

**The pioneers. The achievers. The first in their field.
They succeed and break new ground for the rest of us.**

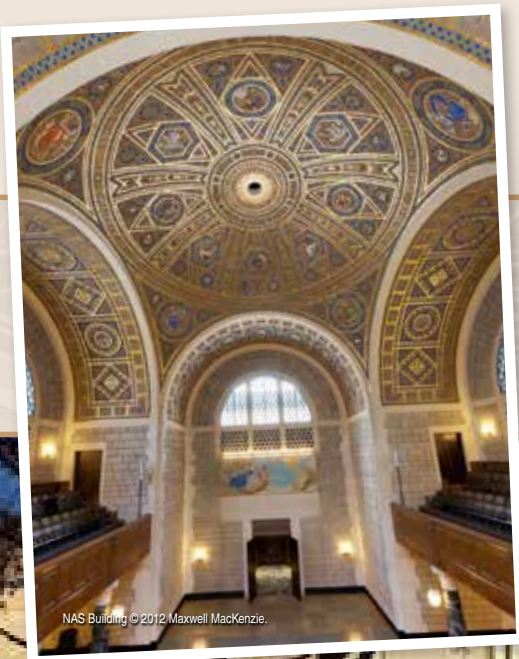
DIVERSITY

IN THE MINERALS, METALS, AND MATERIALS PROFESSIONS (DMMM1)



July 29-31, 2014

National Academy of Sciences Building,
Washington, DC



FINAL PROGRAM



www.tms.org/diversitysummit



Competitive advantage through people

Our work culture embraces diversity, engages employees, fosters innovation, rewards high performance, and develops great leaders.



It's a natural part of how we run a successful business.

Newmont is a proud sponsor of **DMMM1**
Welcome, participants!

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Schedule At-A-Glance

Tuesday, July 29

09:00 – 09:30	Welcome and Opening Remarks
09:30 – 10:10	Opening Plenary: “The State of Diversity in the Profession” - Mary Galvin
10:10 – 10:30	Break
10:30 – 11:00	Industry Keynote - Dawne Hickton
11:00 – 11:30	Academia Keynote - Linda Abriola
11:30 – 12:00	Government Keynote - Johnnie DeLoach
12:00 – 12:40	Panel Discussion with Keynote Speakers
12:40 – 02:00	Lunch Break
02:00 – 03:30	Facilitated Working Session Breakouts on Government, Academia, and Industry
03:30 – 04:00	Break
04:00 – 05:30	Facilitated Working Session Breakouts on Government, Academia, and Industry
05:30 – 06:00	Summit Dinner Reception
06:00 – 08:40	Summit Dinner: A Celebration of the Life and Legacy of Ellen Swallow Richards

Wednesday, July 30

09:00 – 12:30 (Break 10:30 - 11:00)	Simultaneous sessions: • Panel Discussion/Working Session - Early Career • Panel Discussion/Working Session - Leadership I • Expert-led Training Session - J. Mavrelis/T. Kochman • Expert-led Training Session - V. Young
12:30 – 02:00	Lunch Break
02:00 – 05:30 (Break 3:30 - 4:00)	Simultaneous sessions: • Panel Discussion/Working Session - Mid-Career • Panel Discussion/Working Session - Leadership II • Expert-led Training Session - J. Mavrelis/T. Kochman • Expert-led Training Session - V. Young
05:30 – 07:00	Networking Reception

Thursday, July 31

09:00 – 10:00	Closing Plenary - Mildred Dresselhaus
10:00 – 10:30	Break
10:30 – 10:50	Summit Highlights - Elizabeth Holm
10:50 – 11:40	Closing Dialogue - Viola Acoff, Dianne Chong, Wayne Jones
11:40 – 11:50	Closing Remarks - Elizabeth Holm

Dear Attendees,

On behalf of the leadership of TMS, I would like to welcome you to the First TMS Summit on Creating and Sustaining *Diversity in the Minerals, Metals, and Materials Professions*. Recent years have been a period of growing diversity within the membership of our society. I, as an international member myself, am an example of the changing nature of TMS. This inaugural event is intended to accelerate this positive change by developing strong leaders and building a community that can promote greater opportunity for you and your colleagues.

I wish to extend my sincere appreciation to the organizers, supporters, and attendees of this summit. You are truly pioneers in the same spirit as our honoree, Ellen Swallow Richards, who broke ground for women's education and professional opportunities in the sciences. You are among the people who care most deeply about the future of the minerals, metals, and materials professions. Your contributions during this Summit will have a positive and lasting impact on your career and your profession.

Thanks especially to our generous sponsors, which are listed in the program. Their involvement bodes very well for the success of the mission of this Summit, to ensure greater diversity and inclusion.

The next two and a half days will be an exciting time as we explore this topic of diversity in-depth and join together to talk about proven, practical solutions and how you can take what you learn back to your place of work. We hope this summit will also enable you to broaden your network and provide you with new sources and connectivity of value to you for some time to come. The outputs of the meeting will be the collective work of all of you, and I am very much looking forward to them. Please enjoy this inaugural summit on *Diversity in the Minerals, Metals, and Materials Professions*.

Hani Henein

2014 TMS President



Dear Colleagues,

Welcome to the First TMS Summit on Creating and Sustaining *Diversity in the Minerals, Metals, and Materials Professions*.

By now it's common knowledge that a diverse environment enhances creativity, innovation, and productivity in the workplace. However, like other science and engineering disciplines, our profession remains far less diverse than society as a whole. As 2013 TMS President, I resolved to take steps to address this issue. That was the genesis of this Summit.

However, this Summit is a reality – and we are together here today – not because of resolutions, but because of the hard work of many individuals: TMS and SME volunteer members, TMS staff, invited speakers, and panelists. Please note their names listed in this program, and be sure to thank them as you meet them over the next two-and-a-half days. Thanks also to our generous sponsors. Their engagement and contributions promise success for the Summit and support for diversity in the months and years ahead.

The event's topics and speakers will focus mainly on the minerals, metals, and materials professions in a format that is participatory and interactive. Discussions will occur at the practical level – what we call a “take back to work” focus. You will gain skills and solutions that you can rely on to produce tangible results in your organizations. You will also be called upon to provide your experiences, thoughts and voice to help develop the outcomes of the Summit. The collective wisdom of all attendees will be gathered into a set of resources that you and others can refer to long after the Summit has ended.

The Summit includes ample time to meet each other, both within the formal sessions and during the meals, breaks, and social events. We hope you will leave with a stronger professional network and broader career horizons. By building a community of leaders, we can continue to inspire and support each other in the years ahead.

Please participate freely over the next two-and-a-half days. As we express ourselves, volunteer what works and what doesn't, contribute solutions, and commit to taking practical action in our workplaces, we are moving the minerals, metals, and materials professions toward a more diverse and inclusive workplace and creating more opportunities for all.

This Summit has been inspired by the life of Ellen Swallow Richards. The first woman in our profession, she overcame gender biases to become one of the most influential scientists of her era. I hope her pioneering spirit inspires you to continue to make an impact on your profession well after this Summit concludes.

Thank you for joining me at this groundbreaking event, and I hope you enjoy the Summit!

Elizabeth Holm

2013 TMS President



Summit Organizers

Elizabeth Holm, Carnegie Mellon University (Chair)

Viola Acoff, University of Alabama

Eliana Fu, Titanium Metals Corporation

Mary Korpi, Newmont Mining Corporation

Alexis Lewis, National Science Foundation

Kray Luxbacher, Virginia Tech

Jonathan Madison, Sandia National Laboratories

Michele Manuel, University of Florida

Advisory Organizers

Wayne Jones, University of Michigan (Advisory Committee Chair)

Diran Apelian, Worcester Polytechnic Institute

Cynthia Belt, Independent Consultant

Keith Bowman, Illinois Institute of Technology

Ellen Cerreta, Los Alamos National Laboratory

Julie Christodoulou, Office of Naval Research

Carol Handwerker, Purdue University

Joy Hines Forsmark, Ford Motor Company

Beth Lewis, PCC Forged Products

Oladele Ogunseitan, University of California, Irvine

Tresa Pollock, University of California, Santa Barbara

Jonathan Ransom, National Aeronautics and Space Administration

Linda Schadler, Rensselaer Polytechnic Institute



Albert Einstein Memorial Statue © 1978 Robert Berks. Photo: Alex Jamison.

Sponsoring Organization



THE MINERALS, METALS & MATERIALS SOCIETY (TMS). TMS is a member-driven professional society established in 1871 and consists largely of scientists and engineers working in industry, academia and government, as well as students studying in the materials field. Included among its approximately 12,000 professional and student members are metallurgical and materials engineers, scientists, researchers, educators, and administrators from more than 70 countries on six continents. TMS is a rare professional organization that encompasses the entire range of materials and engineering, from minerals processing and primary metals production to basic research and the advanced applications of materials. The society provides forums for the exchange of information; promotes technology transfer; promotes the education and development of current and future professionals; represents the profession in the accreditation of educational programs and in the registration of professional engineers (a U.S.-grounded activity); encourages professionalism, ethical behavior, and concern for the environment; and stimulates a worldwide sense of unity in the profession. www.tms.org

Co-Sponsoring Organizations



AMERICAN INSTITUTE OF MINING, METALLURGICAL, AND PETROLEUM ENGINEERS (AIME), founded in 1871 by 22 mining engineers in Wilkes-Barre, Pennsylvania, was one of the first national engineering societies established in the United States and is one of five Engineering Founder Societies. Together with ASCE, ASME, IEEE, and AIChE, they form the United Engineering Foundation (UEF), which grants over \$750,000 to projects that further the profession. AIME serves four member societies, representing over 150,000 engineers worldwide—SME, TMS, AIST, and SPE. AIME supports these member societies by exercising fiscal responsibility, distributing funds (over \$2M annually), facilitating interaction with the larger scientific and engineering community, enhancing collaboration among the member societies and honoring its legacy. www.aimehq.org



DEPARTMENT OF ENERGY, OFFICE OF SCIENCE, BASIC ENERGY SCIENCES (BES) PROGRAM, one of the nation's largest sponsors of research in the natural sciences, funds fundamental science at more than 170 research institutions in the U.S., with approximately forty percent of the program's research activities sited at academic institutions. The BES program supports fundamental research to understand, predict, and ultimately control matter and energy at the electronic, atomic, and molecular levels in order to provide the foundations for new energy technologies and to support Department of Energy missions in energy, environment, and national security. As an organization, BES was formed in 1977; it is part of DOE's Office of Science, whose ultimate origins reach back to U.S. research efforts during World War II. www.science.energy.gov

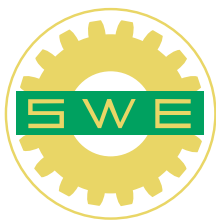


**NATIONAL ACADEMY
OF ENGINEERING**
OF THE NATIONAL ACADEMIES

NATIONAL ACADEMY OF ENGINEERING (NAE), founded in 1964, is a private, independent, nonprofit institution that provides engineering leadership in service to the nation. Also a member of the National Academies (along with the National Academy of Sciences, the Institute of Medicine, and the National Research Council), the NAE operates under the same congressional act of incorporation that established the National Academy of Sciences, signed in 1863 by President Lincoln. The mission of the NAE is to advance the well-being of the nation by promoting a vibrant engineering profession and by marshalling the expertise and insights of eminent engineers to provide independent advice to the federal government on matters involving engineering and technology. With more than 2,000 peer-elected members and foreign associates, the NAE provides leadership and expertise for numerous projects focused on the relationships between engineering, technology, and the quality of life. www.nae.edu



SOCIETY OF MINING, METALLURGY, & EXPLORATION (SME) is a nonprofit, professional society with more than 15,000 members representing all professions serving the minerals industry in more than 85 countries. Member professions and expertise range from mining engineering and mineral processing, geosciences and exploration, underground construction, environmental sustainability and mineral economics. Founded in 1871 by a handful of coal mining engineers, SME has evolved over the years to stay abreast of industry changes and to reflect the ever-broadening interests of its members. The seven divisions of SME—Coal & Energy, Environmental, Industrial Minerals & Aggregates, Mineral and Metallurgical Processing, Mining and Exploration, Underground Construction Association (UCA), and WAAIME, the women’s Auxiliary to AIME—reflect the rich diversity of membership and serve as a framework for SME’s committee structure. SME works to advance the worldwide minerals community through information exchange and professional development. Nowhere is this commitment to its mission more evident than in the wide range of programs and services available to SME members. www.smenet.org



SOCIETY OF WOMEN ENGINEERS (SWE), established in 1950, is a nonprofit and service organization that empowers women to succeed and advance in the field of engineering, and to be recognized for their life-changing contributions as engineers and leaders. SWE is the driving force that establishes engineering as a highly desirable career for women through an exciting array of training and development programs, networking opportunities, scholarships, and outreach and advocacy activities. SWE operates under five core values that guide its initiatives—integrity, inclusive environment, mutual support, professional excellence, and trust. Centered around a passion for the success of its nearly 30,000 members, SWE stimulates women to achieve full potential in careers as engineers and leaders, expands the image of the engineering profession as a positive force in improving the quality of life, and demonstrates the value of diversity. www.swe.org

Endorsing Organizations



AMERICAN ASSOCIATION OF ENGINEERING SOCIETIES (AAES). Founded in 1979, AAES is the U.S. federation for engineering and engineering-related professional societies. With current membership of 17 Member Societies, AAES' strength is its ability to foster cross-disciplinary collaboration among its base of more than 1 million engineers. Through its 7 working groups, AAES is actively engaged in critical areas such as lifelong learning and sustainability on both a domestic and global stage. AAES is recognized as the official U.S. representative to the World Federation of Engineering Organizations, and is a partner in the State Department's Science, Technology, and Innovation Expert Partnership (STIEP). AAES identifies, examines, deliberates, and provides advice on important national issues through its annual joint convocation with the National Academy of Engineering. AAES also serves as the authoritative source for accurate, objective reports on engineering workforce statistics, salaries, and engineering enrollment and degrees through its Engineering Workforce Commission (EWC). AAES annually recognizes engineering excellence with its prestigious awards program. www.aaes.org



THE AMERICAN CERAMICS SOCIETY (ACerS) strives to advance the study, understanding and use of ceramic and glass materials for the benefit of our membership and the materials community. Founded in 1898, ACerS has grown to more than 9,500 members and students in more than 60 countries. Today, the Society provides knowledge and forums to members who are shaping the way we think about materials science. Every day, ACerS members use ceramics to pioneer new energy solutions, advance medicine, improve electronics, support manufacturing innovations, and make life easier and better. Our core values are a commitment to excellence, collaboration, community, accountability, service, and pursuit of knowledge, and we embrace the vision that through the global leadership of ACerS, ceramic materials are widely recognized as indispensable for advancements in science, engineering, and commerce. www.ceramics.org



AMERICAN INSTITUTE OF CHEMICAL ENGINEERS (AIChE) is a professional society of more than 46,000 chemical engineers in 100 countries. Its members work in corporations, universities and government using their knowledge of chemical processes to develop safe and useful products for the benefit of society. AIChE, which was founded in 1908, continues to be a focal point for information exchange on the frontiers of chemical engineering research in such areas as energy, sustainability, biological and environmental engineering, nanotechnology and chemical plant safety and security. AIChE has adopted a diversity statement that it is putting into practice through a variety of programs: "Diversity means, on a global basis, creating an environment in the Institute and the profession in which all members, regardless of sex, race, religion age, physical condition, sexual orientation or nationality are valued equitably for their skills and abilities, and respected for their unique perspectives and experiences." More information about AIChE is available at www.aiche.org.



ASSOCIATION FOR IRON & STEEL TECHNOLOGY (AIST) is a non-profit entity with over 16,500 members from more than 70 countries. AIST is recognized as a global leader in networking, education, and sustainability programs for advancing iron and steel technology. With 29 Technology Committees and 22 Local Members Chapters, AIST

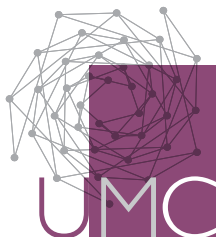
represents an incomparable network of steel industry knowledge and expertise. Serving the iron and steel community, including steel manufacturers, suppliers, consumers and academies, our mission is to advance the technical development, production, processing, and applications of iron and steel. AIST was established in 2004 by the merger of two longstanding societies, the Association of Iron and Steel Engineers (AISE) and the Iron & Steel Society (ISS). The best practices of both predecessor organizations were incorporated into AIST to create a strong international, member-based technical organization that can sustain itself in an environment of continual change. www.aist.org



ASSOCIATION FOR WOMEN IN SCIENCE (AWIS) is the largest multi-discipline organization for women in science, technology, engineering, and mathematics (STEM). We believe that tapping into America's full talent pool is essential to continued U.S. leadership in research and innovation. For more than 40 years, we have been working at the nexus of STEM and gender to provide high quality policy solutions and recommendations to broaden the participation of women in all disciplines and across all employment sectors. AWIS helps women in STEM achieve their full potential through leadership and professional talent development at all career stages and in all workplace settings. AWIS reaches more than 15,000 professionals in STEM with members and chapters nationwide. Membership is open to any individual who supports the vision and mission of AWIS. www.awis.org



THE SOCIETY OF HISPANIC PROFESSIONAL ENGINEERS (SHPE) changes lives by empowering the Hispanic community to realize its fullest potential and to impact the world through STEM awareness, access, support, and development. The SHPE Foundation is a 501(c)(3) nonprofit organization dedicated to inspiring the next generation of Hispanic STEM innovators. In conjunction with nearly 350 SHPE Student and Professional Chapters throughout the United States and Puerto Rico, we provide K-12 educational outreach programs to spark students' interest in science, technology, engineering, and mathematics (STEM). Through membership, pre-college programs, scholarships, and corporate partnerships, the SHPE Foundation will inspire the next generation of STEM innovators this country needs. The SHPE Foundation envisions a world where Hispanics are highly valued and influential as the leading innovators, scientists, mathematicians, and engineers. www.shpefoundation.org



The **UNIVERSITY MATERIALS COUNCIL (UMC)** is composed of Department Heads, Chairpersons, Directors, and group leaders from academic programs in the materials field in U.S. and Canadian universities. It serves as a forum for members to share best practices in areas such as student recruitment, curriculum development, faculty and student diversity, facility management, research initiatives, and to discuss broadly issues of interest to the materials community. The primary goals of the UMC are to help define and influence the directions and scope of the field of Materials Science and Engineering; to promote the field as an entity; to strengthen the educational content and the educational process in the field; and to increase the quality and quantity of students in the field. www.umatcon.org

Corporate Sponsors



BATTELLE, every day, the people of Battelle apply science and technology to solving what matters most. At major technology centers and national laboratories around the world, Battelle conducts research and development, designs and manufactures products, and delivers critical services for government and commercial customers. From unmanned autonomous underwater vehicles, like the Bluefin 21, searching for mission-critical cargo beneath the ocean, to our AirAlert™ chemical detector safeguarding employees in manufacturing plants, Battelle engineers and scientists develop advanced technologies that meet our customers' needs. We help protect our troops by manufacturing rugged, yet lightweight, armored vehicles and we ensure that any biological contamination is detected immediately with our REBS™ system. Headquartered in Columbus, Ohio since its founding in 1929, Battelle serves the national security, health and life sciences, and energy and environmental industries. For more information, visit www.battelle.org.



CATERPILLAR GLOBAL MINING and Cat dealers are working together with mining companies worldwide to mine efficiently and productively while doing the utmost to protect the health and safety of miners. No other manufacturer can offer what Caterpillar does: An unparalleled range of mining and support equipment and technologies for all types of surface and underground mining. Cat products are on more mine sites than any other equipment line, and Cat dealers bring their expertise and unmatched product support capabilities to each of those mines. No matter what the mining challenge and no matter where the mine is located, Caterpillar can help. Caterpillar is committed to promoting the mining industry and helping customers operate sustainably—meeting the needs of today without compromising the needs of tomorrow. For additional information about Caterpillar Global Mining and Cat products and services go to: www.mining.cat.com



FORD MOTOR COMPANY, a global automotive industry leader based in Dearborn, Mich., manufactures or distributes automobiles across six continents. With about 183,000 employees and 65 plants worldwide, the company's automotive brands include Ford and Lincoln. The company provides financial services through Ford Motor Credit Company. For more information regarding Ford and its products worldwide, please visit www.corporate.ford.com.



GENERAL MOTORS CO. (NYSE:GM, TSX: GMM) and its partners produce vehicles in 30 countries, and the company has leadership positions in the world's largest and fastest-growing automotive markets. GM, its subsidiaries and joint venture entities sell vehicles under the Chevrolet, Cadillac, Baojun, Buick, GMC, Holden, Jiefang, Opel, Vauxhall and Wuling brands. More information on the company and its subsidiaries, including OnStar, a global leader in vehicle safety, security and information services, can be found at www.gm.com



NEWMONT, founded in 1921 and publicly traded since 1925, is a leading producer of gold and copper. Headquartered in Colorado, the company has approximately 30,000 employees and contractors, with the majority working at managed operations in the United States, Australia, New Zealand, Peru, Indonesia and Ghana. Newmont is the only gold company listed in the S&P 500 index and in 2007 became the first gold company selected to be part of the Dow Jones Sustainability World Index. Newmont is an industry leader in value creation, supported by its leading technical, environmental, and health and safety performance. Newmont is a proud sponsor of DMMM1. The company is on a journey to make global inclusion and diversity a natural part of what we do in order to run a successful business. Newmont believes in a work culture that embraces diversity, engages employees, fosters innovation, rewards high performance and develops great leaders. www.newmont.com



TIMKENSTEEL CORPORATION is a modern-day startup company with nearly 100 years of steelmaking behind us. We manufacture some of the world's cleanest alloy steel using state-of-the-art technologies to help customers push the bounds of what's possible. And we rely on our core values – ethics and integrity, quality, innovation and independence – to create steel products and services to solve the world's toughest challenges. www.timkensteel.com



About the Summit Honoree

Ellen Swallow Richards (1842-1911) was the first female student to attend MIT, earning a degree in chemistry in 1873. She was also an accomplished professional who took an active role outside of the laboratory and was elected the first female member of the American Institute of Mining Engineers (today's American Institute of Mining, Metallurgical and Petroleum Engineers). She is also recognized as the founder of the field of ecology. Beyond her pioneering achievements, she remained dedicated to public service and was known as a fervent advocate for women's education and professional opportunities.

Inaugural Ellen Swallow Richards Diversity Award Winner

Viola L. Acoff, professor and head of the Metallurgical and Materials Engineering Department at the University of Alabama (UA), has been named the inaugural recipient of the 2014 Ellen Swallow Richards Diversity Award. This new TMS award recognizes an individual who reflects the remarkable pioneering spirit of Richards in overcoming personal, professional, educational, cultural, or institutional adversity to pursue a career in minerals, metals, and/or materials, or in helping others to overcome these challenges to pursue such a career.

Acoff was raised in a family of 10 children. Although her parents were of modest means, they encouraged all their children to become formally educated. Acoff went on to earn her B.S., M.S., and Ph.D. in materials engineering from the University of Alabama at Birmingham (UAB) and began working at UA in 1994, despite losing an important mentor - her mother - early in her career.

While moving up the ranks at UA from assistant professor of metallurgical and materials engineering, to associate professor and then professor, she has made it her personal mission to increase the number of science and engineering degrees awarded to students from underrepresented minority groups.

Since 1996, Acoff has served as the director for the UA Louis Stokes Alliance for Minority Participation Program (LSAMP) supported by the National Science Foundation (NSF). It has directly affected 81 students to date. She also spearheaded another NSF-funded program, "Introducing Science Faculty from Historically Black Colleges and Universities (HBCU's) to Materials Science and Engineering." This extensive outreach to 82 of the nation's 99 Historically Black Colleges and Universities has involved nearly 300 faculty members over its 12 years.

Acoff will be presented with the Ellen Swallow Richards Diversity Award during the Summit. Presentation of this award is supported by a gift to The TMS Foundation from Dr. and Mrs. Jeffrey Wadsworth.



Summit Toolkit

Following the summit, two free resources will be assembled and made publicly available at <http://www.tms.org/meetings/2014/diversity/resources.aspx> for use by attendees, materials science and engineering professionals, human resource departments, and others interested in creating and sustaining diversity in the minerals, metals, and materials professions:

- a final report of the summit, available online by Fall 2014
- a diversity toolkit, developed at the summit and available online by Fall 2014

These two resources will be primarily based on content captured from the summit as well as additional information referenced during the event.

About the venue

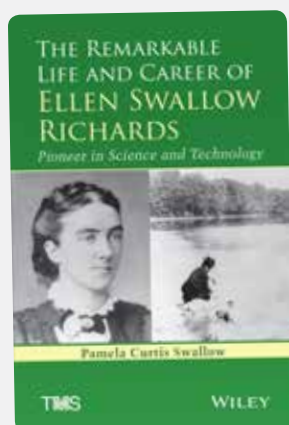
National Academy of Sciences Building (2101 Constitution Ave, NW) • Washington, DC

The National Academy of Sciences is a private, non-profit society of distinguished scholars. Established by an Act of Congress, signed by President Abraham Lincoln in 1863, the NAS is charged with providing independent advice to the nation on matters related to science and technology.

The National Academy of Sciences Building opened in April 1924. It closed in 2010 for the restoration of its historic core, renovation of later additions, and installation of new communications networks, and electrical, heating and ventilation equipment. It reopened in April 2012. The newly restored East Gallery features an exhibition describing the building as well as the history and work of the Academy.

The Academy building combines elements of Greek, Egyptian, and Byzantine architecture. Just through the main doorway are a vestibule and foyer with walls of cream stone and a mahogany ceiling. At both ends of the foyer are bronze and glass gates decorated with the signs of the zodiac. These may seem curious in a building dedicated to science, but they symbolize human observations of nature from ancient times and the progress of science from its beginnings to the modern era.

Designed as the building's focus and central feature, the Great Hall was used for the large Academy meetings until completion of the auditorium wing in 1970. The dome and its supporting elements are decorated with images that illustrate the history of science.

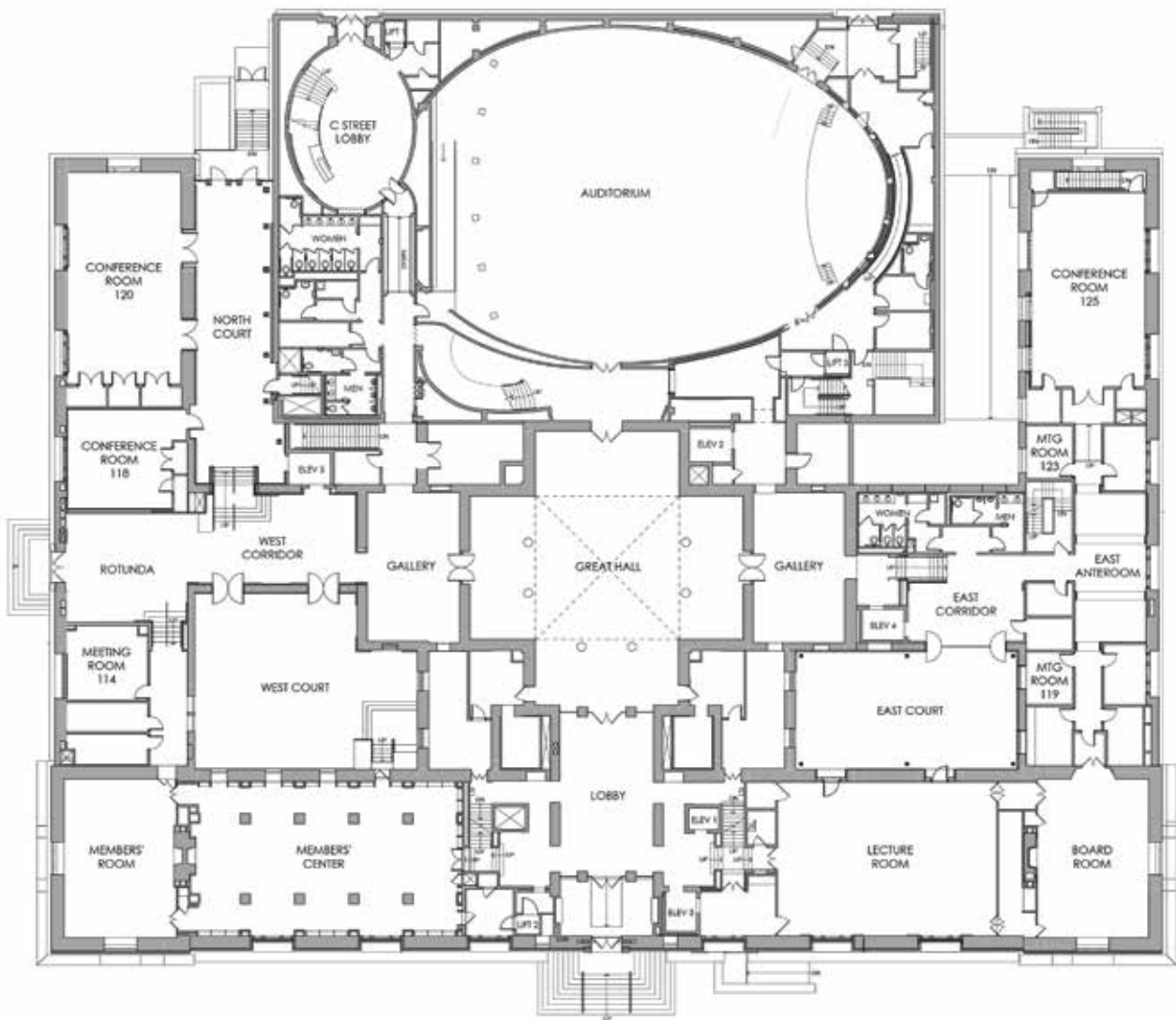
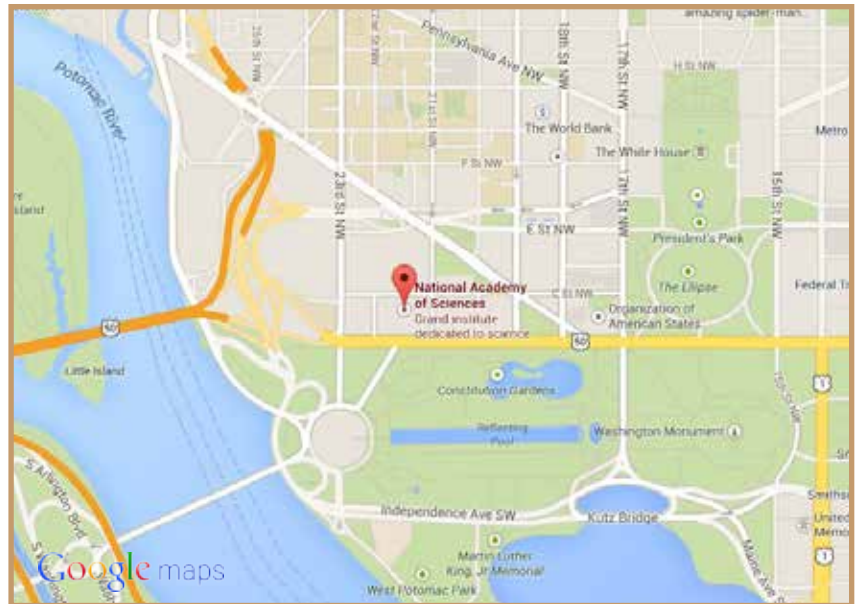


The Remarkable Life and Career of Ellen Swallow Richards: Pioneer in Science and Technology By Pamela Curtis Swallow

Taking the reader from Richards's childhood on a Massachusetts farm where she was home-schooled to her internationally renowned successes in the sciences, *The Remarkable Life and Career of Ellen Swallow Richards: Pioneer in Science and Technology* highlights the accomplishments of America's first professional, degreed female scientist. Among her achievements are her research in water studies that led to America's first state water-quality standards and first modern sewage treatment plant; her development of the Normal Chlorine Map, the first map indicating polluted waters in the United States; her food testing investigation, revealing countless adulterations and contaminants and leading to the first food and drug safety acts; coinage of the terms ecology and eugenics; and her career at MIT as its only female instructor during her lifetime.

- Please enter either from C Street or Constitution Avenue, NW
- A valid photo ID is required for admittance to the building.
- The closest Metro Station is FoggyBottom-GWU. The distance is about ½ mile walking.

Limited parking is available for meeting participants in the visitors parking area of the NAS building. Parking is provided on a first-come basis, and overflow is directed to public parking garages. The public parking facilities closest to the NAS Building are Colonial Parking (20th Street, NW, between E and F Streets) and Columbia Plaza (23rd and Virginia Avenue, NW).



About the Event

Thank you for attending DMMM-1. Your full-conference registration fee includes:

- Admission to the full program including plenary and keynote presentations, professional development workshops, and facilitated working sessions
- Access to all coffee breaks, lunch on July 29 and July 30, and one ticket to the July 29 evening dinner
- One ticket to the July 30 industry/networking reception
- Online access to the summit final report and toolkit following the event (tentatively scheduled for release in Fall 2014)
- A copy of the book *Pioneer in Science and Technology: The Remarkable Life and Career of Ellen Swallow Richards*, a biography written by professional author Pamela Curtis Swallow
- A reprint of the *JOM* special feature, "United in Our Differences: Changing the Face of MSE"

If you require a reprint of your receipt, please contact TMS staff at the registration area or contact TMS Customer Service at members@tms.org.

Summit Policies

Badges:

Badges must be worn at all times during summit events.

Identification:

Attendees are required to show valid government-issued identification (such as a driver's license or passport) to enter the summit facility each day. Please be patient as the facility staff works to ensure attendee safety.

Cancellation/Early Departure:

The deadline for registration fee refunds was June 28, 2014. We cannot provide full or partial refund for a cancellation after this date for late arrivals or early departures.

Use of phones and mobile devices:



Attendees should set all phones and mobile devices to "silent" during the summit. Because use of these devices may cause a distraction, we encourage attendees to not use these devices during summit sessions and other activities.

Photography and Audio/Video Recording:



TMS reserves the right to all audio and video reproductions of presentations at TMS-sponsored meetings. Any recording of sessions (audio, video, still photography, etc.) intended for personal use, distribution, publication, or copyright without the

express written consent of TMS and the individual authors is strictly prohibited. Attendees violating this policy may be asked to leave the session.

Of Note

Time:

All times in this program refer to Eastern Daylight Saving Time. (UTC-05:00)

Language:

The symposium and all presentations, program materials, and signage will be in English.

Currency:

All fees are expressed in US dollars. The hotel and surrounding businesses accept US dollars; most businesses (except taxis) also accept major credit cards.

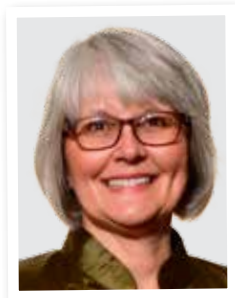
Internet access:

Wireless internet access is available on all areas on first floor and in meeting rooms. No password required.

Summit Dinner

A Celebration of the Life and Legacy of Ellen Swallow Richards • Tuesday, July 29 from 6:00-8:40 PM

- Dinner will be served in the Great Hall
- Presentations will be given by Barbara Arnold and Pamela C. Swallow
- A donation ceremony will follow to transfer ownership of an Ellen Swallow Richards Artifact to the Smithsonian
- The inaugural Ellen Swallow Richards Diversity Award will be presented



Barbara Arnold, PrepTech Inc.

Ellen Swallow Richards—My Hero

Ellen Swallow Richards was a part of the mining and mineral community during its great expansion in the late 1800s. She played a pivotal role in advancing the understanding of minerals, in teaching future scientists and engineers, in developing new methods for determining ore chemistry, and in evaluating mineral processing circuits. Still more amazing is that she has been recognized by many others as their hero—America’s first woman chemist, the woman who founded ecology, and the founder of home economics. In the brief time I have, I will summarize her many contributions to mining and mineralogy and why she is now being inducted into the National Mining Hall of Fame.



Pamela C. Swallow, Author

Finding Ellen Swallow Richards

In researching Ellen Swallow Richards, I learned what a woman of determination can do. She graduated from Vassar in two years, then from MIT, also in two years, earning her second Bachelor’s degree and a Master’s. Ellen conducted the nation’s first water studies, food studies, and air studies. Co-founder of the American Association of University Women, she provided scholarships for women; conducted the nation’s first water studies, food studies, and air studies; and taught the first biology and marine biology courses at MIT. At the 1893 World’s Fair, she educated the public about nutrition. She began the Ecology and Euthenics movements and introduced the concept of Earth Day.

Donation of Ellen Swallow Richards Artifact to Smithsonian

Pamela C. Swallow and Peter Liebhold

Peter Liebhold is the Chair of the Division of Work and Industry at the Smithsonian Institution’s National Museum of American History. His curatorial responsibilities include agriculture, manufacturing, and mining. Throughout his professional life Peter has been involved with industrial history and the effort to preserve the working history of the nation. At the Smithsonian since 1985, he has curated numerous exhibitions, and is currently developing the 8,000 square foot permanent exhibition *American Enterprise*, scheduled to open in 2015.

Networking Reception

Wednesday, July 30 from 5:30-7:00 PM

This evening will include table top displays from our sponsors and a “Meet and Greet” with Pamela C. Swallow with the opportunity for her to sign your copy of the book *The Remarkable Life and Career of Ellen Swallow Richards: Pioneer in Science and Technology*. Attendees receive this book with their registration packet onsite.

Tuesday Morning



Welcome and Opening Remarks

Elizabeth Holm, Carnegie Mellon University

Holm is a professor of materials science and engineering at Carnegie Mellon University (CMU) and past president of The Minerals, Metals & Materials Society. Prior to joining CMU in 2012, she spent 20 years as a computational materials scientist at Sandia National Laboratories, working on simulations to improve processes for lighting manufacture, microcircuit aging and reliability, and the processing and welding of advanced materials. Her research areas include the theory and modeling of microstructural evolution in complex polycrystals, the physical and mechanical response of microstructures, atomic-scale properties of internal interfaces, and the wetting and spreading of liquid metals. She has also been a member of the National Materials Advisory Board.



Corale Brierley, National Academy of Engineering

Brierley, vice president of the National Academy of Engineering, is principal of Brierley Consultancy LLC, providing expertise in biomining for metals extraction, and market analyses and business development for products and services related to metals extraction. Her company serves the mining sector, government organizations, and investment firms. Previously, she was head of environmental process development for Newmont Mining Company; adjunct professor of metallurgical engineering, University of Utah; general partner of VistaTech Partnership, Ltd.; founder and president of Advanced Mineral Technologies, Inc.; a research scientist at the New Mexico Bureau of Mines and Mineral Resources; and a microbiologist for Martin-Marietta Corporation (now Lockheed-Martin).



Opening Plenary: “The State of Diversity in the Profession”

Mary Galvin, National Science Foundation

Galvin, Division Director of the Division of Materials Research at the National Science Foundation (NSF), will present data and information on diversity throughout the profession. Special emphasis will be placed on workforce issues, but diversity and inclusion in education will also be discussed. Galvin earned her Sc.D. in Polymers/Materials Science from the Massachusetts Institute of Technology (MIT) in 1984 and previously held positions as a distinguished member of the technical staff at Bell Laboratories and as a distinguished professor of materials science at the University of Delaware. Prior to joining NSF, she was a member of the Technology Leadership Team at Air Products and a program manager in basic energy sciences (BES) at the Department of Energy. Galvin is a member of the American Chemical Society and the Materials Research Society, and is a Fellow in the American Physical Society.



Industry Keynote:

“Diversity Today: What Does It Mean, and Why Does It Matter?”

Dawne Hickton, RTI International Metals

Hickton, vice chair, president, and chief executive officer of RTI International Metals, Inc., a leading global vertically integrated supplier of titanium and specialty metals products and services, will present her perspective on “Diversity Today: What Does It Mean, and Why Does It Matter?” She will assess the impact of Affirmative Action on industrial companies in discussing these and other questions:

- How did industry first approach Affirmative Action in the 1960s?
- What attempts have been made to promote diversity in the industrial workplace?
- How has the concept of diversity changed over time?
- What are the forces driving change in this area?

Hickton’s discussion will include her experience in promoting diversity at RTI and her views on the future of diversity efforts and outcomes in industrial America.

During her tenure as CEO, Hickton has guided RTI’s transformation from a manufacturer of titanium mill products to an integrated, value-added supplier of titanium parts and engineered structures, touching entire supply chains throughout diverse markets.



Academia Keynote:

“Attracting and Retaining Women in Engineering and the Physical Sciences: The Academic Experience”

Linda Abriola, Tufts University

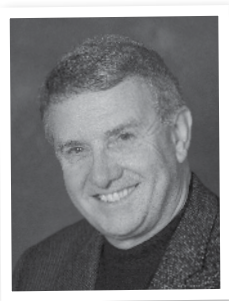
Although significant strides have been made in the United States over the past few decades, women are still substantially underrepresented among students and faculty in engineering and the physical sciences. In addition to the obvious equity issues, this underrepresentation is limiting our ability to develop and maintain an adequate scientific and technical labor force and to foster diversity in the approaches and perspectives needed to tackle the increasingly complex problems facing our society. After a brief overview of national data and trends, this presentation summarizes the experience and perspective of one academic leader pertaining to the challenges facing higher education in the recruitment and retention of women in the STEM fields. Programs, policies, and cultural features of an academic environment that can enhance our ability to attract and retain women at all levels are highlighted. A special emphasis is placed on best practices that are helping to grow and nurture the female professoriate.

Abriola is dean of the School of Engineering at Tufts University, where she holds joint appointments in the departments of Civil and Environmental Engineering and Chemical and Biological Engineering. Prior to joining Tufts, she was a faculty member in the Department of Civil and Environmental Engineering at the University of Michigan, where she directed the Environmental and Water Resources Engineering Program, and was named the Horace Williams King Collegiate Professor of Environmental Engineering. Abriola is a Fellow of the American Geophysical Union and a member of both the American Academy of Arts and Sciences (AAAS) and the National Academy of Engineering (NAE). She received her B.S. from Drexel University, and her M.S. and Ph.D. from Princeton University, all in civil engineering.

**Government Keynote:****“Diversity in Materials Technologies – A Navy/Government Perspective”*****Johnnie DeLoach, Naval Surface Warfare Center***

Establishing and maintaining a diverse workforce has long been a focus at the highest levels of the U.S. Navy. Broadly speaking, that focus has emphasized six key areas: Awareness, Outreach, Recruiting and Hiring, Professional Growth, Selection/Promotion, and Accountability. This presentation will outline specific approaches and plans that the Naval Surface Warfare Center, Carderock Division (NSWCCD) has and will undertake in these key areas. The presentation also will provide data and metrics used to assess the effectiveness of our approaches. The hope is that some of these approaches might serve as best practices that could be adopted by organizations attending this event. The speaker will also discuss how his personal experiences and perspectives have contributed to his views on diversity and his ability to establish and maintain diversity as a manager within NSWCCD. The presentation will also provide encouraging examples of increasing diversity in materials-related leadership roles within the Navy, Department of Defense, and U.S. Government as a whole.

DeLoach has more than 30 years of naval engineering service in a broad variety of materials-related engineering and R&D programs. In 2014, he was selected to head the materials division of the Naval Surface Warfare Center, Carderock Division (NSWCCD). Prior to his current position, DeLoach served as the head of the Welding, Processing, and Nondestructive Evaluation (NDE) branch from 2001. DeLoach is the U.S. National Representative on the Metals and Ceramics Technology and Performance Panel of The Technical Cooperation Program (TTCP). He recently was selected to chair the NAVSEA Warfare Center Navy Materials Community of Interest, a collaboration intended to enhance synergy, teaming, and expertise in materials and materials-related technologies. In 2013, the Office of Naval Research (ONR) selected him to manage The Lightweight and Modern Metals Manufacturing Innovation (LM3I) Institute, a U.S. presidential initiative.

**Panel Discussion with Keynote Speakers*****Wayne Jones, University of Michigan***

Wayne Jones will lead a panel discussion with the keynote speakers. Jones is an Arthur F. Thurnau professor of materials science and engineering at the University of Michigan (UM). He holds a Ph.D. in materials science from Vanderbilt University. Jones served as associate dean for undergraduate education in the UM College of Engineering from 1996 to 2001, and as interim chair of the Materials Science and Engineering Department in 1992. From 2008 to 2013, he was the associate director of the ADVANCE Program at UM. He served as president of The Minerals, Metals & Materials Society (TMS) in 1999 and has served on the boards of directors of TMS and the American Institute of Mining, Metallurgical and Petroleum Engineers (AIME). Jones was elected a fellow of ASM International in 2000.

Tuesday Afternoon

Three simultaneous sessions will be offered on Tuesday afternoon. Attendees are encouraged to participate in the session that most closely aligns with their workplace environment. All facilitated sessions during the summit are led by Cindy Zook Associates.

Facilitated Working Session on Government

A professionally facilitated session focused on actions that can be taken in government to increase diversity in the materials science professions.

Facilitated Working Session on Academia

A professionally facilitated session focused on actions that can be taken in educational institutions to increase diversity in the materials science professions.

Facilitated Working Session on Industry

A professionally facilitated session focused on actions that can be taken by businesses to increase diversity in the materials science professions.

Summit Dinner

For information about the Summit Dinner location, time, and presentations, see page 18.



About Cindy Zook Associates

With over thirty years of experience in organization and leadership development, Cindy Zook Associates (CZA) serves an extensive array of domestic and international clients in the public, private and non-profit sectors. They lead and facilitate results-driven processes for Cabinet-level Secretaries, heads of Agencies and Global Fortune 500/1000 CEOs, Boards and their teams. Cindy Zook, Kathleen Case and Henry Mortimer are an expert team of consultants who bring tremendous diversity of experience to bear. Cindy spent 18 years in public service at FAA before starting Cindy Zook Associates. Kathleen worked for 35 years in small and large companies in the private sector before joining CZA. Henry Mortimer is an expert writer, editor and facilitator with more than 20 years of publications and content development experience. With energy, focus and a streamlined, collaborative approach, they help senior teams create a compelling vision and strategy with tangible deliverables and clear accountability. They help forge strong relationships between CEOs and their Boards, government and industry partners, and interagency teams, national networks and consortia. They work with clients to ensure that they are equipped and aligned to deliver high impact results that matter to the Nation and the world.

Wednesday Morning

Four simultaneous sessions will be offered on Wednesday morning. The two expert-led training sessions are identical to those offered in the afternoon.

Panel Discussion/Working Session - Early Career

In this session, the panelists discuss their experiences and lessons learned as an early career professional in the minerals, metals, and materials field. Sharing first-hand experiences, panelists will cover key diversity and inclusion challenges and advice for others facing similar issues. A professionally facilitated session follows that will utilize the power of the group to identify challenges, strategies, resources, and recommendations for the future to ensure more opportunities for early career professionals. Attendees are encouraged to participate in the Panel Discussion/Working Session that aligns most closely with their career stage.



Andrea Hodge, University of Southern California

Hodge is an associate professor and the Philip and Cayley MacDonald Early Career Chair in the Aerospace and Mechanical Engineering Department, with a joint appointment at the Mork Family Department of Chemical Engineering and Materials Science, at the University of Southern California (USC). Prior to her position in academia, she worked at Lawrence Livermore National Laboratory as a staff scientist from 2004 to 2007, and as a postdoctoral fellow from 2002 to 2004. Hodge received her Ph.D. in materials science from Northwestern University.



Katie Kosloski, Luck Stone

Kosloski is a mining engineer for Luck Companies, based in Richmond, Virginia. After graduation from the Virginia Tech Mining and Minerals Engineering Department in 2012, she began her career in the Quarry Operations Division of Luck Stone. Working at the Fairfax Plant in northern Virginia, Kosloski participated in all aspects of the mine operations and worked towards a certification as a surface foreman in the Commonwealth of Virginia. Shortly after earning the certification, she was transferred to the Mining Engineering Department, where she is tasked with reserve planning and maximization for the 17 sites owned by Luck Companies.



Michele Manuel, University of Florida (Chair)

Manuel is an assistant professor in the Department of Materials Science and Engineering at the University of Florida. She received her B.S. in materials science and engineering at the University of Florida and her Ph.D. in materials science and engineering at Northwestern University. Manuel is the recipient of numerous awards: The National Science Foundation (NSF) CAREER; NASA Early Career; ASM International Bradley Stoughton Award for Young Teachers; American Vacuum Society (AVS) Recognition for Excellence in Leadership; and The Minerals, Metals & Materials Society (TMS) Early Career, Young Leaders International Scholar, and Young Leaders Professional Development awards.



Orlando Rios, Oak Ridge National Laboratory

Rios is an R&D staff scientist in the Deposition Sciences and Technology Group at Oak Ridge National Laboratory (ORNL). He joined ORNL in 2010 as an Alvin Weinberg Fellow. He received his Ph.D. at the University of Florida. Rios is an expert in materials processing in magnetic fields, and is responsible for the design and implementation of the extensive thermo-magnetic processing capabilities in the Material Science and Technology Division and integration of technologies within the Department of Energy's (DOE) manufacturing demonstration facility. Prior to employment at ORNL, he conducted research at NASA as well as at the university. As an undergraduate, Rios was an intern at the Technical University of Kiel, where he worked on building photonic structures using electrochemical processing.

Panel Discussion/Working Session - Leadership I

In this session, the panelists discuss their experiences and lessons learned as leadership professionals in the minerals, metals, and materials field. Sharing first-hand experiences, panelists will cover key diversity and inclusion challenges and advice for others facing similar issues. The emphasis of this session will be on skills development. A professionally facilitated session follows that will utilize the power of the group to identify challenges, strategies, resources, and recommendations for the future to ensure more opportunities for early career professionals. Attendees are encouraged to participate in the Panel Discussion/Working Session that aligns most closely with their career stage.



Dianne Chong, Boeing (Chair)

Chong is the vice president of materials, manufacturing, structures, and support in the Boeing Engineering, Operations & Technology organization. In this position, she leads the organization responsible for development and support of manufacturing processes and program integration for the Boeing enterprise. Prior to her current position, she was the director of materials and process technology for Boeing Commercial Airplanes. Chong also was the director of strategic operations and business for IDS Engineering; and the department head/team leader of MSE, liaison, and process control groups within Phantom Works and Integrated Defense Systems. Chong received B.S. degrees in biology and psychology, M.S. degrees in physiology and metallurgical engineering, and her Ph.D. in metallurgical engineering, all from the University of Illinois. She also completed an Executive Master of Manufacturing Management at Washington University.



Julie Christodoulou, Office of Naval Research

Christodoulou is director of the Naval Materials Division in the Sea Warfare and Weapons Department of the Office of Naval Research (ONR) in Arlington, Virginia. She serves as the senior focal point within the ONR for the physical sciences, materials and processing, and environmental quality. Christodoulou provides active support for two of the President's initiatives: the Materials Genome Initiative for Global Competitiveness (by serving on the National Science and Technology Council subcommittee), and the Advanced Manufacturing Partnership (by establishing and guiding one of the National Network of Manufacturing Institutes focused on metals for reduced system weight). Christodoulou is the Navy lead for the Department of Defense-wide Community of Interest for Materials and Processes and an advisor to the Materials Group of The Technical Collaboration Program, an international collaboration body for defense research and

engineering programs. Trained as a physical metallurgist, she holds a B.S. from the University of Texas at El Paso, an M.S. from The Johns Hopkins University, and Ph.D. in materials science from Imperial College, London.



Cindy Heatherington, Timet

Heatherington is the Global Vice President of Human Resources for Titanium Metals Corporation (TIMET), a leading manufacturer of titanium. TIMET operates a fully integrated supply chain from raw material through mill product. Prior to her current role, she held various roles spanning the human resources spectrum for over 20 years. Heatherington's former career was in the Advertising/media buying arena. Heatherington holds a B.S. in Journalism from Ohio University and an MBA from Franciscan University. She is a certified Senior Human Resources Professional (SPHR) with the Society of Human Resources Management, of which she is a long standing member as well as the Pittsburgh Area Human Resources Association (PHRA). She also holds a Certified Labor Relations Professional (CLRP) designation from Michigan State University, completed a management development program with the University of Denver, Daniels College of Business and serves on the Placement and Advisory Board for a local community college.



Jennifer Lewis, Harvard University

Lewis joined the faculty of the School of Engineering and Applied Sciences and the Wyss Institute for Biologically Inspired Engineering at Harvard University in 2013. Prior to her appointment at Harvard, she served as the director of the Frederick Seitz Materials Research Laboratory and the Hans Thurnauer Professor of Materials Science and Engineering at the University of Illinois at Urbana-Champaign. Her work has resulted in eight patents and 125 papers to date. Her research on microscale 3D printing was recently highlighted as one of the "10 Breakthrough Technologies" by the MIT Technology Review. Lewis is the recipient of the National Science Foundation (NSF) Presidential Faculty Fellow Award, the Brunauer Award from the American Ceramic Society, the Langmuir Lecture Award from the American Chemical Society, and the Materials Research Society (MRS) Medal. She is a Fellow of the American Ceramic Society, the American Physical Society, the Materials Research Society, and the American Academy of Arts and Sciences. She serves on the editorial advisory boards of Advanced Materials, Advanced Functional Materials and Soft Matter.

Expert-led Training Session

Take a personal and cultural journey. Executives, managers and employees can identify cultural patterns that impact their workplace. Changing demographics demand innovative practices and strategies to transform organizations. Mavrelis and Kochman, founders of diversity firm Kochman Mavrelis Associates, take you through it in this half-day session.



Jean Mavrelis, Kochman Mavrelis Associates

Mavrelis is founder and chief executive officer of Kochman Mavrelis Associates and co-author (with Thomas Kochman) of *Corporate Tribalism: White Men, White Women and Cultural Diversity at Work* (2009). She has served on the Illinois Sex Equity Task Force and is nationally recognized as an expert in the field of cultural information: diversity research and management with special expertise in the area of gender and culture. She also developed *Managing Social and Cultural Diversity in the Schools*, which she has delivered to more than half a dozen school systems. Mavrelis currently acts as a consultant internationally (Pacific Rim) and with clients doing business in Mexico, and serves on the board of *Mujeres Latinas en Acción*, an organization whose mission is to empower Latina women. She also writes about today's pressing multicultural issues on her blog at talkingculturaldiversity.com.



Thomas Kochman, Kochman Mavrelis Associates

Kochman is founder and chief operating officer of Kochman Mavrelis Associates; professor emeritus of communication, University of Illinois at Chicago; and co-author (with Jean Mavrelis) of *Corporate Tribalism: White Men, White Women and Cultural Diversity at Work* (2009). He is also author of *Black and White Styles in Conflict* (1981) and editor of *Rappin and Stylin' Out: Communication in Urban Black America* (1972). Like Mavrelis, Kochman is nationally recognized as a leader in the field of cultural information: diversity research and management. His special focus is on the impact of cultural differences on interpersonal communication and organizational culture.

Expert-led Training Session

Internationally known speaker and author Valerie Young leads a development session on overcoming the imposter syndrome. She will provide important insight into why this form of needless self-doubt is more common in women and offer practical ways that men and women alike can banish the thought patterns that undermine our ability to feel—and act—as bright and capable as we truly are.



Valerie Young, Author

Young is an internationally known speaker, author, and confidence expert. Her award-winning book with Random House—*The Secret Thoughts of Successful Women: Why Capable People Suffer from the Impostor Syndrome and How to Thrive in Spite of It*—is available in five languages. Young has spoken on the impostor syndrome to well over 60,000 men and women at such diverse organizations as Intel, Chrysler, Boeing, IBM, Merck, Ernst and Young, BP, and Procter & Gamble as well as at 60 major colleges and universities including Harvard, MIT, Stanford, Columbia, and Princeton. Her insight and humor have made her a popular guest and keynote speaker. She earned her Ph.D. from the University of Massachusetts, where her research focused on understanding and eliminating the psychological barriers preventing women from embracing their full potential in school and in the workplace. Afterward, Young spent seven years in management at a Fortune 200 company.

Wednesday Afternoon

Four simultaneous sessions will be offered on Wednesday afternoon. The two expert-led training sessions are identical to those offered in the morning.

Panel Discussion/Working Session - Mid-Career

In this session, the panelists discuss their experiences and lessons learned as a mid-career professional in the minerals, metals, and materials field. Sharing first-hand experiences, panelists will cover key diversity and inclusion challenges and advice for others facing similar issues. A professionally facilitated session follows that will utilize the power of the group to identify challenges, strategies, resources, and recommendations for the future to ensure more opportunities for early career professionals. Attendees are encouraged to participate in the Panel Discussion/Working Session that aligns most closely with their career stage.



Linda Schadler, Rensselaer Polytechnic Institute

Schadler joined Rensselaer Polytechnic Institute (RPI) in 1996 and is the Russell Sage Professor in Materials Science and Engineering and the associate dean of academic affairs in the School of Engineering. She graduated from Cornell University with a B.S. in materials science and engineering and received a Ph.D. in the same from the University of Pennsylvania. After two years of post-doctoral work at IBM Yorktown Heights, Schadler served as a faculty member at Drexel University in Philadelphia before moving to RPI.



Nancy Bingham, Caterpillar Global Mining

Bingham is manager of inclusion and talent pipeline development for Caterpillar Global Mining. Her career spans more than 30 years, and includes leading the MINExpo trade show exhibit and program for more than 15 years. She has directed comprehensive mining education programs and has worked closely with the Caterpillar lean manufacturing program, designing global training programs for key functions in the factory, and developing suppliers around the world. Bingham works closely with universities around the world to support and encourage more women and diverse candidates to enter engineering and science fields. Bingham leads a team that is tackling cultural integration in Caterpillar Global Mining – developing and deploying inclusion workshops in the United States, Germany, China, Australia and India.



Keith Bowman, Illinois Institute of Technology (Chair)

Bowman has been a professor and chair of the Department of Mechanical, Materials and Aerospace Engineering at Illinois Institute of Technology (IIT) since August 2011. He received his B.S. and M.S. from Case Western Reserve University (CWRU) and his Ph.D. from the University of Michigan. Bowman served as a visiting professor and received Alexander von Humboldt stipends for research at the Technical University of Darmstadt, Germany, in 1996 and again in 2002. He served as a visiting professor at the University of New South Wales in Sydney, Australia, and also served a one-year appointment as interim head of the Purdue School of Materials Engineering before being named the head in 2007. Bowman has conducted engineering education research for K-12 and beginning engineering, assessment approaches, and documenting trends for gender, racial, and ethnic diversity in engineering colleges.



Jonathan Ransom, NASA

Ransom is the Head of the Durability, Damage Tolerance and Reliability Branch at the NASA Langley Research Center in Hampton, Virginia where he has worked for over 30 years. In this position, which he has held since 2002, he manages over 60 employees including civil servants, contractors, and university faculty and students. The Branch focuses on understanding and quantifying the structural behavior and the durability and damage tolerance of aircraft and spacecraft vehicles. Ransom received the Bachelor of Science Degree in Mathematics from Virginia State University in 1983, the Master of Science Degree in Engineering Mechanics from Old Dominion University in 1989, and the Doctoral Degree in Aerospace Engineering also from Old Dominion University in 2001. During his tenure at NASA, he has performed research in computational damage mechanics, finite element methods development and high performance computing methods.

Panel Discussion/Working Session - Leadership II

In this session, the panelists discuss their experiences and lessons learned as a leadership professional in the minerals, metals, and materials field. Sharing first-hand experiences, panelists will cover key diversity and inclusion challenges and advice for others facing similar issues. The emphasis of this session will be on discussing the workplace environment. A professionally facilitated session follows that will utilize the power of the group to identify challenges, strategies, resources, and recommendations for the future to ensure more opportunities for early career professionals. Attendees are encouraged to participate in the Panel Discussion/Working Session that aligns most closely with their career stage.



Jeannine Carter, Newmont Mining Corporation

Carter is the director of diversity and global inclusion at Newmont Mining Corporation. Her role was recently established to assist Newmont in being more strategic and targeted in their approach to diversity and global inclusion, because the company believes that these factors are critical drivers of their business performance, growth, employee engagement, innovation, and sustainability. She is considered a “thought leader” in her field. Carter’s domestic and international experience includes helping Fortune 500 companies, professional services and law firms, profit and not-for-profit organizations, and government agencies to implement and manage large organizational diversity initiatives. Most recently, she worked at the Denver Public Schools, which serves a diverse population representative of 130 countries and their respective languages. Carter holds a bachelor’s degree in international relations from Stanford University and an M.B.A. from Northwestern University’s Kellogg Graduate School of Management.



Beth Lewis, PCC Forged Products (Chair)

Lewis is director of technology programs for Precision Castparts (PCC) Forged Products division. In that role, she manages the development of engineers to take leadership positions within PCC, and facilitates collaborative projects across PCC Forged Products and PCC. Her previous positions include chief metallurgist and technical director for the isothermal and superalloy powder business unit of PCC/ Wyman Gordon. She has a B.S. in metallurgical engineering from the University of Florida and an M.S. in material science and engineering from Worcester Polytechnic Institute (WPI).

***Priscilla Nelson, Colorado School of Mines***

Nelson is head of mining engineering at the Colorado School of Mines (CSM). She also was a professor of civil and environmental engineering and former provost at the New Jersey Institute of Technology (NJIT). From 1994 to 2005, Nelson was at the National Science Foundation (NSF) as director of many interdisciplinary programs, and senior advisor. Prior to that, she was a professor in civil engineering at The University of Texas at Austin. She received her B.S. degree in geology from the University of Rochester and M.S. degrees in geology (Indiana University) and structural engineering (University of Oklahoma). In 1983, she received her Ph.D. in geotechnical engineering from Cornell University.

***Julia Phillips, Sandia National Laboratory***

Phillips is vice president and chief technology officer at Sandia National Laboratories, where she is responsible for leading the laboratory's approximately \$160 million Laboratory Directed Research and Development program, research strategy development and implementation, and intellectual property protection and deployment. She came to Sandia after 14 years at AT&T Bell Laboratories. At Sandia, she has served as deputy chief technology officer and director of laboratory research strategy and partnerships; director of nuclear weapons science and technology programs; director of the Physical, Chemical, and Nano Science Center; and director of the Department of Energy (DOE) Center for Integrated Nanotechnologies at Sandia and Los Alamos national laboratories. Phillips has a B.S. in physics from the College of William and Mary and a Ph.D. in applied physics from Yale University.

Expert-led Training Session with Jean Mavrelis and Thomas Kochman

This session is offered both in the morning and the afternoon. See page 26 for a complete description.

Expert-led Training Session with Valerie Young

This session is offered both in the morning and the afternoon. See page 26 for a complete description.

Networking Reception

For information about the Network Reception location and time, see page 18.

Thursday Morning



Closing Plenary: “Diversity Throughout Science and Engineering” *Mildred Dresselhaus, Massachusetts Institute of Technology*

Although progress has been made during my career in increasing diversity throughout the various fields of science and technology, equal entry has not yet been achieved. Many reasons will be given why it is in the public interest to achieve this goal. Therefore discussion within our community as well as with the public is desirable. In this context I am happy to have this opportunity to give my input on this subject as we look to the future.

Dresselhaus began her career in 1960 as a member of the research staff at the MIT Lincoln Laboratory, after earning her Ph.D. at the University of Chicago and a two-year post-doctorate at Cornell University. Her research led to her appointment as an MIT faculty member and eventually as a professor in the departments of physics and electrical engineering. She served as the director of the Office of Science at the U.S. Department of Energy in 2000-01, and has been an officer in many national organizations in physics, engineering, and related areas. Honors and awards include 31 honorary doctorates worldwide, and the National Medal of Science, the Nicholson Medal for Humanitarian Service, the Compton Award, the Fermi Prize, and the Kavli Prize. Dresselhaus co-chaired a Department of Energy study on “Basic Research Needs for the Hydrogen Economy” in 2003 and more recently co-chaired the National Academy Decadal Study of Condensed Matter and Materials Physics. She has co-authored more than 1,600 publications including books, book chapters, invited review articles, and peer-reviewed journal articles. Dresselhaus is involved in various activities that promote the increased participation of women in science and engineering.

Summit Highlights

Elizabeth Holm, Carnegie Mellon University

Closing Dialogue

Viola Acoff, University of Alabama

Dianne Chong, Boeing

Wayne Jones, University of Michigan



Mark Your Calendars

TMS

Visit www.tms.org/Meetings for an up-to-date listing of all upcoming TMS-sponsored events, including:



Anode Technology for the Aluminum Industry

September 8-12, 2014 • Tropicana Executive Conference Center • Evansville, Indiana



2014 Advanced Materials and Manufacturing Workshop

September 9-12, 2014 • Moline, Illinois



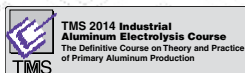
8th International Symposium on Superalloy 718 and Derivatives

September 28-October 1, 2014 • Marriott City Center • Pittsburgh, Pennsylvania



MS&T14: Materials Science & Technology 2014

October 12-16, 2014 • Pittsburgh, Pennsylvania



TMS 2014 Industrial Aluminum Electrolysis:

The Definitive Course on the Theory and Practice of Primary Aluminum Production

November 16-20, 2014 • Dubai, UAE



TMS Middle East - Mediterranean Materials Congress on Energy and Infrastructure Systems (MEMA 2015)

January 11-14, 2015 • Doha, Qatar



TMS 2015: Linking Science and Technology for Global Solutions

March 15-19, 2015 • Orlando, FL, USA



3rd World Congress on Integrated Computational Materials Engineering (ICME 2015)

May 31 - June 4, 2015 • Cheyenne Mountain Resort • Colorado Springs, Colorado, USA



Ti-2015: The 13th World Conference on Titanium

August 16-20, 2015 • Manchester Grand Hyatt • San Diego, California, USA



The 1st TMS Summit on Integrated Manufacturing and Materials Innovation

November 15-19, 2015 • Pittsburgh, PA



Follow the @TMSociety Twitter account to stay current on all meetings' updates



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