TMS The Mineral, Metals & Materials Society Presents:

DIVERSITY

IN THE MINERALS, METALS, AND MATERIALS PROFESSIONS (DMMM2)

July 25-26, 2016

Northwestern University, Evanston, Illinois, USA

FINAL PROGRAM

www.tms.org/Diversity2016

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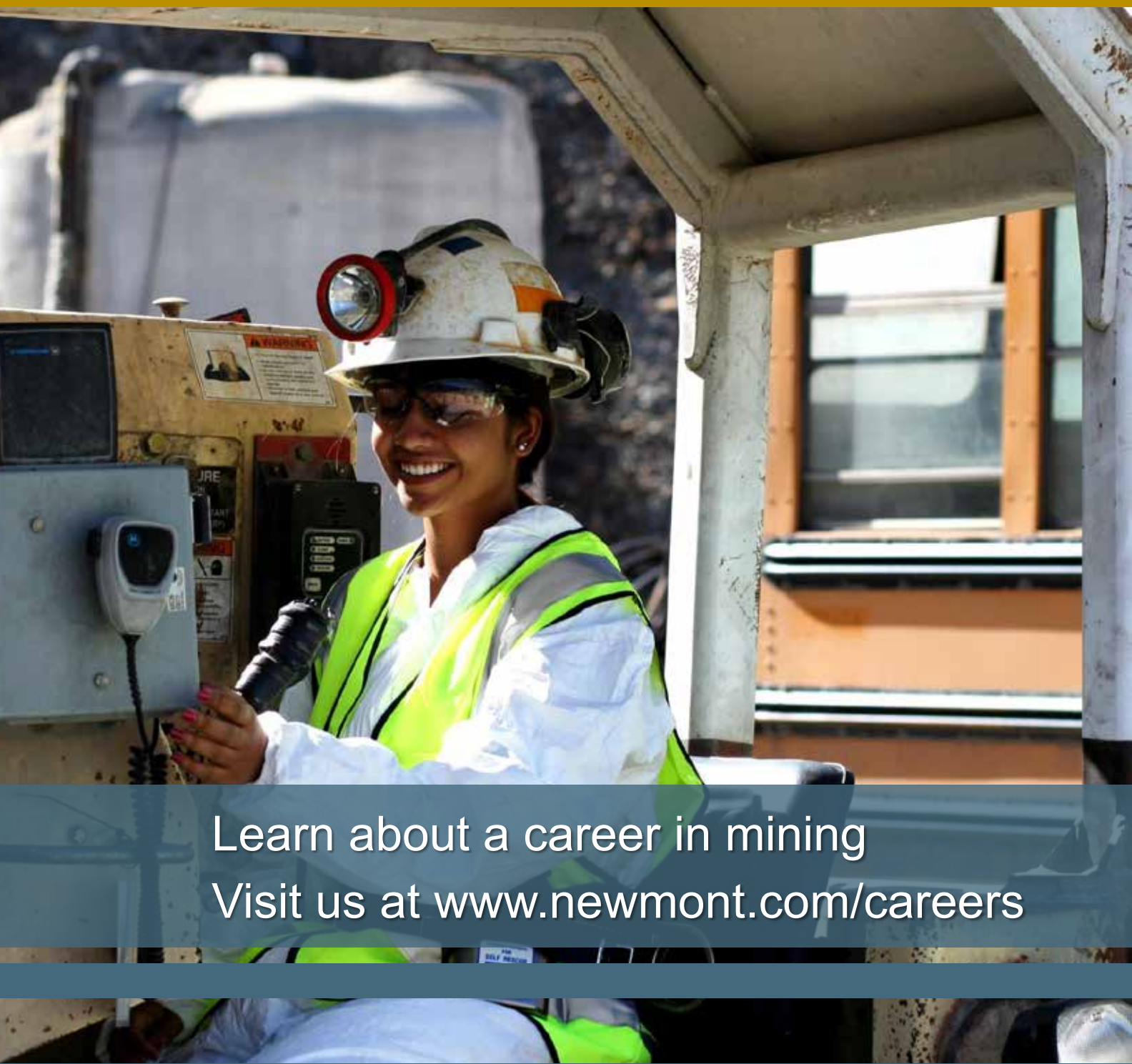

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SUMMIT SCHEDULE

Date	Function	Time
Monday, July 25	Welcome and Opening Remarks - *Amy Clarke, Colorado School of Mines and Los Alamos National Laboratory; Daniel Linzer, Northwestern University*	8:30 a.m. – 8:50 a.m.
	Opening Plenary: "A Perspective from the First Summit on Diversity in the Minerals, Metals, and Materials Professions" - *Elizabeth Holm, Carnegie Mellon University*	8:50 a.m. – 9:20 a.m.
	"Re-Writing Diversity" - *Christopher Yates, Caterpillar*	9:20 a.m. – 10:00 a.m.
	Break	10:00 a.m. – 10:30 a.m.
	"Increasing Diversity in the STEM Professoriate and Workforce" - *Dina Stroud, Vanderbilt University*	10:30 a.m. – 11:00 a.m.
	"Advancing Diversity at the National Science Foundation" - *Lynnette Madsen, National Science Foundation*	11:00 a.m. – 11:30 a.m.
	"Highlights from the Transforming the Diversity Landscape Symposium: The Importance of Empathy on the Individual and Program Level"	11:30 a.m. – 11:50 a.m.
	Awards Presentation	11:50 a.m. – 12:30 p.m.
	Lunch	12:30 p.m. – 2:00 p.m.
	Breakout Sessions on Pipeline I, Recruitment I, and Retention I	2:00 p.m. – 3:30 p.m.
	Break	3:30 p.m. – 4:00 p.m.
	Breakout Sessions on Pipeline II, Recruitment II, and Retention II	4:00 p.m. – 5:30 p.m.
	Networking Reception in Heritage Ballroom at Hilton Hotel Orrington	5:45 p.m. –7:00 p.m.
Tuesday, July 26	"Strategies for Increasing Underrepresented Minority (URM) Engagement in the STEM Professions" - *Tresa Pollock, University of California, Santa Barbara*	8:30 a.m. – 9:00 a.m.
	"Best Practices for Building a Welcoming and Inclusive Workplace Culture" - *Michelle Buchanan, Oak Ridge National Laboratory*	9:00 a.m. – 9:30 a.m.
	"Addressing Factors Behind the Self-Induced Glass Ceiling and Supporting New Pathways to Career Fulfillment" - *Susan Kiehl, Lockheed Martin*	9:30 a.m. – 10:00 a.m.
	Panel Discussion with Plenary Speakers	10:00 a.m. – 10:30 a.m.
	Break	10:30 a.m. – 11:00 a.m.
	Breakout Sessions on Early Career, Executive I, and Professional Development Training (Talia Fox, KUSI Training)	11:00 a.m. – 12:30 p.m.
	Lunch	12:30 p.m. – 2:00 p.m.
	Breakout Sessions on Mid-Career, Executive II, and Professional Development Training (Nicholas Pearce, The Vocati Group)	2:00 p.m. – 3:30 p.m.
	Break	3:30 p.m. – 3:50 p.m.
	Wrap-Up & Summary	3:50 p.m. – 4:20 p.m.

WELCOME FROM STANLEY M. HOWARD

Dear attendees,

On behalf of the leadership of The Minerals, Metals & Materials Society (TMS), I welcome you to the Second Summit on Diversity in the Minerals, Metals, and Materials Professions (DMMM2). By now we all know that creating a more diverse and inclusive workplace benefits everyone—individual scientists and engineers, entire organizations, and the materials science and engineering profession. This is why TMS has assumed a leadership role in advancing diversity and inclusion in the minerals, metals, and materials professions through its 2018 Strategic Goals. The DMMM2 summit is a key element in our goals. It is a place where we share the practices, and resources that will make us a more informed and effective professional community trained and empowered to promote and create diversity

Building on the success of the inaugural event held in 2014, this summit is intended to give attendees the skills and strategies to build a more diverse and inclusive professional community, starting with their own workplaces and career experiences. Over the next two days, we will continue the progress we made at DMMM1 by addressing pipeline, recruitment, and retention issues as well as other key topics such as underrepresented minority engagement, workplace culture, and pathways to career fulfillment. I hope the summit will enable you to expand your network of colleagues. Let us share our varied and valued experiences and perspectives. The challenges are many but so are the opportunities to make a difference.

I look forward to a very successful and exciting Second Summit on Diversity in the Minerals, Metals, and Materials Professions.

Warmest regards,

Stanley M. Howard
2016 TMS President

SUMMIT ORGANIZERS

Chair: Amy Clarke, *Colorado School of Mines and Los Alamos National Laboratory*

Keith J. Bowman, *San Francisco State University*

Ann Carpenter, *Remote Energy Solutions*

Benjamin Cordani, *Caterpillar*

Elizabeth Holm, *Carnegie Mellon University*

Beth Lewis, *Wyman-Gordon Forgings*

Jonathan Madison, *Sandia National Laboratories*

Dear attendees,

Welcome to the 2nd Summit on Diversity in the Minerals, Metals, and Materials Professions (DMMM2), July 25–26, 2016 at Northwestern University in Evanston, Illinois. Thank you for taking the time to lead by example and attend this two-day summit focused on diversity and inclusion in the workplace. We appreciate your willingness to join, advocate for, and further the discussion of the challenges and opportunities that face us today and tomorrow, while remembering and being inspired by our collective past.

DMMM2 is organized in honor of Frank Crossley, a member of TMS and the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME) since 1947 and the first African American to earn a Ph.D. in Metallurgical Engineering in 1950. The inaugural Frank Crossley Diversity award will be presented at DMMM2, along with the third Ellen Swallow Richards Diversity Award, to honor the achievements of these pioneers in the minerals, metals, and materials professions and recognize the people continuing their legacies.

DMMM2's solutions-driven programming will examine three themes identified through the work of DMMM1 in 2014, including:

- Strategies for increasing underrepresented minority (URM) engagement in the science, technology, engineering, and mathematics (STEM) professions;
- Best practices for building a welcoming and inclusive workplace culture; and
- Addressing factors behind the self-induced glass ceiling and supporting new pathways to career fulfillment.

The question becomes—how do we measure progress and missed opportunities by not being a more diverse and inclusive profession? In the words of Frank Crossley, "When I first embarked on the road to becoming an engineer, I did not know any black engineers. But I decided that if I could not get a job, it would be the United States' loss because I was going to Canada or Mexico."[1, 2] It remains difficult today to develop a clear and measurable understanding of the lost innovation, creativity, and productivity resulting from a lack of diversity and inclusion in the workplace.

During DMMM2, we will strive to examine not just why, but how to advance diversity and inclusion in the workplace. You will take home skills and strategies to effect change in your own career and institution and network with colleagues who share a similar commitment. DMMM2 will not only include case studies and best practices aimed at measuring our progress in diversity and inclusion, but also plenary talks and panel discussions, and interactive breakout sessions focused on pipeline, recruitment, and retention in the minerals, metals, and materials professions and early-, mid-, and executive career strategies across academia, industry, and government.

The support of TMS, co-sponsorship by AIME, the Society for Mining, Metallurgy & Exploration, and the National Science Foundation, and partnership from Newmont, the Center for Hierarchical Materials Design (CHiMaD) and Materials Research Science and Engineering Center (MRSEC) at Northwestern University, and Los Alamos National Laboratory is greatly appreciated. The time and energy spent by the organizing committee, TMS staff, and invited presenters is invaluable, making it possible for this summit to provide solutions-driven programming to impact your own career and workplace.

Again, I thank you for participating in DMMM2. I encourage open and honest dialogue during this program and beyond, as we strive to raise the level of awareness and advocacy for diversity and inclusion in the minerals, metals, and materials professions.

Sincerely,

Amy Clarke
DMMM2 Organizing Committee Chair
Associate Professor, Colorado School of Mines
Guest Scientist, Los Alamos National Laboratory

[1] L. Robinson, "Frank Crossley: A Man of Mettle," *JOM*, July 2016.
[2] "Missile Scientist on Target," *Ebony*, September 1975, pp. 158–161.

THE MINERALS, METALS & MATERIALS SOCIETY (TMS)

TMS is a professional society that connects minerals, metals, and materials scientists and engineers who work in industry, academia, and government positions around the world. We create networking, publication, and professional development opportunities by convening international conferences, publishing books and journals, administering awards, and developing standards for the professions we serve. TMS currently supports more than 13,000 professional and student members in 94 countries on six continents. Our members work in a variety of disciplines within the minerals, metals, and materials fields. TMS serves their technical interests within five broadly categorized technical divisions: Extraction & Processing, Functional Materials, Light Metals, Materials Processing & Manufacturing, and Structural Materials. The Society's history dates back to 1871, the year that the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME) became one of the first national engineering societies in the United States. In 1957, TMS was established as The Metallurgical Society of AIME, changing its name to The Minerals, Metals & Materials Society in 1989 to reflect a broader technical scope. www.tms.org

AMERICAN INSTITUTE OF MINING, METALLURGICAL, AND PETROLEUM ENGINEERS (AIME)

AIME was 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

SOCIETY FOR MINING, METALLURGY, & EXPLORATION (SME)

SME is a nonprofit, professional society with more than 15,000 members representing professions serving the minerals industry in more than 85 countries. Member professions include mining engineering, mineral processing, geosciences and exploration, tunneling and underground construction, environmental sustainability and mineral economics. AIME, the parent organization of SME, was founded in 1871 by 22 mining engineers. The eight divisions of SME—Coal & Energy, Environmental, Health & Safety, Industrial Minerals & Aggregates, Mineral & Metallurgical Processing, Mining & Exploration, Underground Construction Association (UCA of SME), and WAAIME (formerly the Woman'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. Members have access to OneMine.org – a global, online digital research center, publications including *Mining Engineering* magazine, *Tunneling & Underground Construction* magazine and the peer reviewed *Minerals & Metallurgical Processing* journal. SME writes the Mining & Mineral Processing Professional Engineers exam, which is distributed to the states by NCEES. www.smenet.org

NATIONAL SCIENCE FOUNDATION (NSF)

NSF is an independent federal agency created by Congress in 1950 "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense…" With an annual budget of $7.5 billion (FY 2016), NSF is the funding source for approximately 24 percent of all federally supported basic research conducted by America's colleges and universities. NSF's goals—discovery, learning, research infrastructure, and stewardship—provide an integrated strategy to advance the frontiers of knowledge, cultivate a world-class, broadly inclusive science and engineering workforce and expand the scientific literacy of all citizens, build the nation's research capability through investments in advanced instrumentation and facilities, and support excellence in science and engineering research and education through a capable and responsive organization. www.nsf.gov

NEWMONT MINING CORPORATION

Newmont Mining Corporation is one of the world's leading gold and copper producers. Founded in 1921, the company currently has approximately 32,000 employees and contractors who work at operations and advanced development projects in six countries around the world. Newmont's purpose is to create value and improve lives through sustainable and responsible mining. Our presence in a community can span decades, from early exploration to constructing a mine, extracting and processing minerals, and ultimately closing the mine and reclaiming the land. Throughout the mine lifecycle, we strive to serve as a catalyst for local economic development through transparent and respectful stakeholder engagement and as responsible stewards of the environment. In 2015, Newmont was named the mining sector leader by the Dow Jones Sustainability World Index for our strong economic, environmental and social practices. This recognition reflects the deep commitment to sustainability shared by all of our employees. www.newmont.com

LOS ALAMOS NATIONAL LABORATORY

CENTER FOR HIERARCHICAL MATERIALS DESIGN, NORTHWESTERN UNIVERSITY

MATERIALS RESEARCH SCIENCE AND ENGINEERING CENTER, NORTHWESTERN UNIVERSITY

ABOUT THE VENUE

Norris University Center
Northwestern University
1999 Campus Drive
Evanston, Illinois 60208

The **Hilton Orrington/Evanston Hotel** is about an 11 minute walk to Norris University Center on the Northwestern University campus.

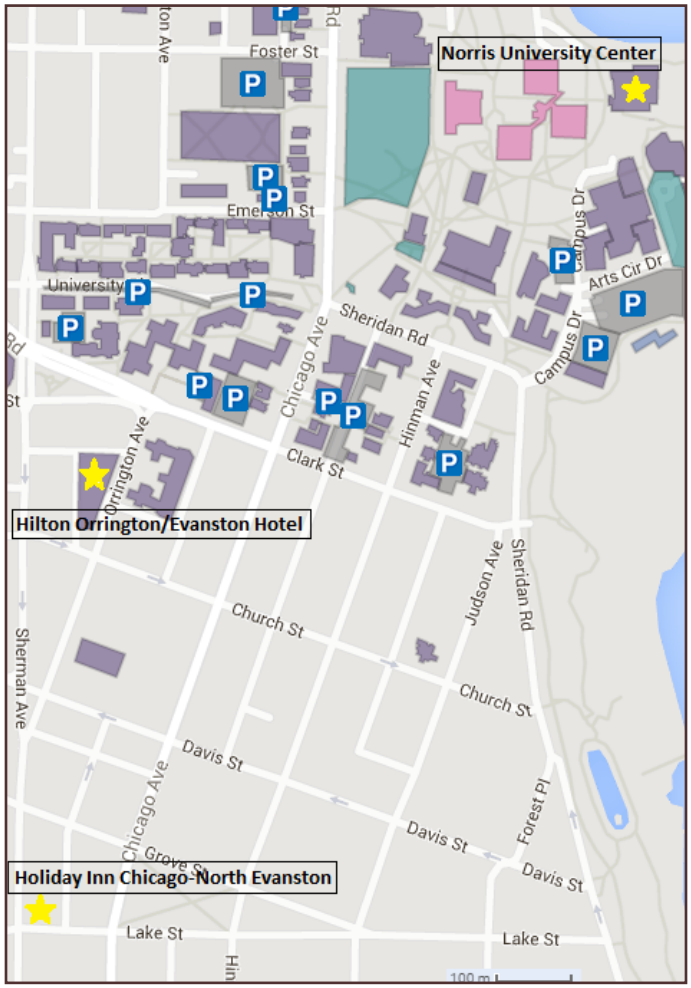
The **Holiday Inn Chicago North-Evanston** is about a 16 minute walk to Norris University Center on the Northwestern University campus.

Parking

Visitors and guests will need a permit if they plan to park on campus. Individuals may purchase daily visitor permits at the Parking Services Office, or pay the daily rate at pay stations located in the North and South Parking Garages. For more information, contact:

Evanston Campus Parking Services
1841 Sheridan Road
Evanston, Illinois 60208
Office hours: 8:00 a.m. to 4:00 p.m.
Phone: (847) 491–3319

MAP OF AREA



SUMMIT EVENT INFORMATION

ABOUT THE SUMMIT

Thank you for attending DMMM2. Your full-conference registration fee includes:

- Admission to the full program including plenary presentations, professional development workshops, and break-out sessions
- Access to all refreshment breaks
- Lunch on July 25 and July 26
- One ticket to the July 25 networking reception

If you require a reprint of your receipt, please contact TMS staff at the registration desk in the lobby outside 100 McCormick Auditorium or contact TMS Customer Service at members@tms.org.

REGISTRATION HOURS

The registration desk will be located in the lobby outside 100 McCormick Auditorium in Norris University Center.

July 25 from 7:30 a.m. to 5:00 p.m.
July 26 from 7:30 a.m. to 4:30 p.m.

SPECIAL EVENTS: NETWORKING RECEPTION

Monday, July 25 • 5:45 p.m. to 7:00 p.m.

DMMM2 programming and networking events will take place on the Northwestern University campus with the exception of the reception in the Heritage Ballroom at the Hilton Orrington/Evanston Hotel.

ITEMS OF NOTE

Time

All times in this program refer to Central Daylight Time (UTC -500).

Language

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

Currency

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

Internet Access

The Hilton Orrington/Evanston Hotel provides complimentary WiFi in the guest rooms, but there is a charge for internet in the meeting rooms. The Holiday Inn Chicago North-Evanston offers complimentary high speed internet access in all guest rooms.

To connect to WiFi on the Northwestern University campus, please follow these steps:

1. Choose “Guest-Northwestern” SSID from the list of available networks on your laptop, tablet, or smartphone.
2. Enter your contact information and sponsoring individual/campus organization: Materials Science & Engineering
3. Read and accept the university’s acceptable use policy.
4. Select “Register” and connect to network.

Mother’s Room

A designated room will be available for nursing mothers with infant children. Please check the registration desk for key access to the room. Please contact Louise Wallach, TMS Senior Manager, Events, Education & Exhibitions, at lwallach@tms.org for any other inquiries.

MEETING POLICIES

Badges

All attendees must wear registration badges at all times during the summit to ensure admission to events included in the paid fee, such as presentations and receptions.

Refunds

The deadline for registration fee refunds was June 30, 2016. Fees and tickets are nonrefundable.

American with Disabilities Act

The federal Americans with Disabilities Act (ADA) prohibits discrimination against, and promotes public accessibility for, those with disabilities. In support of, and in compliance with ADA, we ask those requiring specific equipment or services to contact TMS Meeting Services at mtgserv@tms.org in advance.

Cell Phone Use

In consideration of attendees and presenters, we kindly request that you minimize disturbances by setting all cell phones and other devices to "silent" during the 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. By registering for this meeting, all attendees acknowledge that they may be photographed by TMS personnel while at events and that those photos may be used for promotional purposes, in and on TMS publications and websites, and on social media sites.

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.

Anti-Harassment Policy

In all activities, TMS is committed to providing a professional environment free of harassment, disrespectful behavior, or other unprofessional conduct.

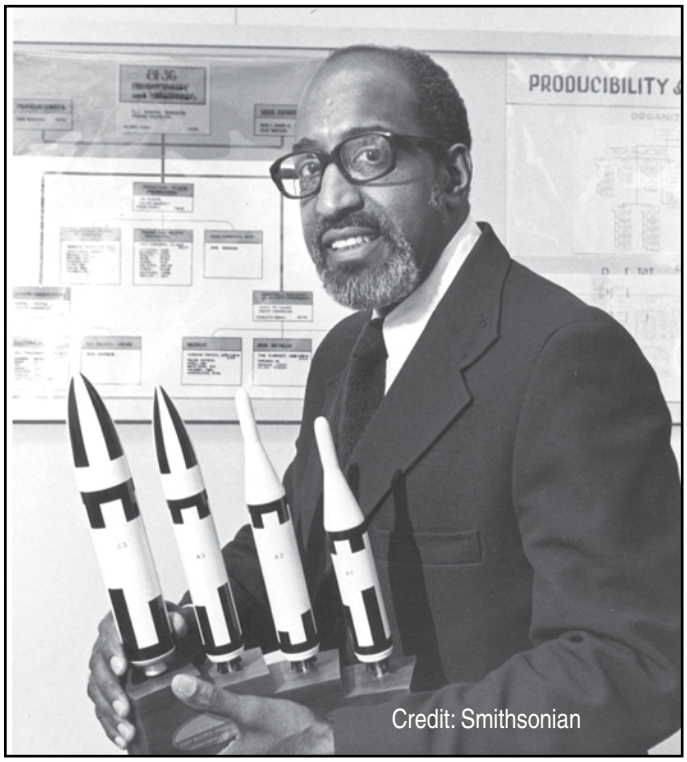
TMS policy prohibits conducts that is disrespectful, unprofessional, or harassing as related to any number of factor including, but not limited to, religion, ethnicity, gender, national origin or ancestry, physical or mental disability, physical appearance, medical condition, partner status, age, sexual orientation, military and veteran status, or any other characteristic protected by relevant federal, state, or local law ordinance or regulation. Failure to comply with this policy could lead to censure from the TMS Board of Directors, potential legal action, or other actions.

Anyone who witnesses prohibited conduct or who is the target of prohibited verbal or physical conduct should notify a TMS staff member as soon as possible following the incident. It is the duty of the individual reporting the prohibited conduct to make a timely and accurate complaint so that the issue can be resolved swiftly.

Antitrust Compliance Policy

TMS complies with the antitrust laws of the United States. Attendees are encouraged to consult with their own corporate counsel for further guidance in complying with U.S. and foreign antitrust laws and regulations.

ABOUT THE SUMMIT HONOREE



Frank Crossley

Frank Crossley earned a B.S. in chemical engineering from the Illinois Institute of Technology (IIT) in 1945. During his undergraduate studies, Crossley entered the U.S. Naval Reserve Midshipmen's School for training as a naval officer. After graduating, he served as an officer on the *U.S.S. Storm King* for one year before beginning his graduate studies at IIT. In 1947, Crossley became a member of the American Institute of Mining and Metallurgical Engineers (now AIME), retained his membership with TMS, and is still a TMS member today. In 1950, he became the first African American to earn a Ph.D. in metallurgical engineering. Two years later Crossley became a senior scientist at the Illinois Institute of Technology Research Institute (IITRI), where he began development of a new class of high-strength titanium alloys. In 1966, he left IITRI for Lockheed Missiles & Space Company, where he continued his groundbreaking work for 20 years. He then spent five years with GenCorp AeroJet before retiring and serving as a volunteer math and science tutor for elementary, middle, and high school students.

AWARDS PRESENTATION

Monday, July 25 • 11:50 a.m. to 12:30 p.m.
Norris University Center
Room: 100 McCormick Auditorium

PRESENTERS

Viola Acoff, *University of Alabama and 2014 Ellen Swallow Richards Diversity Award Recipient*

Desne Crossley, *Daughter of Summit Honoree Frank Crossley*

2016 FRANK CROSSLEY DIVERSITY AWARD RECIPIENT

The TMS Frank Crossley Diversity Award recognizes an individual who has overcome personal, professional, educational, cultural, or institutional adversity to pursue a career in minerals, metals, and/or materials. Presentation of this award is supported by a gift to the TMS Foundation from Dr. and Mrs. Jeffrey Wadsworth.

Carolyn Hansson**, **University of Waterloo

Carolyn Hansson is a professor in both the Mechanical and Mechatronics Engineering and the Civil and Environmental Engineering Departments at the University of Waterloo and is a faculty member of the Centre for Pavement and Transportation Technology. During her time at the University of Waterloo, Hansson spent five years as Vice President University Research, where she was responsible for facilitating the research activities of faculty members across all disciplines of the university. Hansson received her B.Sc., A.R.S.M, D.I.C., and Ph.D. in metallurgical engineering from Imperial College, London University. Over the last 20 years, her major research focus has been on the durability of infrastructure materials, particularly the chloride-induced corrosion of reinforcing bar and those properties of the concrete which affect this process. Currently, her research is focused on the application of corrosion–resistant alloys as reinforcing materials with a view to understanding the influence of the metallurgy on the corrosion resistance and prediction of the relative life-cycle costs of the different alloys. "TMS has been my professional home for 47 years! I received the TMS-AIME Robert Lansing Hardy Gold Medal at the AIME 100th anniversary meeting in New York and have tried to live up to that promise ever since," said Hansson. "I left the U.S. in 1980 and spent nine years in Denmark before emigrating to Canada in 1989. Attending my first TMS annual meeting after nine years felt very much like a homecoming to a very large, very warm family. I trust it will continue to do so for many years to come."

2016 ELLEN SWALLOW RICHARDS DIVERSITY AWARD RECIPIENT

The TMS Ellen Swallow Richards Diversity Award recognizes an individual who has helped or inspired others to overcome personal, professional, educational, cultural, or institutional adversity to pursue a career in minerals, metals, and/or materials. Presentation of this award is supported by a gift to the TMS Foundation from Dr. and Mrs. Jeffrey Wadsworth.

Lynnette Madsen**, **National Science Foundation

Lynnette Madsen has worked at the National Science Foundation (NSF) as a Program Director in Materials Research since 2000. Additionally, she has completed three details dealing with international efforts with Africa, increasing the advancement of women in academic careers, and strategic human capital analysis and planning. She has also led new co-operative activities with European researchers in materials; been part of the driving force in program development and initiatives in nanotechnology, manufacturing, sustainability, education, and diversity; and has had an active independent research program. Previously, she was on faculty at Linköping University and held a visiting/adjunct faculty position at Carnegie Mellon University. She has been recognized by NSF (two Director Awards, 10 Performance Awards, and an Incentive Award for Timely Program Management), ABET (Claire L. Felbinger Award for Diversity), the American Vacuum Society (Excellence in Leadership Recognition), the Society of Hispanic Professional Engineers (Junipero Serra Award), the University of Waterloo (Professional Achievement Alumni Medal from Engineering), and the Materials Research Society (Presentation Award). "I am very impressed with TMS' dedication and efforts towards diversity. It will take a concerted effort across a broad spectrum of the community to make progress," Madsen said. "It is absolutely necessary to tap and nurture all science and engineering talent to spark innovation, expedite technological progress, and provide fulfilling and productive careers. I applaud TMS for their focus on diversity and other science policy issues."

MONDAY MORNING

Monday Morning
Room: 100 McCormick Auditorium

WELCOME AND OPENING REMARKS

Amy Clarke, Colorado School of Mines and Los Alamos National Laboratory

Amy Clarke is an associate professor in the George S. Ansell Department of Metallurgical and Materials Engineering and the Site Director for the Center for Advanced Non-Ferrous Structural Alloys at the Colorado School of Mines (CSM). She is also a guest scientist at Los Alamos National Laboratory (LANL). Clarke earned her B.S. from Michigan Technological University (MTU) and her M.S. and Ph.D. from CSM in metallurgical and materials engineering. Prior to joining CSM, she was a scientist and Seaborg Institute Postdoctoral Fellow at LANL and senior engineer – development/research at Caterpillar Inc. Clarke has received a U.S. Department of Energy Office of Science Early Career Research Program Award, a Presidential Early Career Award for Scientists and Engineers (PECASE), TMS Young Leaders International Scholar – JIM and FEMS Awards, and a TMS Materials Processing & Manufacturing Division Young Leaders Professional Development Award. She also serves on the TMS Board of Directors as Chair, Member & Student Development, and on the *Metallurgical and Materials Transactions* Joint Commission.

Daniel Linzer, Northwestern University

Daniel Linzer joined Northwestern University in 1984 as an assistant professor, and is now professor of molecular biosciences. He has conducted pioneering research on the molecular basis of hormone action. Following four years as associate dean, Linzer was appointed Dean of Weinberg College of Arts and Sciences in 2002 and became provost of the university in 2007. Prior to coming to Northwestern, Linzer received his B.S. in molecular biophysics and biochemistry from Yale University in 1976 and a Ph.D. in biochemical sciences from Princeton University in 1980. He completed a National Institutes of Health postdoctoral fellowship at The Johns Hopkins University School of Medicine. Among the many awards he has received are the Searle Scholars Award, the American Cancer Society Faculty Research Award, and the Northwestern Alumni Association Excellence in Teaching Award.

Opening Plenary: "A Perspective from the First Summit on Diversity in the Minerals, Metals, and Materials Professions"

Elizabeth A. Holm, Carnegie Mellon University

Abstract: *The First TMS Summit on Diversity in the Minerals, Metals, and Materials Professions was held in July 2014 and proved to be groundbreaking in many ways. Over 115 attendees from government, academia, and industry participated in the two-and-one-half day summit and nearly 30 invited speakers presented in a range of formats. Offering a synergistic mixture of keynote presentations, panel discussions, facilitated workshops, training modules, and peer-to-peer networking functions, this innovative summit provided a unique opportunity to gain greater insight and contribute to recommendations for solutions on a critically important, though often neglected topic. Attendees also walked away with practical ideas to create and sustain diversity and inclusion in their organizations. A few overarching themes emerged early on and continued throughout the summit: mentorship, work-life balance, community, awareness, and vigilance. These concepts, which were captured in a final report (www.tms.org/DiversityReport), will be further explored in DMMM2, and will be discussed in this presentation.*

Elizabeth A. Holm is a professor of materials science and engineering at Carnegie Mellon University (CMU). 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, the physical and mechanical response of microstructures, atomic-scale properties of internal interfaces, and the intersection between computer science and materials science. Holm obtained her B.S.E in materials science and engineering from the University of Michigan, S.M. in ceramics from the Massachusetts Institute of Technology, and dual Ph.D. in materials science and engineering and scientific computing from the University of Michigan. Active in professional societies, Holm has received several honors and awards, is a Fellow of ASM International, 2013 TMS President, an organizer of numerous international conferences including the First TMS Summit on Diversity in the Minerals, Metals, and Materials Professions (DMMM1), and has been a member of the National Materials Advisory Board. Holm has authored or co-authored over 120 publications.

Opening Plenary: "Re-Writing Diversity"

Christopher Yates, Caterpillar

Abstract: *The issue of difference sits at the core of many of the world's crises. Large corporations are a microcosm of the globalized world we inhabit, and hold significant power in shaping our societies and ideas. Despite decades of work in diversity and inclusion, little progress has been made because current approaches focus on specific contexts, short-term results and commercial returns, rather than taking into account what we know about human behavior and addressing the social and economic cultures in which we operate. Global studies have shown that organizations with diverse and inclusive cultures are 45% more likely to have improved their market share, reduced turnover and increased employee effort in the last 12 months. Implementing a diversity quota however is not enough: It's inclusion that matters. When coupled with an inclusive culture, diversity delivers higher performance, less absenteeism, more customer satisfaction and greater innovation.*

Chris Yates, CLO and Director of People & Organizational Development has created a culture of openness, empathy and inclusion at Caterpillar, through linking D&I to today's volatile, uncertain, chaotic and ambiguous (VUCA) world. Join this interactive session to discuss best practices for changing corporate strategy, including: understanding the range of social, psychological, cultural and evolutionary factors that affect how we think about ourselves, others, group dynamics, and the impact of differences and power; leveraging this knowledge to influence and change mindsets; studying casual maps and tactical steps to start the psychological and cultural shift; pursuing a step by step approach to bring about a shift in mindset at the individual, organizational and social level; give a current example of how this approach can be tactically brought to life in a global organization – Caterpillar; and discussing whether HR has failed diversity, and the business advantages of inclusive company culture.

Christopher Yates has been the chief learning officer and director of people and organizational development at Caterpillar since 2013. He founded Ethical Organizational Design, a small consulting firm based in London focused on values-based leadership, in 2012. Previously, he was the group head of organizational development of HSBC Holdings. In this role, he looked after employee engagement, culture, change, leadership, diversity and inclusion, and a range of other human resources aspects globally. Before joining HSBC, Yates worked for nearly 15 years as American Express in a range of roles, most notably as the vice president of talent & organizational capability, a global role that focused on all aspects of the talent pipeline and organizational effectiveness. Yates has also worked at Cannon UK Ltd. and at Kings College Health Care in the National Health Service. He earned his B.A. in combined arts-psychology at Leicester University and his M.Sc. in occupational and organizational psychology at the University of East London. In 2015 he co-authored the book *Rewire—A Radical Look at Diversity and Inclusion.*

CASE STUDY PRESENTATIONS

Presenters will speak about their experiences implementing tactics to advance diversity within their workplace.

"Increasing Diversity in the STEM professoriate and workforce: Lessons from the Fisk-Vanderbilt Master's to PhD Bridge Program"

Dina Myers Stroud, Vanderbilt University

Abstract: *Since the 2004, the mission of the Fisk-Vanderbilt Master's to Ph.D. is to broaden participation of underrepresented minorities in astronomy, biology, chemistry, physics and materials science. In the program, students begin with a master's degree at Fisk, a historically black university, while taking courses and performing research at both Fisk and Vanderbilt. To date, we have enrolled 110 students, 95% of them from underrepresented and undeserved groups. We use evidence-based methods, to recruit and retain students, with an 87% retention rate to the Ph.D. We have graduated 57 master's students and 23 Ph.D.s and are on track to graduate three to five students a year. All of our Ph.D. graduates had employment prior to their graduation many before their defense. During this presentation, I will focus on the methods we have developed for identifying and recruiting talented students.*

Dina Myers Stroud is the executive director of the Fisk-Vanderbilt Master's to Ph.D. Bridge Program, whose mission is to increase the number of underrepresented minorities in the STEM workforce and academe. Stroud is a research assistant professor in the Departments of Physics and Astronomy and Medicine at Vanderbilt University and adjunct assistant professor of Physics at Fisk. Stroud received B.A. degrees in zoology and women's studies from Ohio Wesleyan University and earned her Ph.D. in molecular biology from Vanderbilt. After postdoctoral fellowships at the University of California, Los Angeles and New York University, Stroud returned to Vanderbilt in 2007.

At Vanderbilt, her research focuses on cardiovascular genetics using mouse models of heart disease. She joined the Fisk-Vanderbilt Executive Team in 2012 and has overseen significant growth in the program and generated tools to improve student mentoring and tracking.

"Advancing Diversity at the National Science Foundation"

Lynnette Madsen, National Science Foundation

Abstract: *Broadening engagement in science and engineering is an important step towards alignment of interests with careers, technological advancement, and economy prosperity. At the U.S. National Science Foundation (NSF), this hot topic garners much attention. Many current programs/initiatives are foundation-wide such as Career-Life Balance (CLB) and Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (INCLUDES). Also, NSF has targeted programs and opportunities to assist people with disabilities, veterans, women, underrepresented minorities, etc. The keys to supporting the best research are to encourage and guide underrepresented group members, meet specific needs that exist in today's workforce, and be cognizant while making funding recommendations (to counteract biases, uneven playing fields, stereotyping, family care responsibilities, etc.). My approaches include: raising awareness, actively working on diversity efforts, initiating recognitions for mentors, funding supplements that support diversity, using a diverse set of reviewers, and ensuring diverse portfolios within my programs.*

Lynnette Madsen has worked at the National Science Foundation (NSF) as a program director in materials research since 2000. Additionally, she has completed three details dealing with international efforts with Africa, increasing the advancement of women in academic careers, and strategic human capital analysis and planning. She has also led new co-operative activities with European researchers in materials; been part of the driving force in program development and initiatives in nanotechnology,

manufacturing, sustainability, education, and diversity; and has had an active independent research program. Previously, she was on faculty at Linköping University and held a visiting/adjunct faculty position at Carnegie Mellon University. Earlier, she spent a decade working in industry in Canada. To date she has more than 90 publications; been awarded two patents; and delivered more than 90 invited talks. She has served as a panelist for the National Academies, currently serves as an advisory board member for the Rosalind Franklin Society and as a trustee for the American Vacuum Society (AVS), and is a Fellow of The American Ceramic Society. Madsen is the 2016 recipient of the TMS Ellen Swallow Richards Diversity Award. She has also been recognized by the NSF (two Director Awards, 10 Performance Awards, an Incentive Award for Timely Program Management), the Accreditation Board for Engineering and Technology (Claire L. Felbinger Award for Diversity), AVS (Excellence in Leadership Recognition), the Society of Hispanic Professional Engineers (Junipero Serra Award), the University of Waterloo (Professional Achievement Alumni Medal from Engineering), and the Materials Research Society (Presentation Award).

"Highlights from the Transforming the Diversity Landscape Symposium: The Importance of Empathy on the Individual and Program Levels"

Presenters: ***David Hwang, Natalie Larson, and Wennie Wang, University of California, Santa Barbara***

Abstract: *Natalie Larson, Wennie Wang, and David Hwang will discuss highlights from the student-led "Transforming the Diversity Landscape" symposium held at the TMS 2016 Annual Meeting & Exhibition. The key finding of this symposium was the importance of empathy on the individual and programs levels. On the individual level, they will describe how empathy in mentoring, recruitment, and outreach can reduce the barriers to entering or remaining in STEM. This empathy can be developed by understanding implicit biases and learning about challenges faced by certain demographics, and guided mentoring. On a program level, initiatives that consider different life and career paths can more effectively retain and recruit currently underrepresented minorities (URMs). As specific examples, they highlight their experiences with on-campus diversity and inclusion efforts and the Fisk-Vanderbilt Master's-to-Ph.D. Bridge Program, which focuses on the master's-then-Ph.D. path more commonly taken by URMs and uses grit as an alternative admissions criterion.*

MONDAY AFTERNOON

Pipeline I Breakout Session

Session Chair: Jonathan Madison, Sandia National Laboratories
Room: 206 Arch Room

Presenters will speak about problems, recommendations, and the impact of the pipeline on their workforce diversity. At the conclusion of this session, there will be a panel discussion with all three of the presenters.

Oscar Dubón, University of California, Berkeley

Oscar Dubón is professor of materials science and engineering (MSE) and associate dean for Student Affairs and Equity & Inclusion in the College of Engineering at the University of California, Berkeley (UC Berkeley). In addition, he is faculty scientist at the Lawrence Berkeley National Laboratory. He received a B.S. from the University of California, Los Angeles (UCLA) and M.S. and Ph.D. from UC Berkeley, all in MSE. After postdoctoral appointments at UC Berkeley and Harvard University, he joined the UC Berkeley faculty in 2000. Dubón is a recipient of the UCLA Citation, Engineering Achievement Award for Student Welfare (1989), TMS Robert Lansing Hardy Award (2000), and the Presidential Early Career Award for Scientists and Engineers (2004). His research focuses on elucidating the relationship between defects and properties in electronic materials and exploring growth mechanism in semiconductor epitaxy. In his role of associate dean, Dubón leads the college-wide effort to foster a more welcoming and diverse engineering community at UC Berkeley.

Theodore Hodapp, *American Physical Society*

Theodore Hodapp is the director of education and diversity for the American Physical Society (APS). The APS Department of Education and Diversity runs programs that advocate issues relevant to minorities and women, and in areas of education and professional development. Hodapp is project director of the APS Bridge Program, which is erasing the achievement gap for underrepresented minority students at the Ph.D. level in physics. He helps lead a large National Science Foundation (NSF) and APS-funded national effort, the Physics Teacher Education Coalition (PhysTEC) that is increasing the quantity of highly-qualified high school physics teachers. He is principal investigator on several grants that support APS Conferences for Undergraduate Women in Physics, and is currently developing a national effort to provide local mentors for underrepresented minority students studying physics, the APS National Mentoring Community. Before coming to the APS, Hodapp served as program director in the NSF's Division of Undergraduate Education, working with programs in curriculum development and implementation, teacher preparation, scholarships, education assessment and digital libraries. Prior to coming to the NSF, Hodapp was professor and chair of the Hamline University Physics Department. He served as chair of the Physics and Astronomy Division of the Council on Undergraduate Research, and is a Fellow of the American Physical Society and the American Association for the Advancement of Science. His research interests include laser cooling, optical modeling, and physics education research.

Justin Schwartz, *North Carolina State University*

Justin Schwartz received a B.S. from the University of Illinois at Urbana-Champaign and a Ph.D. from the Massachusetts Institute of Technology. After serving as one of the first Science and Technology Agency of Japan Fellows at the National Research Institute for Metals, he joined the University of Illinois at Urbana-Champaign as an assistant professor. In 1993, Schwartz joined the newly formed National High Magnetic Field Laboratory and the Department of Mechanical Engineering at Florida State University, where he served as the leader of the HTS Magnets and Materials Group. In 2003, his research group, in collaboration with Oxford Instruments, established the world record for magnetic field generation by a superconducting material. In 2009, Schwartz joined North Carolina State University as the head of the Department of Materials Science & Engineering and Kobe Steel Distinguished Professor. His research interests include superconducting materials and magnetics, magnetic materials, and multiferroic materials, and the systems they enable. Schwartz has published over 220 peer-reviewed journal articles and has graduated 42 Ph.D. and M.S. students in six academic disciplines, including 15 female and six underrepresented minority students. As department head, he has led the rapid expansion of his department, guiding them upwards in the national rankings. Schwartz was the editor-in-chief of the IEEE Transactions on Applied Superconductivity from 2005 to 2012 and is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), American Association for the Advancement of Science (AAAS), and ASM International.

Recruitment I Breakout Session

Session Chair: Margie Serrato, TutorGen Inc.
Room: 101 Wildcat Room

Presenters will speak about problems, recommendations, and the impact of recruitment on their workforce diversity. At the conclusion of this session, there will be a panel discussion with all three of the presenters.

Cindy Adams,
Newmont Mining Corporation

Cindy Adams is the talent acquisition manager for Newmont Mining Corporation's North American region, consisting of operations in Nevada and Colorado as well as reclamation locations in Canada. Adams has been with Newmont for 10 years, most recently serving as the human resources manager for a project in Nunavut, Canada. In her current role, Adams is responsible for leading her team in the recruitment

of top talent using a foundational approach based on diversity and inclusion through all aspects of talent acquisition. Newmont is one of the world's largest mining companies with operations located on five continents. In the North American region, her team is responsible for talent acquisition with an employee base of 4,300 employees in managerial, technical, and skilled labor roles. In addition to this responsibility, Adams is actively involved in developing Newmont's Business Resource Group (BRG), focused on the topic of diversity. She earned her bachelor's degree from the University of Waterloo in Canada.

Keith J. Bowman, *San Francisco State University*

In July 2015, Keith J. Bowman became Dean of the College of Science & Engineering (CoSE) at San Francisco State University (SF State), a comprehensive university that is the seventh largest U.S. public master's degree institution. The CoSE consists of nine departments, six centers and institutes, nearly 400 faculty and staff, and over 6,000 students. Bowman's current appointment follows his leadership as chair of the Department of Mechanical, Materials, and Aerospace Engineering at Illinois Institute of Technology (IIT) for nearly four years, and nearly five years leading the Purdue School of Materials Engineering as interim head and head. He was named a Fellow of the American Ceramic Society in 2000. Awards at Purdue University include receiving the MSE Best Teaching Award in 1992 and 1995 and Purdue's highest teaching award, the Charles Murphy Undergraduate Teaching Award in 1995. In 2007, he received the Purdue College of Engineering Mentoring Award and he became a professor of Engineering Education (by courtesy). In 2012 he was invested as the first Duchossois Leadership Professor in the IIT Armour College of Engineering. In addition to materials science research on mechanical and electrical properties of composites, metals, and ceramics, he has worked on assessment approaches for engineering education and studied trends for gender, racial, and ethnic diversity across engineering disciplines. Bowman has over 180 publications.

Esther S. Hernandez, *Sandia National Laboratories*

Esther S. Hernandez is a senior manager serving as the chief diversity officer for Sandia Corporation, a subsidiary of Lockheed Martin Corporation, which manages and operates Sandia National Laboratories under contract to the United States Department of Energy National Laboratories. As the diversity and inclusion chief officer, she is responsible for all matters concerning diversity, inclusion, equal employment opportunity, and affirmative action. Hernandez has spent more than 28 years at the laboratories gaining experience in Sandia's Chief Financial, Human Resources & Communications, and Mission Technologies Organizations. She has served as a co-chair for Sandia's Women's Action Network, an employee resources group committed to building a positive and welcoming work environment for all women through advocacy, awareness, philanthropy, and networking opportunities. Hernandez also serves as co-chair for Sandia's Military Support Committee dedicated to engaging all levels of the work force to create and foster a military-friendly community and culture. Hernandez served on the Lockheed Martin Hispanic Leadership Council, is a member of Sandia's Hispanic Leadership Committee, and serves as a lead for Sandia's Outreach and Networking Resources Groups. She received her bachelor's degree in business administration from New Mexico State University and was awarded a master's in business administration from the University of New Mexico.

Retention I Breakout Session

Session Chair: Beth Lewis, Wyman-Gordon Forgings
Room: 100 McCormick Auditorium

Presenters will speak about problems, recommendations, and the impact of retention on their workforce diversity. At the conclusion of this session, there will be a panel discussion with all three of the presenters.

Kristen Constant, *Iowa State University*

Kristen Constant is a Morrill Professor and the Wilkinson Professor of Interdisciplinary Engineering and Chair of Materials Science and Engineering at Iowa State University (ISU). She earned her B.S. from ISU and her Ph.D. from Northwestern University, and had a postdoctoral appointment at the Massachusetts Institute of Technology. Her research relates to fabrication of photonic structures specifically toward enhancing energy efficiency. In addition to physical research, she is involved in research, service, and outreach related to broadening participation in engineering, and in enhancing recruitment, retention, and advancement of women faculty in engineering. She is past chair of the Women in Engineering Division of the American Society of Engineering Education and serves as the Women in Engineering Programs and Advocates Network (WEPAN) delegate on the ABET board of delegates.

Lisa Durham, Argonne National Laboratory

Lisa Durham is the director of the Leadership Institute and a principal environmental engineer at Argonne National Laboratory. As the Leadership Institute director, she provides strategic direction and management of creative programs designed to cultivate the leadership potential of all employees and to enable them to maximize their unique contributions to science, engineering, and Argonne's mission. In the role of principal environmental engineer, Durham is responsible for programs, projects, and research associated with geoenvironmental analyses. Durham received her B.S. in geology from Texas A&M University and her M.S. in geosciences from Purdue University. She has more than 25 years of scientific and professional experience working with federal agencies in providing innovative technical approaches and expertise to investigate, characterize, and remediate environmentally contaminated legacy sites as a result of the nation's early atomic weapons and energy programs. Durham has led efforts to increase diversity in science, technology, engineering, and math (STEM), and her advocacy and encouragement of young women interested in STEM careers earned her Argonne's Women in Science and Technology (WIST) Diversity Award in 2012. She went on to lead the WIST program from 2013 to 2015. Recently, Durham was named Scientist of the Month (April 2015) by the Association for Women in Science (AWIS-Chicago chapter). Durham serves on many panels and advisory boards, chairs numerous outreach activities, and attended the Strategic Laboratory Leadership Program at the University of Chicago Booth School of Business.

Shanna L. Travis, U.S. Department of the Treasury

Shanna L. Travis currently serves as the advisor to the deputy director, Chief Technology Officer in a departmental office, U.S. Department of the Treasury, where she provides authoritative advice and analytical support on complex, key mission-critical initiatives and business processes. Prior to her current position she was the deputy secretary to the General Staff and Command Protocol Officer, Headquarters, U.S. Army Corps of Engineers, where she was the key advisor to the Command Group regarding administration and coordination of operations, with responsibility for technical and administrative direction relating to policy, administration and coordination. Travis has over 24 years of experience in business administration and human resource (HR) management, strategic planning, and organizational operations. She is a veteran, having served honorably in the United States Army in several nominative leadership positions including secretary to the general staff, Chief Personnel Services Officer and

Equal Employment Opportunity Advisor, receiving numerous accolades and awards throughout her military career. Her final military role was senior enlisted human resource manager in Fort Bliss, Texas, where she was responsible for developing and implementing personnel policies and overseeing the full range of HR management program areas across the Fort Bliss installation for over 25,000 military personnel. Travis has a B.S. in social science from the University of Maryland University College, a master's degree counseling and psychology from Bowie State University, and a M.B.A. with a concentration in public administration from Columbia Southern University. Travis is also a graduate of the U.S. Army Sergeants' Major Academy, the Defense Equal Opportunity Management Institute, and holds a graduate certificate in professional human resource management from Columbia Southern University in partnership with the Society for Human Resource Management.

Pipeline II Breakout Session

Session Chair: Keith Bowman, San Francisco State University
Room: 206 Arch Room

Presenters will speak about problems, recommendations, and the impact of the pipeline on their workforce diversity. At the conclusion of this session, there will be a panel discussion with all three of the presenters

David Bahr, Purdue University

David Bahr received his B.S. and M.S. in materials science and engineering from Purdue University, and a Ph.D. in materials science from the University of Minnesota. Prior to joining Purdue in August 2012 as head of the School of Materials Engineering, Bahr was director of the School of Mechanical and Materials Engineering at Washington State University (WSU), and before that served as WSU's campus-wide Director of Undergraduate Research; he began his faculty career at WSU in 1997. He has supervised two postdocs, 21 Ph.D. students, 29 M.S. students, and over 50 undergraduate researchers in the area of small scale mechanical behavior. His research spans a range of materials reliability issues, from hydrogen embrittlement to high strain MEMS to dislocation nucleation in metals. He ran a research experience for undergraduate program at WSU for 12 years, achieving greater than 50% representation from women and underrepresented minorities over the program's life. Throughout his career, Bahr has received several awards, including a Presidential Early Career Award for Scientists and Engineers in 2000; the 2003 Bradley Stoughton Award from ASM International; the 2007 Robert Lansing Hardy award from TMS; and the TMS Brimacombe Medal in 2016. In 2012 he was named a Fellow of ASM International, and Fellow of the American Association for the Advancement of Science in 2016. At TMS, Bahr served as a member of the board of directors for Member & Student Development from 2012–2015.

Sossina Haile, Northwestern University

Sossina M. Haile is the Walter P. Murphy Professor of Materials Science and Engineering at Northwestern University, a position she assumed in 2015 after serving 18 years on the faculty at the California Institute of Technology. She earned her Ph.D. in materials science and engineering from the Massachusetts Institute of Technology. Haile's research broadly encompasses solid state ionic materials and devices, with particular focus on energy technologies. She has established a new class of fuel cells based on solid acid electrolytes, and demonstrated record power densities for solid oxide fuel cells. Her more recent work on water and carbon dioxide dissociation for solar-fuel generation by thermochemical processes has created new avenues for harnessing sunlight to meet energy demands. She has published more than 150 articles and holds over 15 patents on these and other topics. Haile is the recipient of many prestigious awards, including an American Competitiveness and Innovation (ACI) Fellowship in 2008 from the National Science Foundation in recognition of "her timely and transformative research in the energy field and her dedication to inclusive mentoring, education, and outreach across many levels"; the 2010 Chemical Pioneers Award of the Chemical Heritage Foundation; and the 2012 International Prize in Ceramics of the World Academy of Ceramics. In 2015 she was

inducted into the African Academy of Sciences. Her national service includes membership on the National Materials Advisory Board, a committee serving the National Academies of Sciences and of Engineering, from 2005 to 2011; co-authorship of the National Academies study America's Energy Future: Electricity from Renewable Resources, published in 2009; and membership on the Materials Research Society Board of Directors from 2011 to 2015.

Simona Murph, Savannah River National Laboratory

Simona Hunyadi Murph is a principal scientist at Savannah River National Laboratory (SRNL). She holds a Ph.D. in chemistry/nanotechnology from the University of South Carolina, an Education Specialist/ Educational Leadership (Ed.S.) from Augusta University (AU), and an M.S. and B.S. in chemistry/ physics with an education minor from Babes-Bolyai University in Romania. Murph is the founder of SRNL's Group for Innovation and Advancements in Nano-Technology Sciences (GIANTS) program, which assists and encourages young minority and underrepresented scientists (postdoctoral researchers, graduate, and undergraduate students) from different universities to grow their knowledge and skills in nanoscience fields. The remarkable advances made by Murph and her team in these fields have led to numerous publications, grants, awards, and recognitions. Murph is the outreach program coordinator for SRNL's Aspiring Mid-Career Professionals, she is an ACS Chemistry Ambassador, and an ACS Science Coach. As a former educator at the university and secondary levels, Murph has also taught numerous courses and mentored hundreds of students. These leadership roles allow her to promote STEM initiatives with local schools and communities to inspire the next generation of STEM leaders. Recently, Murph was recognized as an Inspirational Woman in Science, Technology, Engineering, and Math (STEM) by the U.S. Department of Energy. She is also the recipient of the 2016 AU, College of Education Distinguished Alumna and Presidential Alumna Award for outstanding contributions to one's professional career and exemplary dedication to the advancement of the community. This is the highest honor bestowed by AU.

Recruitment II Breakout Session

Session Chair: Benjamin Cordani, Caterpillar
Room: 101 Wildcat Room

Presenters will speak about problems, recommendations, and the impact of recruitment on their workforce diversity. At the conclusion of this session, there will be a panel discussion with all three of the presenters.

Tony Baylis, Lawrence Livermore National Laboratory

Tony Baylis is Lawrence Livermore National Laboratory's (LLNL) director for the Office of Strategic Diversity and Inclusion Programs. In this position, he is the senior management advocate for diversity and inclusion for LLNL. The Office of Strategic Diversity and Inclusion Programs works in partnership with senior management to develop strategies, initiatives, programs, and activities that promote the creation of a diverse and inclusive workforce and work environment. Baylis serves at LLNL's Equal Employment Opportunity (EEO), Affirmative Action (AA), and diversity compliance officer as well. He is responsible for overseeing the interactions and successful execution of LLNL's building, partnering, and collaborating with government, education, industry, community, and other stakeholders. Lawrence Livermore National Laboratory has had a long history in working with ethnic and cultural groups across the globe. Baylis represents LLNL on the subjects of diversity and inclusion; science, technology, engineering, and math (STEM); outreach; and student programs. He has worked for 29 years in academia, industry, and government scientific and technical environments.

Rhonda Olson, Caterpillar

Rhonda Olson leads Caterpillar's diversity recruiting efforts in North America where she and her team identify and recruit top, diverse talent. She is passionate about attracting more women, minorities, veterans, and individuals with disabilities to Caterpillar. Olson's vision for the future is that her current role will no longer be needed because diversity and inclusion will not be a goal to strive for, but a natural reflection of the company. Nearly 26 years ago, Olson began her career at Caterpillar as an accounting professional. She spent the first 15 years of her career crunching numbers in various divisions of the company, and then had the opportunity to combine her love for accounting with her desire to recruit top talent. Olson spent four years as the talent manager for Caterpillar's Finance Services Division honing her recruiting skills and developing top accounting professionals. Olson is a proud graduate of Illinois Wesleyan University with a degree in accounting. She is also a Certified Public Accountant.

Darnisha L. Slade, Michigan Technological University

Darnishia L. Slade is a 1998 alumna of Michigan Technological University (Michigan Tech) with a degree in business administration/international business and Walsh College with a master's of management degree. She is passionate about the diversification and internationalization of Michigan Tech and many of her job responsibilities and volunteer efforts are centered around these two priorities. Slade has remained very active with Michigan Tech, serving on the Alumni Association's board of directors since 2008. She recently completed a term as president, only the second woman and first African American in the role. Slade has she spent several years working in youth development on a global scale. This included two years in the Up with People – Worldsmart International Leadership Program and three years with Mosaic Youth Theater of Detroit. Slade returned to Michigan Tech in 2005 as a regional admissions manager in Southeast Michigan, where she specialized in the recruitment and retention of underrepresented minorities. In 2012 she transitioned into the International Programs & Services Department where she currently serves as the director. Her responsibilities include undergraduate recruitment of international students, study abroad recruitment, immigration compliance, acculturation, retention, and globalization of the campus and community. Slade is simultaneously pursuing her second Michigan Tech degree, a doctorate in applied cognitive science and human factors.

Retention II Breakout Session

Session Chair: Elizabeth A. Holm, Carnegie Mellon University
Room: 100 McCormick Auditorium

Presenters will speak about problems, recommendations, and the impact of retention on their workforce diversity. At the conclusion of this session, there will be a panel discussion with all three of the presenters.

Kimberly S. Budil, University of California, Office of the President

Kimberly S. Budil is the vice president for national laboratories at the University of California (UC), Office of the President. She is the university's lead executive for the management oversight of Lawrence Berkeley National Laboratory (LBNL), Lawrence Livermore National Laboratory (LLNL), and Los Alamos National Laboratory (LANL). She serves as an executive committee governor on the boards of governors of the Lawrence Livermore National Security LLC and the Los Alamos National Security LLC, the managing companies for LLNL and LANL. In addition, she is a member of the LBNL Advisory Board and chairs the LBNL Contract Assurance Council. Budil was formerly the N program manager in the Global Security Principal Directorate at LLNL where she was responsible for the nuclear counterterrorism program. This portfolio included threat assessment, pre- and post-detonation nuclear forensics, nuclear incident response and reachback, and nuclear detection and countermeasures research, and was supported by

agencies across the government. Budil joined LLNL in 1987 as a graduate student in the Department of Applied Science at the University of California, Davis and has held a variety of positions across the laboratory working in Weapons and Complex Integration, National Ignition Facility, Physical and Life Sciences, and Global Security. She served twice as a detailee in Washington D.C., first spending two years at National Nuclear Security Administration in the Office of Defense Science and then nearly two years as a senior advisor to the Under Secretary for Science at the U.S. Department of Energy.

Debby Newman, Goldcorp

Debby Newman is the head of human resources (HR) for Goldcorp's Canada/U.S. region. As Goldcorp's regional HR leader, Newman is helping to accelerate regional continuity through leadership, attracting, and developing the best talent, strong succession planning, and building a culture of agility, innovation, and continuous improvement. Under her leadership, Goldcorp programs such as the Graduate Development Program, Creating Choices, and Growing Choices have become a cornerstone of how Goldcorp manages human resources. As a champion of change, diversity and inclusion are central to her thinking. During her time with Goldcorp, Newman has lead and implemented a number of transformational changes to drive substantial value for the region and greater enterprise. Prior to Goldcorp, Newman was a corporate HR leader with Inmet Mining. Her experience includes being a founding executive member and vice president of Porter Airlines and she has more than 15 combined years of experience in leadership roles both in HR and operations. Newman has served on advisory boards with a number of colleges based in Toronto, and is a former member of the Chamber of Commerce. Newman earned a master's degree in human resources management from York University. Her Human Resources designation was earned at the University of Toronto.

Jeffrey S. Thompson, University of Nevada, Reno

Jeffrey S. Thompson is the dean of the College of Science at the University of Nevada, Reno. The College of Science contains the departments of biology, chemistry, mathematics, physics, and the Mackay School of Earth Sciences and Engineering. The Mackay School includes the departments of geological sciences and engineering, geography, and mining engineering as well as three agencies: The Nevada Bureau of Mines and Geology, the Nevada Seismology Laboratory, and the Nevada Climate Office. Thompson received his bachelor's degree in physics from the University of California, Los Angeles and his Ph.D., also in physics, from the University of Tennessee. He went on to complete a postdoctoral fellowship at the University of Colorado's Joint Institute for Laboratory Astrophysics. In 1991 he joined the faculty in the Physics Department at the University of Nevada, Reno. Thompson has served as Physics Department chair and associate dean of the College of Science. He continues an active research program in experimental atomic and molecular physics. Thompson was appointed dean of the College of Science in 2008.

TUESDAY MORNING

Session Chair: Keith J. Bowman, San Francisco State University
Room: 100 McCormick Auditorium

Plenary Presentations will be followed by a panel discussion with all of the speakers.

Plenary: Strategies for Increasing Underrepresented Minority (URM) Engagement in the STEM Professions

Tresa Pollock, University of California, Santa Barbara

Abstract: *High technology industries are increasingly cognizant of the competitive advantage of a diverse STEM workforce. However, strategies for achieving diversity are difficult to formulate and are challenged by the leaky pipeline and lack of comprehensive data. This talk will focus on the current status of diversity across the spectrum of STEM professional careers. Strategies for improving diversity at each of the stages, starting from undergraduate and graduate education and progressing through the ranks in industry and academia will be discussed.*

Tresa Pollock is the Alcoa Professor and chair of the Department of Materials at the University of California, Santa Barbara (UCSB). She graduated with a B.S. from Purdue University in 1984 and a Ph.D. from the Massachusetts Institute of Technology in 1989. Pollock was employed at General Electric Aircraft Engines from 1989 to 1991, where she conducted research and development on high-temperature alloys for aircraft turbine engines. She was a professor in the Department of Materials Science and Engineering at Carnegie Mellon University from 1991 to 1999 and the University of Michigan from 2000 to 2010. Her current research focuses on processing and properties of structural materials and coatings and on the use of ultrafast lasers for microfabrication, tomograph, and materials diagnostics. Pollock was elected to the U.S. National Academy of Engineering in 2005, is a 2009 TMS Fellow, a Fellow of ASM International, and was the 2005 President of TMS—the first female to hold that office. Having served as an associate editor since 1997, Pollock was recently named the incoming principal editor for *Metallurgical and Materials Transactions* family of journals and will begin her editorship in September 2016. She advised the UCSB graduate student organizers of the Transforming the Diversity Landscape symposium held at the TMS 2016 Annual Meeting & Exhibition and was a member of the Panel of Past TMS Presidents during that symposium. She also participated in DMMM1 as an advisory organizer.

Plenary: Best Practices for Building a Welcoming and Inclusive Workplace Culture

Michelle V. Buchanan, Oak Ridge National Laboratory

Abstract: *The success of an individual within an institution can be correlated to the culture of the community within the institution. Creating an environment where each staff member is fully engaged, benefitting from and contributing to the community is critical. While the cultures of institutions vary, there are common themes that can help get new staff off to a good start and grow into highly successful professionals—and, in turn, instill the importance of helping other colleagues be successful. This presentation will provide examples from the perspective of a national laboratory that has a highly diverse, highly collaborative research environment.*

Michelle V. Buchanan is the associate laboratory director (ALD) for physical sciences at Oak Ridge National Laboratory (ORNL). In this role she is responsible for the Chemical Sciences, Materials Science and Technology, Physics, and the Center for Nanophase Materials Sciences Research Divisions. She is also the program manager for the Basic Energy Sciences Program at ORNL. Prior to assuming the role of ALD, she served as the director of the Chemical Sciences Division, associate director of the Life Sciences Division, and group leader for Organic and Biological Mass Spectrometry at ORNL. She has over 150 scientific publications and reports, holds two patents, and was editor of a book on Fourier transform mass spectrometry. Buchanan has held positions in the Analytical Chemistry Division of

the American Chemical Society and the American Society for Mass Spectrometry. She is a Fellow of the American Association for the Advancement of Science and a Fellow of the American Chemical Society. Recently, Buchanan was named a member of the Board on Chemical Sciences and Technology, National Academy of Sciences. Over the past decade, she has worked at the national level helping define basic research needs in a number of key energy-related areas. Buchanan earned her B.S. in chemistry from the University of Kansas, and her Ph.D. in analytical chemistry from the University of Wisconsin-Madison.

Plenary: Addressing Factors behind the Self-Induced Glass Ceiling and Supporting New Pathways to Career Fulfillment

Susan Kiehl, Lockheed Martin

Abstract: *As individual employees and as leaders, we continuously search for that "secret sauce" that leads to interesting, influential, and just plain fun careers. Many variables impact career fulfillment, some within our control and some bogged down within the larger issue of privilege and bias found in company cultures. One thing is very clear however, there is a strong link between engagement and motivation and business imperatives such as productivity and profitability. We will discuss ways to navigate the pathways to career fulfillment, both for ourselves and for the teams we are entrusted to lead.*

Susan Kiehl is the Vice President of Product Development – Integrated Fighter Group (IFG), for Lockheed Martin Aeronautics. She is responsible for the development, test, management, execution, and delivery of IFG technical solutions and products. Previously, Kiehl served as Vice President, F-35 Earned Value & Performance Excellence for Lockheed Martin Aeronautics, where she was responsible for the F-35 business rhythm, ensuring timely, accurate, and compliant program execution and finance, scheduling, and program management products. Kiehl has held various leadership roles since joining Lockheed Martin Aeronautics in 1984. As the Vice President, Program Management from 2010 to 2012, she was responsible for the workforce development, program assist, and the planning, processes, and tools necessary for the program teams to implement perfect performance. In addition, she was responsible for the earned value management process for aeronautics. As Director, F-35 Joint Strike Fighter International Business Development from 2008 to 2009, she managed the capture efforts for the eight international partner countries and for on-going and future Foreign Military Sales (FMS) for the F-35. She served for five years as Director, F-16 Greece, Poland, and Italy Programs, with responsibility for managing all contractual obligations associated with these programs, including design, development, build, and delivery of aircraft. Earlier roles included Director, Business Development Operations and Team Lead for F-16 Airframe Integration. She also has been a member of the materials and processes engineering team. Kiehl holds a bachelor's degree in metallurgical engineering from Michigan Technological University (MTU) and an MBA in engineering management from the University of Dallas. She remains active with MTU, serving as the first aerospace industry member on the MTU College of Engineering Industrial Advisory Board and as a member of the MTU Presidential Council of Alumnae. In addition, she is a board member for a small engineering firm, Brechting Bridge and Engineering.

Early Career Breakout Session

Session Chair: Begum Gulsoy, Northwestern University
Room: 206 Arch Room

Presenters will speak about their experiences and lessons learned specific to early career professionals in the minerals, metals, and materials field. At the conclusion of this session, there will be a panel discussion with all three of the presenters.

Ellen K. Cerreta, Los Alamos National Laboratory

Ellen K. Cerreta is the Group Leader for the Materials in Radiation and Dynamic Extremes Group (MST-8) at Los Alamos National Laboratory (LANL). She received her B.S. in aerospace engineering from the University of Virginia and her M.S. and Ph.D. in

materials science and engineering from Carnegie Mellon University. After graduation, Cerreta accepted a postdoctoral position within the materials science division of LANL, and was converted to staff in 2003. Since that time, her research has been focused on the study of the mechanical behavior of materials and microstructural characterization with a focus on the relationship between microstructure and dynamic materials properties. At LANL, Cerreta has led a number of projects to investigate dynamic materials performance and utilizes this information to advance predictive capabilities for strength and damage in extreme environments. Cerreta is also an active member of TMS and ASM International. She serves and has served on their Board of Directors and Board of Trustees, respectively. She has volunteered for almost 15 years as a reviewer for *Metallurgical and Materials Transactions A* and since 2012 as a Key Reader for the journal. Cerreta was named a 2004 TMS Structural Materials Division (SMD) Young Leaders Professional Development Awardee, a 2007 TMS Young Leaders International Scholar–JIM, and a 2013 Brimacombe Medalist. She was chair of the TMS Mechanical Behavior Committee, chair of ASM's AM&P Editorial Board, and served on the TMS Board of Directors from 2009 to 2012 as the Membership Director. Cerreta is currently serving on the TMS Board of Directors as the SMD Chair.

Alexis C. Lewis, National Science Foundation

Alexis C. Lewis is a program director in the Directorate for Engineering at the National Science Foundation (NSF). She directs the Materials Engineering and Processing (MEP) program in the Division of Civil, Mechanical and Manufacturing Innovation (CMMI). She is also the CMMI representative for the Foundation's Designing Materials to Revolutionize and Engineer our Future program, NSF's response to and participation in the Materials Genome Initiative. Prior to joining NSF in 2014, Lewis was a materials research engineer at the U.S. Naval Research Laboratory in Washington D.C. in the Multifunctional Materials Branch. She earned her Ph.D. from Johns Hopkins University and S.B. from Massachusetts Institute of Technology, both in materials science and engineering. She has been an active member of TMS for over 15 years, serving on numerous committees, including the Membership and Student Development Committee and the Diversity Committee.

Svetlana Sukhishvili, Texas A&M University

Svetlana Sukhishvili earned her Ph.D. in polymer chemistry from the Moscow State University, Russia. After working as a research associate in the Department of Materials Science and Engineering at the University of Illinois at Urbana-Champaign, she joined the Stevens Institute of Technology in 2000 as an associate professor, where she was promoted to full professor in 2008. She is now a professor in the Department of Materials Science and Engineering at Texas A&M University. Her research interests include responsive polymer-polymer and hybrid polymer-inorganic assemblies, controlled delivery materials, and nanotechnology-enabled chemical sensing. She authored and co-authored several patents and over 100 research articles. She is a recipient of an Institutional Research Excellence Award, an Award for Distinguished Scientific Achievement from the American Coating Association, and holds an honorary degree from Stevens Institute Technology. She is a Fellow of the American Physical Society and a recent recipient of a Special Creativity Award from the National Science Foundation (NSF). Sukhishvili has been a strong advocate of inclusion of women in science, technology, engineering, and math (STEM) education and building inclusive workspace culture. She has served on an Institutional NSF ADVANCE committee and has been extensively involved in outreach activities with undergraduate and K–12 students. She has been a faculty advisor to the American Chemical Society Student Chapter at Stevens Institute of Technology, and is currently an advisor to Women in Materials Science (WIMS) organization at Texas A&M University.

Executive I Breakout Session

Session Chair: Justin Schwartz, North Carolina State University
Room: 100 McCormick Auditorium

Presenters will speak about their experiences and lessons learned specific to executive professionals in the minerals, metals, and materials field. At the conclusion of this session, there will be a panel discussion with all three of the presenters.

Tia Benson Tolle, The Boeing Company

Tia Benson Tolle graduated from the University of Washington with a B.S. in mechanical engineering. She also earned her M.S. and Ph.D. in materials science and engineering from the University of Dayton. In addition she holds a master's certificate in leadership and executive development from the University of Dayton and completed the Air Force Senior Leadership Development Course and Air War College Senior Leader Course from the Air University, Maxwell Air Force Base. Benson Tolle joined NASA's Johnson Space Center 1983 as a co-op student and in 1986 as a flight crew instructor in the Space Shuttle Flight Training Division, Mission Operations Directorate. In 1989, she joined the Flight Dynamics Laboratory, Wright Laboratory, as a composite structures program manager in the Advanced Composites Advanced Development Program Office. Benson Tolle then joined the Materials and Manufacturing Directorate, Air Force Research Laboratory, in 1992. She held several positions, including chief of the Structural Materials Branch and lead of the Composites Core Technology Area. In 2007, she was assigned as the technology director of the Nonmetallic Materials Division. In 2012, Benson Tolle joined Boeing as the director of Advanced Materials, Product Development at Boeing Commercial Aircraft. In this position she is accountable for the integrated materials portfolio for Boeing's commercial airplane products. Benson Tolle is a Fellow of the Society for the Advancement of Material and Process Engineering (SAMPE), an International Past President of SAMPE, and was President of the Materials Research Society (2014).

Mary Hockaday, Los Alamos National Laboratory

Mary Hockaday is the associate director for Experimental Physical Sciences, one the leading technical directorates at Los Alamos National Laboratory (LANL). She has a B.S. from the University of Hawaii and a Ph.D. in physics from New Mexico State University. In 1986, Hockaday joined the Fast Transient Plasma Group at LANL, as its only female experimentalist fielding and developing x-ray diagnostics for underground nuclear tests at the Nevada Test Site (NTS). Eventually, she turned her focus to applying high-powered lasers to the study of weapons physics issues and developing pulse power at LANL for weapons physics applications. In 1998, Hockaday returned to the NTS as diagnostic coordinator for a Subcritical event. Subsequently, she joined the effort to develop proton radiography which led to the first greater-than-10-frame radiographic "movie" of a hydrotest. From 2002 to 2004 she led the 500-person Dynamic Experimentation Division, and in 2006 she was named Deputy Associate Director of Weapons Physics and Program Director for Science and Inertial Confinement Fusion and High Yield (ICF) Campaigns. Hockaday served as LANL's Institutional Deputy for the National Ignition Campaign and was the first chairperson of the national ICF Executives Committee which includes leaders from Lawrence Livermore National Laboratory, Sandia National Laboratories, Laboratory for Laser Energetics, General Atomics and the Naval Research Laboratory. In 2014, Hockaday became an Association for the Advancement of Science Fellow and received a Distinguished Alumni Award from the New Mexico State University Alumni Association. She served as a member of the American Physical Committee on the Status of Women in Physics and is on the advisory committee for New Mexico State University's Physics Department.

Karl W. Reid, National Society of Black Engineers

Karl W. Reid was named executive director of the National Society of Black Engineers (NSBE) in 2014, marking his return to the organization that gave him his first major leadership experience 31 years earlier. Reid came to NSBE from the United Negro College Fund (UNCF), where he oversaw new program development, research and capacity building for the organization's 37 historically black colleges and universities and held the title of senior vice president for research, innovation, and member college engagement. Before his service at UNCF, he worked in positions of increasing responsibility to increase diversity at his alma mater, the Massachusetts Institute of Technology (MIT), which he left as associate dean of undergraduate education and director of the Office of Minority Education. While working at MIT, Reid earned his Doctor of Education degree at Harvard University. He earned his undergraduate and master's degrees in materials science and engineering from MIT, where he first became involved with NSBE. Reid is now supporting NSBE's National Executive Board and the society's 31,000 members in reaching the main goal of NSBE's 10-year strategic plan: to move black students and professionals from underrepresentation to overrepresentation in engineering in the U.S., by producing 10,000 black engineers annually in the country, by 2025. Reid is a member of the DC STEM Network Advisory Council and the American Society of Civil Engineers' "Dream Big" IMAX Movie Technical Advisory Council, and was recently named one of the "Top 100 Executives in America" by *Uptown Professional magazine*.

Professional Development Training

Room: 101 Wildcat Room

Talia U. Fox, KUSI Training

Talia U. Fox is a training and instructional design expert with a master's degree in counseling psychology. She is a recent graduate of the Harvard University School of Public Health fellowship program, where she supported Harvard faculty and leadership with communication and leadership strategies. Fox designs solutions to improve leadership and management skills to increase work and life outcomes. She has written more than 300 training curricula and interactive workshops for health, higher education, technology, and government sectors focusing on: organizational intelligence, productivity, and leadership strategies. In addition, she provides executive coaching to business, government, and community leaders to help them align their strengths to their organizational needs. She has been requested to share her expertise on leadership and business at a variety of international conferences and conventions, including the U.S. Air Force leadership development symposium in Ramstein, Germany. Most recently, Fox was featured on The White House Chronicle in the segment entitled, How to Win Friends and Influence People Through Leadership And Love. She currently works with Harvard University as a leadership strategist and supports doctoral students at the TH Chan School of Public Health. Fox continues to support diverse clients in harnessing the value of their employees, faculty, or students.

TUESDAY AFTERNOON

Mid-Career Breakout Session

Session Chair: Alexis Lewis, National Science Foundation
Room: 206 Arch Room

Presenters will speak about their experiences and lessons learned specific to mid-career professionals in the minerals, metals, and materials field. At the conclusion of this session, there will be a panel discussion with all three of the presenters.

Viola L. Acoff, University of Alabama

Viola L. Acoff received her bachelor's, master's and Ph.D. degrees in materials engineering from the University of Alabama at Birmingham. She began working at The University of Alabama (UA), located in Tuscaloosa, Alabama, in 1994 as an assistant professor of metallurgical and materials engineering, and was promoted to the rank of professor in 2004. In 2008, Acoff was appointed as head of the Department of Chemical & Biological Engineering. In 2009, she was also appointed as head of the Department of Metallurgical & Materials Engineering and for an entire year, she served as the department head for two different departments at the same time. In October 2014, Acoff was appointed Associate Dean for Undergraduate and Graduate Programs in the College of Engineering. For her outstanding achievements in leadership at UA, Acoff received the T. Morris Hackney Endowed Faculty Leadership Award and was named a Fellow of the Southeastern Conference Academic Leadership Development Program. She also received the UA Alumni Association Outstanding Commitment to Teaching Award for 2014. Also in 2014, Acoff was the inaugural recipient of the Ellen Swallow Richards Diversity Award given by TMS, presented at the First TMS Summit on Creating and Sustaining Diversity in the Minerals, Metals and Materials Professions (DMMM1). Acoff has been awarded more than $7 million in externally-funded grants related to welding research, including a National Science Foundation CAREER Award. She has published over 80 peer reviewed papers, co-authored 3 books, co-edited 3 books, and given over 100 invited and contributed talks on her research. She has also given a presentation on her research on every continent except Antarctica.

Michele Manuel, University of Florida

Michele Manuel is an associate professor in the Department of Materials Science and Engineering at the University of Florida. She received her Ph.D. in materials science and engineering at Northwestern University and her B.S., also in materials science and engineering, at the University of Florida. Her research lies in the basic understanding of the relationship between processing, structure, properties and performance. She uses a systems-based materials design approach that couples experimental research with theory and mechanistic modeling for the accelerated development of materials. Her current research is focused on the use of systems-level design methods to advance the development of new materials through microstructure optimization. Of specific interest are biodegradable, formable, and high temperature magnesium alloys, self-healing metals, shape memory alloys, nuclear materials, materials design, and computational thermodynamics and kinetics. She is a recipient of numerous awards, including the National Science Foundation CAREER Award, NASA Early Career Award, ASM Bradley Stoughton Award for Young Teachers, American Vacuum Society Recognition for Excellence in Leadership, TMS Early Career Faculty Fellow Award, TMS Young Leaders International Scholar – JIM (Japan Institute of Metals), and TMS Young Leaders Professional Development Award.

Orlando Rios, Oak Ridge National Laboratory

Orlando Rios is an associate research staff member in the deposition science group, Materials Science and Technology Division (MSTD) at Oak Ridge National Laboratory (ORNL), and an adjunct associate professor in materials science and

engineering at the University of Tennessee. Rios joined ORNL as a Weinberg Fellow in the MSTD in 2009. Previously, he was a NASA graduate student research fellow. Rios earned his doctorate, master's, and bachelor's degrees in materials science and engineering from the University of Florida. He has been involved with TMS for over 15 years, and is currently the *JOM* advisor for the Magnetic Materials Committee. Although his research has focused on applied materials science, his programs strongly support basic research including efforts in computational and experimental fundamental research that have led to the new materials discovery. He has presented three invited talks in Europe and Asia that included the Energy, Materials, and Nanotechnology conference in San Sebastion, Spain, and the Trilateral Conference on Critical Materials in Tokyo, Japan, along with a keynote talk at Euromat in Warsaw, Poland. Rios has more than 50 invention disclosures at ORNL, with 23 patents pending or applications in preparation. He co-chairs graduate committees and mentors both undergraduate and graduate students through co-located research or through internships at the national laboratories.

Executive II Breakout Session

Session Chair: Amy Clarke, Colorado School of Mines and Los Alamos National Laboratory
Room: 100 McCormick Auditorium

Presenters will speak about their experiences and lessons learned specific to executive professionals in the minerals, metals, and materials field. At the conclusion of this session, there will be a panel discussion with all three of the presenters.

Kristen H. Brosnan, General Electric Global Research

Kristen H. Brosnan is the manager of the ceramics laboratory at General Electric (GE) Global Research. She received her B.S. in materials science and engineering from Georgia Institute of Technology and her M.S. and Ph.D., also in materials science and engineering, at The Pennsylvania State University. Brosnan has been with GE for nine years, starting as a materials scientist at GRC studying microstructure-properties-performance relationships in ceramic thermal spray coatings. At GE, Brosnan is also the co-leader of the GE Women's Network-NY Capital District Hub, with over 1,100 members. She has organized the Women in Science & Engineering Symposium (WISE), which brings together more than 150 technical female leaders from across all GE businesses to GE Global Research for the past two years. She has received numerous individual awards from GE for outstanding teamwork, technical excellence, expertise, volunteerism, external focus, and organizational citizenship. In 2006, Brosnan was a recipient of the Graduate Excellence in Materials Science (GEMS) Diamond Award given by the American Ceramic Society (ACerS). She is the recipient of the 2014 ACerS Du-Co Ceramics Young Professional Award and the 2014 Karl Schwartzwalder-Professional Achievement in Ceramic Engineering (PACE) Award. Brosnan is past president of the National Institute of Ceramic Engineers, a past president of the Ceramic Educational Council, has served on the Editorial Advisory Board Member for the ACerS Bulletin and helped launch the Young Professionals Network for ACerS in 2010.

Jody N. Hall, Steel Market Development Institute

Jody N. Hall is the vice president of the automotive market for the Steel Market Development Institute (SMDI), where she is responsible for leadership of the Automotive Applications Council, a group of member steel producers in automotive research, education, and technology transfer activities. She also coordinates the steel input to the Auto/Steel Partnership and other steel-related consortia. Prior to joining SMDI, Hall spent more than 30 years with General Motors (GM), with responsibilities ranging from research and development of new materials and manufacturing processes to solving current production problems. Most recently, she served as technical integration engineer for steel applications where she was responsible for new steel applications and specifications for stamped steel body components. Hall has received numerous professional awards, including: the University of Michigan College of Engineering Alumni Merit Award; the Auto/Steel Partnership Instrumental Change

Award; the GM Die Engineering Services Award for Leadership; the USCAR Special Recognition Award for Outstanding Contributions; and the GM Chairman's Honors Award. She holds a Ph.D. and M.S. in materials science and engineering as well as a B.S. in materials and metallurgical engineering from the University of Michigan.

Debra K. Lasich, Colorado School of Mines

Debra K. Lasich is the associate vice president for Diversity and Inclusion at the Colorado School of Mines (CSM). She is responsible for coordinating and leading efforts to establish inclusive excellence as a core value throughout the campus community. Prior to this position, she served for 14 years as the executive director for the Women in Science, Engineering, and Mathematics (WISEM) Program where she provided direction and leadership to increase the number of female students, faculty, and staff at CSM; educated the community on gender issues; and served as a thought leader regarding women's issues in the areas of science and engineering education and employment. Lasich has held other administrative leadership positions including the roles of registrar and assistant to the provost at Nebraska Wesleyan University, and director of Academic and Student Affairs at the Women's College at the University of Denver. She has also taught, presented, and consulted in the areas of leadership, professional development, communication styles, and gender issues. In addition, she has served on various National Science Foundation grants, including the Materials Research Science and Engineering Center Grant and the Integrative Graduate Education and Research Trainee Grant.

Professional Development Training

Room: 101 Wildcat Room

Nicholas Pearce, The Vocati Group

Nicholas Pearce serves as clinical assistant professor of management & organizations and as the faculty director of the MSMS Russell Fellows program at the Northwestern University Kellogg School of Management, where he was named the MSMS Professor of the Year in 2015. A globally-recognized expert in the areas of values-driven leadership, change, diversity & inclusion, and collaboration in organizations, Pearce has served as a lecturer, executive adviser, leadership coach, and organizational strategist for several of the world's premier organizations, including Fortune Global 500 corporations, national governments, philanthropic organizations, and megachurches. He has been honored for excellence and promise as a scholar and leader by several organizations, including the Congressional Black Caucus Foundation, Mustard Seed Foundation, Wentcher Foundation, National Black MBA Association, and Union League Club of Chicago. He has also been named one of Chicago's 40 Game Changers (under 40) by WVON/ Ariel Investments, a Galbraith Scholar by Harvard University's Kennedy School of Government, and a Public Voices Faculty Fellow with The OpEd Project. Pearce holds a Ph.D. in management & organizations from Northwestern University's Kellogg School of Management and an S.B. in chemical engineering & management from the Massachusetts Institute of Technology, with a concentration in religious studies earned in conjunction with the Harvard Divinity School.

Summary of DMMM2

Room: 100 McCormick Auditorium

Jonathan Madison, Sandia National Laboratories

Jonathan Madison is a senior member of technical staff within the Materials Science and Engineering Center at Sandia National Laboratories. Madison received his bachelor's degree from Clark Atlanta University in engineering science with a concentration in mechanical engineering, and received his M.S. and Ph.D. in materials science and engineering from the University of Michigan. Professionally, Madison maintains active membership in The Association for Iron & Steel Technology (AIST), ASM International (ASM), The American Society of Mechanical Engineers (ASME), and The Minerals, Metals & Materials Society (TMS). Civically, he is a member of the National Association for the Advancement of Colored People (NAACP), the National Society of Black Engineers (NSBE), and Alpha Phi Alpha Fraternity Inc. (ΑΦΑ), and holds life membership in each organization. Recent and past accolades to Madison's credit include: SAIC Award for Excellence in Research (2001), University of Michigan Rackham Merit Fellow (2003), ONR HBEC Future Faculty Fellow (2006), NSBE Golden Torch Awards - Graduate Student of the Year (2008), Superalloys Best Interactive Paper Award (2008), Edward Alexander Bouchet Graduate Honor Society Inductee (2009), Sandia National Laboratories - Early Career LDRD Award (2010), *Albuquerque Business Journal*'s Forty Under 40 (2015), and the Black Engineer of the Year Awards - Most Promising Scientist in Industry (2015). Madison's research interests focus on the intersections of experimental and computational techniques for three-dimensional reconstructions of microstructure, their quantitative characterization and accompanying models of microstructural evolution.

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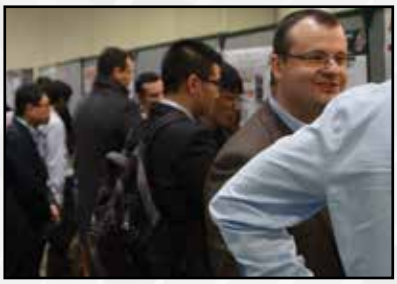

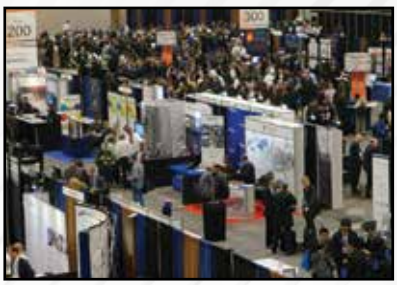

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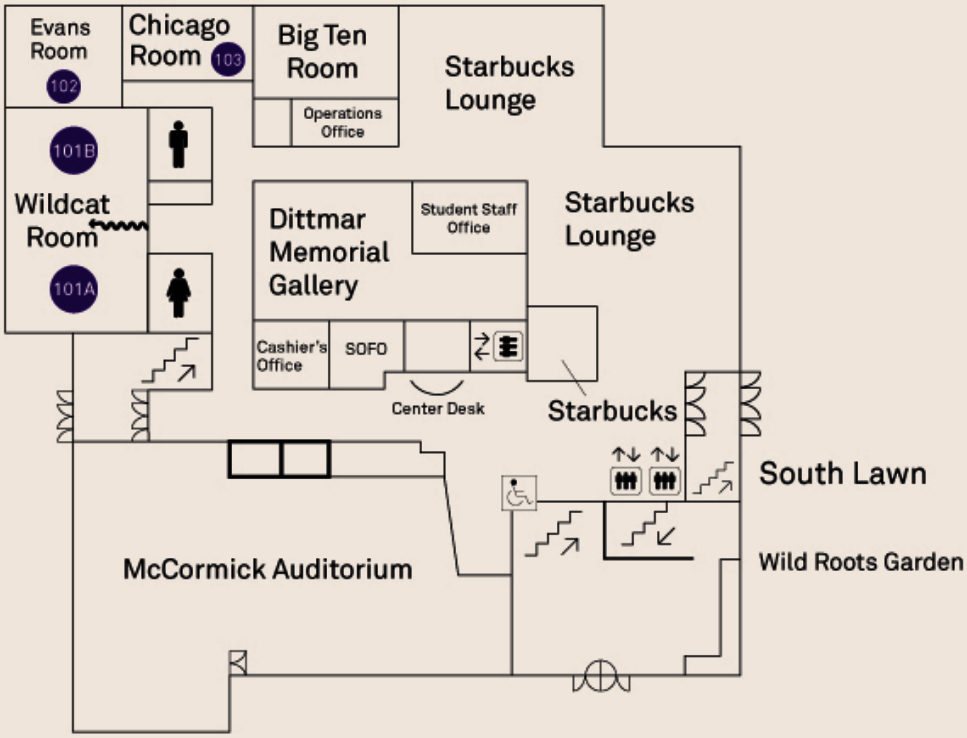

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