle's department consists of 30 scientists, engineers and technicians inventing new ceramic products for the company. Her group supports the Environmental Technologies, Specialty Materials divisions as well as new business and exploratory arenas. Before her role in research, Dr. Heckle led a variety of programs for the Environmental Technologies division introducing new products into the marketplace. Under her leadership Corning's DuraTrap AT product was expanded into the Heavy Duty market and two new products offerings for the light duty market were initiated. In 2012 she won the inaugural R, D & E Leadership Award from NOBCChE in recognition of her track record of producing results with excellent use of emotional intelligence and people skills, as well as being a key advocate and champion of diversity initiatives. Heckle is a member of SPECTRA, Corning's LGBT employee resource group and ADAPT, Corning's resource group for people with disabilities and those who care for people with disabilities. She mentors and coaches members of EDGE (Ethnically Diverse Group of Employees) and SBP (Society of Black Professionals). Heckle holds a PhD in glass science from Alfred University.

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

Biography: Johnson is retired from Agere Systems where he served as director of the applied materials research department. He is currently an Adjunct Professor and Senior Adviser at Stevens Institute of Technology and an editor of the Journal of The American Ceramic Society. He earned a B.S. in ceramic technology and a Ph.D. in ceramic science from the Pennsylvania State University. He is an ACerS Fellow, a past chair and member of the Electronics Division, a member of the Basic Science and Glass & Optical Materials divisions and the National Institute of Ceramic Engineers. Johnson served as president of ACerS in 1994-95 and is the recipient of numerous ACerS awards, including Distinguished Life Membership.

R. Allen Kimel, assistant professor, associate head for undergraduate studies in MSE, Pennsylvania State University

Biography: Kimel completed his BS degree in Materials Science and Engineering at North Carolina State University. He then joined the US Peace Corps and was sent to Swaziland, Africa to teach math, chemistry and physics at the high school level. Upon returning to the states Dr. Kimel completed a MS degree in Chemistry from the University of North Carolina Greensboro. He then proceeded to Pennsylvania State University to complete a PhD in Materials Science and Engineering with a focus in Ceramics. Dr. Kimel joined the Penn State faculty in the summer of 2002 after completing his PhD. He was hired to oversee the design and building of the new undergraduate laboratory in Steidle Building and to re-design the undergraduate laboratory curriculum. Since joining the faculty, Dr. Kimel has created six new lecture and laboratory courses spanning such subjects as materials chemistry, materials sustainability, microstructural analysis, quantification of materials properties and characterization of polymers.

Al T. Lubrano, president, Materion Technical Materials and chairman, National Association of Manufacturers Small to Medium Manufacturers

Biography: Lubrano is responsible for the overall business operation of MTM. He was hired in 1992 as vice president and general manager and was promoted to president in 1995. Prior to MTM, he was vice president, business director at Engelhard Corporation. He was with Engelhard for nine years. Lubrano earned his MBA cum laude from Boston University and his BS in Management Science from Rensselaer Polytechnic Institute. He is a co-founder of the Rhode Island Manufacturers' Association (RIMA) and was Chairman for 15 years. He is a former member of the Governor of Rhode Island's Economic Policy Council and a former trustee of the Rhode Island Public Expenditure Council. He also sits on the Executive Committee and Board of Directors of the National Association of Manufacturers, as well as being the Chairman of NAM's Small to Medium Manufacturers, and a Steering Committee member of NAM's U.S.-China Business Relations Task Force. He has also been appointed to the United States Department of Commerce Industry Trade Advisory Committee for Small and Minority Business.

James P. Meil, vice president, chief economist, Eaton

Biography: Meil has been a recognized leading industry economist for 30 years. He is responsible for forecasting economic conditions and primary markets for Eaton, a \$16.0 billion global diversified power management company. He is a contributor to Blue Chip Economic Indicators, Consensus Economics, USA Today (ranked in their "Top 10 Forecasters") and The Wall Street Journal (achieving first-place on a 50 forecaster panel). Meil served as a Director of the National Association of Business Economists. Prior to Eaton, Meil was a consultant with Chase Econometrics and with Burroughs Corporation. He holds an MBA in Finance and a BA (honors) in Economics from the University of Chicago.

Petra Mitchell, president, CEO, Catalyst Connection

Biography: Mitchell holds a BS in mechanical engineering from the University of Dayton, and an MS in engineering with a concentration in manufacturing management from the University of Cincinnati. She is a member of the Board of Directors of the Pittsburgh Branch of the Federal Reserve Bank of Cleveland, the Pennsylvania Industrial Resource Center Network, the Board of the American Small Manufacturers Coalition, Kopp Glass, Inc. and Keystone Powdered Metals Company. Mitchell's experience in manufacturing operations, technology development, and business development stretches back to 1988. Before joining Catalyst Connection, she was employed by GE Aircraft Engines, now GE Aviation. Mitchell was named a 2011 Top Women in Business Leader and a 2012 Top Energy Leader by the Pittsburgh Business Times.

Anthony D. Nickens, vice president, energy group, Ceramtec, Inc.

Biography: In his current role, Nickens leads a group of 60 scientists, engineers and lab technicians. Before joining Ceramtec, he served as a Program Manager at the Office of Naval Research developing energy related technologies, and he held various management and engineering positions within Naval Sea Systems Command. Nickens has co-authored 14 technical papers and a paper on engineering leadership. He also holds the rank of Captain in the Navy Reserves. He holds a MA in National Security and Strategic Studies from the Naval War College, MS in chemical engineering from University of Florida, MBA from Florida Institute of Technology, and BS from North Carolina State University. In addition, Nickens is a graduate of University of Virginia's Darden School of Business Executive Program and the Defense Systems Management College's Program Managers Course.

Richard Norment, executive director, National Council for Public-Private Partnerships

Biography: Norment has served as the Executive Director of the National Council for Public-Private Partnerships (NCP3P) since 1999. He has over 40 years of experience in management and development of national associations. His areas of expertise include: organization and program development, public affairs and government relations, at both the national and international levels. His first experience with public-private partnerships was with housing programs at the U.S. Department of Housing and Urban Development in the early 1970s. He has authored articles in trade and special interest publications, and has given numerous presentations at national and international conferences. Norment did his graduate work in U.S. History at The American University in Washington, D.C., where he also served as an adjunct professor.

Frank O'Brien-Bernini, vice president, chief sustainability officer, Owens Corning

Biography: O'Brien-Bernini is vice president, chief sustainability officer of Owens Corning, a world leader in building materials and composite solutions. His role encompasses global accountability for Owens Corning's sustainability strategy development and implementation, including Environmental, Health & Safety (EH&S). In 30 years with Owens Corning, he has held various leadership positions, including most recently, vice president, chief R&D officer. Prior to joining Owens Corning, Mr. O'Brien-Bernini ran a solar design/build firm. He is a frequent speaker on topics related to sustainability and has addressed multiple conferences, has been quoted in many industry reports/publications and currently serves on several Boards. An alumnus of one of the nation's first interdisciplinary sustainability programs, "The Center for Resourceful Living" at North Adams State College, Mr. O'Brien-Bernini also earned a bachelor's degree in science and a master's degree in mechanical engineering from the University of Massachusetts, where his research focus was solar energy.

Steve Rengers, R&D manager, Additive Development Center, GE Aviation

Biography: Rengers leads the Research and Development team tasked with advancing additive technologies – equipment, materials, and processes – at the GE Additive Development Center (formerly Morris Technologies, Inc.) in Cincinnati, Ohio. Steve joined Morris Technologies in 2005 and contributed significantly to MTI's substantial growth in size and capabilities. His responsibilities included managing sales, off-site contract services, and additive manufacturing in both plastics/polymers and metals, as well as tight-tolerance CNC machining: turning, milling, and EDM. Steve is an industrial engineering graduate from the University of Cincinnati and obtained a master of business administration from Xavier University. Prior to joining Morris Technologies, Steve's career included multiple roles in manufacturing engineering and production management over the course of 10 years with a Fortune 1000, high-volume manufacturer of electro-mechanical devices. GE Aviation acquired Morris Technologies in November 2012 and established the ADC facility.

Steven M. Ritchey, partner, Thompson Coburn LLP

Biography: Ritchey is a St. Louis-based intellectual property partner at Thompson Coburn LLP who prepares and prosecutes patents domestically and internationally. As one of the few attorneys in the country with a background in ceramic engineering, Ritchey works with clients across a wide range of technical disciplines to develop savvy patent strategies that protect an organization's assets and enhance its business models. For these clients, he negotiates and prepares technology alliance and license agreements, and authors opinion letters regarding infringement and validity issues and freedom to operate. He earned his law degree, cum laude, from Saint Louis University School of Law, and a BS in ceramic engineering from Iowa State University.

Michael N. Silver, CEO, American Elements

Biography: Silver is considered an expert on the current and future demand for rare earths and the other critical metals such as lithium, indium, and tellurium. Mr. Silver's expertise also includes firsthand knowledge of the corporate supply chain from mine to finished goods, the industrial and scientific applications that make these elements important and their commodity value to the investment community. He is considered a pioneer in the fields of nanotechnology, materials science and alternative energy. Mr. Silver was one of the first Americans to establish a direct production and distribution supply chain from the rare earth mines in Inner Mongolia, China to North America and Europe. The company has operations in Los Angeles, California; Salt Lake City, Utah; Monterrey, Mexico; Baotou, China; Manchester, UK and a global distribution network. Over the last twelve months alone, American Elements has co-sponsored over 375 industry and academic conferences.

Daniel E. Tipsord, director of engineering, Trans-Tech, Inc; a subsidiary of Skyworks Solutions, Inc

Biography: Tipsord joined Trans-Tech in 1997. His responsibilities include R&D, process engineering, raw material evaluation, sourcing strategy, and powder preparation functions. Prior to his current role, his responsibilities have spanned a range of leadership roles within manufacturing, engineering, quality assurance and product management. His efforts at Trans-Tech support the technical needs of this diverse, multi-facility manufacturer producing hundreds of unique oxide compositions for use in products within the wireless communications, aerospace, medical and energy markets. He also serves as an executive committee member and current treasurer of the Association of American Ceramic Component Manufacturers (AACCM). Tipsord earned his BS in Ceramic Engineering at the University of Illinois in 1991 and held various engineering roles with Coors Ceramics (now CoorsTek) before joining Trans-Tech. He has continued his education in the areas of strategy, organizational development and finance, completing the Skyworks Solutions Leadership Development Program in 2008.

Eric Urruti, vice president, research & technology development, SCHOTT NA

Biography: Urruti is responsible for technology for SCHOTT North America. The portfolio of technology includes the laser program in SCHOTT; consisting of two primary areas of interest, eye safe laser glass and high power ultra-short pulse laser materials, innovative glass materials for infrared optics and fiber optics, and hermetic packages for the oil and gas industry. He is also responsible for growing SCHOTT's efforts in armor materials, pharmaceutical packaging, and porous glass. Previously, Urruti was the CTO at NanoMaterials Innovation Center; the president and CEO at Red Sky Systems; and a general partner at Corning Innovation Ventures. He has 62 patents worldwide and numerous publications. Urruti earned his BS in Chemistry at Indiana University and his PhD in Chemistry from North Dakota State University.

4TH CERAMIC LEADERSHIP SUMMIT

Richard Weber, founder & president, Materials Development, Inc. (MDI)

Biography: Weber founded and is currently president of Materials Development, Inc. (MDI). MDI develops innovative instrumentation for processing materials in extreme conditions, in particular novel glass products. Prior to forming MDI he was VP for research at Containerless Research, Inc. a company that he co-founded and where he led the team that developed REAL(TM) Glass. The glass technology was sold to a fortune 100 company in 2006. In addition to operating MDI, Weber holds a Special Term Appointment at the Argonne National Laboratory Advanced Photon Source where he collaborates to develop beamline experiments to measure the structure of materials in extreme conditions. He is an adjunct professor in the Department of Materials Science and Engineering at the University of Tennessee where he occasionally lectures on glass-related topics. He earned a BSc in Materials Science from Sir John Cass College in 1983 and a PhD from the Department of Materials, Imperial College London in 1986 and became a Chartered Engineer in 1990. He has authored/co-authored about 130 papers and has 4 patents.

Andy Zynga, CEO, NineSigma

Biography: Zynga joined NineSigma in February 2008 as CEO of NineSigma Europe where he established and grew the company's presence across Europe. In late 2009, Andy assumed the role of global CEO and has focused his attention on increasing the company's revenues and global presence by entering new markets and expanding its portfolio of Innovation Services. Working closely with clients and his global team, Andy has overseen the introduction of several new offerings that help innovation-driven organizations accelerate product development, reduce risk in their innovation program, and dramatically expand their capabilities. Prior to joining NineSigma, Andy built, or turned around, four high tech businesses in the US and Europe. He earned a dual Master's degree in Business Administration and Mechanical Engineering from the Technical University of Berlin, Germany. Andy grew up in West-Berlin, Germany, and immigrated to the United States in 1985.

THE WALTERS ART MUSEUM — Optional tour, Thursday, April 10, 10-11:00 a.m.

For attendees of the Ceramic Leadership Summit in Baltimore, the Walters Art Museum in Baltimore is hosting a free tour of the current Special Exhibition titled **Designed for Flowers: Contemporary Japanese Ceramics**, led by Dr. Robert Mintz, Chief Curator and Mr. and Mrs. Thomas Quincy Scott, Curators of Asian Art at the Walters. The Japanese art of flower arranging, or ikebana, has inspired the creation of extraordinary ceramic containers. This exhibition outlines the history of some of Japan's major schools of ikebana and displays a wide variety of contemporary ceramics created in harmony with the most modern floral conventions. Following the tour, visitors are encouraged to view the other current exhibitions on view, including

Bookbindings from the Gilded Age and **Jacob**

Lawrence's Genesis Series, as well as visit the permanent galleries. The Walters collection presents an overview of world art from pre-dynastic Egypt to 20th-century Europe, and counts among its many treasures Greek sculpture and Roman sarcophagi; medieval ivories and Old Master paintings; Art Deco jewelry and 19th-century European and American masterpieces.

Information regarding parking is available here:

<http://thewalters.org/visit/>. This event is sponsored by the Art, Archaeology and Conservation Science Division of The American Ceramic Society.

The **Walters Art Museum** is approximately a 30 minute walk from the Sheraton Inner Harbor. There is also public transportation and taxi service. Stop by the registration desk to discuss your options.



NOTES:

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Uut	Fl	Uup	Lv	Uus	Uuo

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