

DIVERSITY (DMMM3)

IN THE MINERALS, METALS, AND MATERIALS PROFESSIONS

JULY 23 – 24, 2018

UNIVERSITY OF CALIFORNIA, SANTA BARBARA
SANTA BARBARA, CALIFORNIA



FINAL PROGRAM

TMS Diversity Committee

www.tms.org/Diversity2018



SCHEDULE OF EVENTS



Monday, July 23		
Time	Presentation Title	Location
8:30 a.m. to 9:00 a.m.	Opening Remarks & Welcome - Jonathan Madison, Sandia National Laboratories, and Carol Genetti, University of California, Santa Barbara	Room 1108, Loma Pelona
9:00 a.m. to 10:00 a.m.	Plenary: "Professional Cultures and Inequality in STEM" - Erin Cech, University of Michigan, Leader of the <i>STEM Inclusion Study</i>	Room 1108, Loma Pelona
10:00 a.m. to 10:30 a.m.	Break	Terrace, The Club & Guest House
10:30 a.m. to 11:00 a.m.	Keynote Address: To Be Announced	Room 1108, Loma Pelona
11:00 a.m. to 11:30 a.m.	Keynote Address: "Cohorts, Community and Commencement: Fostering Inclusion in Sparseness" - Keith Bowman, University of Maryland, Baltimore County	Room 1108, Loma Pelona
11:30 a.m. to Noon	Keynote Address: "Diversity as a Form of Innovation" - Xavier Ochoa, McEwen Mining Inc.	Room 1108, Loma Pelona
Noon to 12:30 p.m.	Presentation of TMS Ellen Swallow Richards and Frank Crossley Diversity Awards	Room 1108, Loma Pelona
12:30 p.m. to 2:00 p.m.	Lunch (provided)	Terrace, The Club & Guest House
2:00 p.m. to 3:30 p.m.	Professional Development Session: "Unconscious Bias" - Talia Fox, KUSI Training	Pavilion, The Club & Guest House
	Breakout Sessions (Presentations and Panel Discussions): Early Career and Students Executive Leadership I	Room 1100, Loma Pelona Room 1108, Loma Pelona
3:30 p.m. to 4:00 p.m.	Break	Terrace, The Club & Guest House
4:00 p.m. to 5:30 p.m.	Professional Development Session: "Leadership, Diversity, and Inclusion" - Talia Fox, KUSI Training	Pavilion, The Club & Guest House
	Breakout Sessions (Presentations and Panel Discussions): Established Workforce Executive Leadership II	Room 1100, Loma Pelona Room 1108, Loma Pelona
5:30 p.m. to 6:30 p.m.	Networking Reception	Terrace, The Club & Guest House
Tuesday, July 24		
8:00 a.m. to 10:00 a.m.	Professional Development Session: "Creating a More Inclusive Field: Building Your Diversity Toolbox" Dolan, Resource Center for Sexual & Gender Diversity, UCSB Erin-Kate Escobar, Center for Diversity, Caltech	Room 1100, Loma Pelona
	Professional Development Session: To Be Announced Sharoni Denise Little, The Strategist Company	Pavilion, The Club & Guest House
10:00 a.m. to 10:30 a.m.	Break	Terrace, The Club & Guest House
10:30 a.m. to 12:30 p.m.	Breakout Sessions (Presentations and Panel Discussions): Race & Ethnicity LGBTQ+ Metrics & Assessing the State of Diversity and Inclusion	Room 1108, Loma Pelona Room 1100, Loma Pelona Pavilion, The Club & Guest House
12:30 p.m. to 2:00 p.m.	Lunch (provided)	Terrace, The Club & Guest House
2:00 p.m. to 3:30 p.m.	Breakout Sessions (Presentations and Panel Discussions): Grassroots Approaches Internal Support Practices Institutional Culture	Room 1108, Loma Pelona Room 1100, Loma Pelona Pavilion, The Club & Guest House
3:30 p.m. to 3:50 p.m.	Break	Terrace, The Club & Guest House
3:50 p.m. to 4:20 p.m.	Summary of DMMM3 - Jonathan Madison, Sandia National Laboratories	Room 1108, Loma Pelona

For the most current information, visit www.tms.org/Diversity2018

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WELCOME FROM KEVIN J. HEMKER



Dear Attendees:

On behalf of the TMS leadership, it is my pleasure to welcome you to the third summit on Diversity in the Minerals, Metals, and Materials Professions, or DMMM3.

It is no secret that a more diverse and inclusive workplace benefits everyone from the individual, to the organization, to

the community as a whole. A diverse environment fosters creativity, innovation, and productivity—all of which are key to advancing our profession and our society. This is why the call to “advance diversity and inclusivity in the minerals, metals, and materials profession” holds a preeminent position in TMS’s 2018 Strategic Goals.

The DMMM summits are a key tool in obtaining this goal as they create opportunities for safe and respectful dialogue, highlight impactful ways to advance diversity and inclusivity, and uncover helpful resources that can be applied in the workplace or everyday life. Further, the summits are an opportunity to share quantitative and authoritative data that will help set informed and effective targets for transforming our community.

This is, of course, only possible thanks to the support of individuals such as yourselves—those who are strengthening our community by embracing the variety of experiences and perspectives we can each bring to the table. While there are still many challenges to overcome in this regard, I am confident that your commitment will bring us closer to becoming a community that offers a home for all of its members.

Warmest regards,

Kevin J. Hemker
Johns Hopkins University
2018 TMS President

SUMMIT ORGANIZERS

Chair:

- **Jonathan D. Madison**, Sandia National Laboratories
- **Jennifer Andrew**, University of Florida
- **Megan Brewster**, Launch Forth
- **Amy Clarke**, Colorado School of Mines
- **Kristen Constant**, Iowa State University
- **Oscar Dubón**, University of California, Berkeley
- **Emily Kinser**, 3M Corporate Research Laboratory
- **Matthew Korey**, Purdue University
- **Natalie Larson**, University of California, Santa Barbara
- **Xavier Ochoa**, McEwen Mining Inc.
- **Michael Rawlings**, AAAS Fellow at the National Science Foundation
- **Rosa Maria Rojas**, University of Arizona

DID YOU KNOW?

If you registered for DMMM3 at the nonmember rate, your registration includes TMS e-membership through December 31, 2019.

View a complete list of your member benefits by visiting members.tms.org.



WELCOME FROM JONATHAN D. MADISON



Dear Summit Attendees:

It is my honor to welcome you to the third summit on Diversity in the Minerals, Metals, and Materials Professions (DMMM3). Whether this is your first summit or your third, I wish to thank you for your dedication to creating a more diverse, inclusive, and equitable workplace for all.

It is our hope that DMMM3 presents a unique opportunity to convene with colleagues you may already know and interface with thought leaders beyond your usual spheres of influence **to engage** on the latest social science findings in the areas of diversity; explore tactics **to measure** progress and ensure positive outcomes; and ultimately **to transform** our professional communities with respect to the most pressing issues of inclusion.

While the first two summits focused largely on gender diversity, pipeline creation, recruitment effectiveness, and retention success, this summit will focus specifically on diversity and inclusion as related to race and ethnicity, LGBTQ+ populations, and measurement paradigms. This year, we will also provide sessions focused on custom toolbox creation directed at your desired sphere of influence while providing an opportunity to make a personal commitment, of your own choosing, to help move the issues of diversity and inclusion forward in an incremental but definite way.

As before, this year's summit will not only include special talks and panels but also interactive breakout sessions, professional development offerings, and networking events geared toward making each attendee a better equipped agent of change by the conclusion of the summit. It is also worth mentioning that this gathering is the first in the Diversity Summit series to feature an open call for abstracts. This measure was implemented to ensure a greater cross-section of voices and perspectives are represented.

Also, as is customary, DMMM3 will include the presentation of the Frank Crossley and the Ellen Swallow Richards Diversity Awards. These awards are named, respectively, in honor of the first African-American male to earn a Ph.D. in metallurgical engineering and the first U.S. professional degreed female scientist. As with past summits, we will celebrate the accomplishments of these two outstanding pioneers by honoring the individuals who continue their legacy—the 2018 TMS Diversity Award recipients.

As chair of the DMMM3 organizing committee, it is also my pleasure to extend the committee's heartfelt thanks to all who have contributed to this event's success. This summit was made possible through the support of The Minerals, Metals & Materials Society (TMS) and the TMS Diversity Committee with co-sponsorship by the Society for Mining, Metallurgy & Exploration (SME). We are also extremely appreciative of sponsorship and support from the Center for Hierarchical Materials Design (CHiMaD), the Colorado School of Mines, the National Science Foundation, Purdue University School of Materials Engineering, and Sandia National Laboratories.

I also wish to personally thank our volunteers, TMS staff, and all of this year's presenters for their time and energy dedicated to ensuring a successful summit. Lastly, but certainly not least, I wish to thank my fellow organizers for their vision for DMMM3 and their dedication to creating a summit that will raise awareness and advocacy for diversity and inclusion across the country and throughout several sectors.

Over the next two days, I would challenge you to participate through open, honest, and respectful dialogue with your fellow attendees and above all, I encourage you to participate fully by taking the lessons of this meeting with you as you return to your workplace and sharing the mission of making a truly diverse and inclusive community a reality no matter where you work.

Sincerely,

Jonathan D. Madison

DMMM3 Organizing Committee Chair
Principal Member of Technical Staff, Sandia National Laboratories

It's our people who
impact lives through
technology.



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sandia.gov/careers

Sandia is a top science and engineering
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- Computer Science
- Computer Engineering
- Cybersecurity
- Data Science
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- Materials Science
- Business Applications
- Aerospace Engineering



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TMS

THE MINERALS, METALS & MATERIALS SOCIETY (TMS)

TMS is an international, member-driven, professional society that connects minerals, metals, and materials scientists and engineers around the world. TMS creates networking, publication, and professional development opportunities by convening international conferences, publishing books and journals, administering awards, conducting courses, and convening the professional community to address issues of common concern.

TMS currently supports more than 13,000 professional and student members across 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.

www.tms.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 100 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

SPONSORS



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 \$7.8 billion (FY 2018), 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



COLORADO SCHOOL OF MINES

Colorado School of Mines (Mines) is a public university focused on science and engineering, dedicated to educating and inspiring students, advancing knowledge, and innovating to address the great challenges society faces today—particularly those related to the Earth, energy, and the environment.

Founded in 1874 with specialties in mining and metallurgy, Mines has since expanded its mission well beyond the extraction and use of natural resources. While still a powerhouse in mining, petroleum, and earth sciences, the university has become a world leader in advancing responsible stewardship of the Earth, discovering and synthesizing new materials and developing innovative ways of harnessing traditional and novel energy sources.

New interdisciplinary initiatives focused on advanced manufacturing, underground construction and tunneling, nuclear science, earth resources policy, aerospace systems, and data analytics are expanding Mines expertise and educational opportunities.

Mines graduates are highly-valued by industry for their ability to tackle challenging problems as well as for their ingenuity, persistence, resilience, and teamwork.

www.mines.edu



SANDIA NATIONAL LABORATORIES

Sandia National Laboratories is the nation's premier science and engineering lab for national security and technology innovation. Our team of scientists, engineers, researchers, and business specialists apply their knowledge and skill toward delivering cutting-edge technology in an array of areas.

Across our main sites in Albuquerque, NM, and Livermore, CA, our research ranges from nuclear defense and homeland and global security to innovative work in biotechnology, environmental preservation, energy, and cyber security.

www.sandia.gov



Materials Engineering

**PURDUE UNIVERSITY
SCHOOL OF MATERIALS ENGINEERING**

The School of Materials Engineering at Purdue University is home to 34 faculty members and approximately 150 graduate students, and graduates roughly 50 undergraduates per year. Our students come from over 20 states and 14 different countries, with approximately 30% women in both our undergraduate and graduate programs. We carried out over \$13M in research last year in all areas of materials research, from metals and composites to electronic materials, and we continue to invest in new instrumentation and computational facilities to provide all our students cutting edge experiences. We are proud to provide support for DMMM3, our students and faculty who have attended the prior DMMM summits found the ideas and training invigorating and supportive, and always bring back ideas for continuing to increase the inclusiveness of our school.

www.engineering.purdue.edu/MSE



**CENTER FOR HIERARCHIAL MATERIALS DESIGN
(CHiMaD)**

www.chimad.northwestern.edu



ABOUT THE VENUE

Sessions for DMMM3 take place in the Loma Pelona building and The Club & Guest House on the University of California, Santa Barbara (UCSB) campus. See the Schedule of Events on page 2 for session locations.

The Club & Guest House at UC Santa Barbara
Building 581
University of California
Santa Barbara, CA 93106-7040

Loma Pelona Center
Ocean Rd
Isla Vista, CA 93117

PARKING

Attendees are requested to use **Parking Lot 22** if driving to campus. A short term visitor parking permit can be purchased from the permit dispenser in Lot 22. Attendees staying at The Club & Guest House may purchase parking permits at the Front Desk.

See the campus map on the back cover of this program to locate Lot 22.

REGISTRATION

Your registration badge ensures admission to each of these events:

- Plenary and keynote presentations, panel discussions, and professional development sessions
- Lunch on July 23 and July 24
- Networking reception on July 23
- Refreshment breaks in between sessions

REGISTRATION HOURS

The registration desk will be located at the **Front Patio, Loma Pelona** at the following times:

Monday, July 23: 7:30 a.m. to 6:30 p.m.
Tuesday, July 24: 7:30 a.m. to 4:30 p.m.

SPECIAL EVENTS: NETWORKING RECEPTION

A special networking reception will be held on Monday, July 23 from 5:30 p.m. to 6:30 p.m. in the Terrace, The Club & Guest House.

SHUTTLE SERVICE

A shuttle service will be operating between the university campus and the official conference accommodation, The Goodland Hotel, to assist in the transportation of hotel guests at select times.

The Goodland Hotel to the University of California, Santa Barbara Campus (near lot 22)

Monday, July 23: 7:30 a.m., 8:00 a.m., and 8:30 a.m.
Tuesday, July 24: 7:30 a.m., 8:00 a.m., and 8:30 a.m.

The University of California, Santa Barbara Campus to The Goodland Hotel

Monday, July 23: 6:00 p.m., 6:30 p.m., and 7:00 p.m.
Tuesday, July 24: 4:30 p.m. and 5:00 p.m.

ITEMS OF NOTE

TIME

All times for this conference and related events will take place in the local time zone, Pacific Daylight Time (UTC -7:00).

INTERNET ACCESS

Loma Pelona Center

Attendees will be supplied with individual access codes that can be used to connect to the "UCSB-Conferences" network which is available across most of the campus.

The Club & Guest House

Attendees can log onto the "The Club at UCSB" network using the "Login Using E-Mail and Mobile" option. After completing the confirmation page form, users will receive a six-digit code via text message. Users can then log in using their e-mail address as their username and the six-digit code as their password.

LANGUAGE

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 also accept major credit cards.

NURSING 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 Wallace, TMS Senior Manager, Events, Education & Exhibitions, at llwallach@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 technical sessions and receptions.

REFUNDS

The deadline for all refunds was June 18, 2018. No refunds will be issued at the meeting. Fees and tickets are nonrefundable.

CELL PHONE USE

In consideration of attendees and presenters, we kindly request that you minimize disturbances by setting all cell phones and other devices on “silent” while in meeting rooms.

AMERICANS 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 or visit the registration desk onsite.

ANTI-HARASSMENT

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

TMS policy prohibits conduct that is disrespectful, unprofessional, or harassing as related to any number of factors 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 or 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.

PHOTOGRAPHY AND RECORDING



TMS reserves the right to all audio and video reproduction 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.

ANTITRUST COMPLIANCE

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.

TMS DIVERSITY AND INCLUSION STATEMENT

The Minerals, Metals & Materials Society (TMS) is committed to advancing diversity in the minerals, metals, and materials professions, and to promoting an inclusive professional culture that welcomes and engages all who seek to contribute to the field. TMS recognizes that a diverse minerals, metals, and materials workforce is critical to ensuring that all viewpoints, perspectives, and talents are brought to bear in addressing complex science and engineering challenges. To build and nurture this diverse professional community, TMS welcomes and actively engages the participation of underrepresented groups in all of its initiatives and endeavors.

EMERGENCY PROCEDURES

The chances of an emergency situation occurring at Diversity in the Minerals, Metals, and Materials Professions 3 are quite small. However, being prepared to react effectively in case of an incident is the most critical step in ensuring the health and safety of yourself and those around you. Please take a few moments to review the maps of the University of California, Santa Barbara (UCSB) printed in this program (on page 31). When you enter the building, familiarize yourself with the exits and the stairs leading to those exits. When you arrive at your session or event location, look for the emergency exits that are in closest proximity to you.

In case of a police, fire, or medical emergency, please call 9-1-1.

To contact UCSB police or in case of non-emergency situations, please call 1-805-893-3446.

You may also wish to familiarize yourself with the locations of the nearest hospital facilities.

Nearest Hospital:
Goleta Valley Cottage
Hospital
351 S. Patterson Ave.
Goleta, CA 93111
1-805-967-3411

Alternate Hospital:
Santa Barbara Cottage
Hospital
4000 W. Pueblo St.
Santa Barbara, CA 93105
1-805-682-7111



AWARDS PRESENTATION

Monday, July 23 • Noon to 12:30 p.m.
Room 1108, Loma Pelona

PRESENTER

Kevin J. Hemker, Johns Hopkins University, 2018 TMS President

2018 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 Jeffrey Wadsworth and Geraldine McCulley Wadsworth.



Shadia Ikhmayies, Al Isra University

Shadia J. Ikhmayies is a three-time graduate of the University of Jordan. She received her B.Sc. from the university's physics department in 1983, her M.Sc. in molecular physics in 1987, and her Ph.D. in 2002 for her work on producing CdS/CdTe thin film solar cells.

Ikhmayies now works at Al Isra University in Jordan as an associate professor where her research focuses on producing and characterizing semiconductor thin films, and thin film CdS/CdTe solar cells. She also works in characterizing quartz in Jordan for the extraction of silicon for solar cells and characterizing different materials by computation. She has published 44 research papers in international scientific journals, three chapters in books, and 73 research papers in conference proceedings. Ikhmayies is the author of two books currently in production for Springer—*Silicon for Solar Cell Applications* and *Performance Optimization of CdS/CdTe Solar Cells*. She is also the editor-in-chief for the books *Advances in Silicon Solar Cells* for Springer and *Advances in II-VI Compounds Suitable for Solar Cell Applications* for Research Signpost, as well as for an eBook series about materials currently in production for Springer.

Ikhmayies is a member of the International Organizing Committee and the International Scientific Committee in the European Conference on Renewable Energy Systems (ECRES2015– ECRES2017). She also serves on the editorial board of the *International Journal of Materials and Chemistry* for Scientific & Academic Publishing and is a past technical advisor/subject editor for *JOM*. She has been the guest editor for three special issues of the *Journal of Electronic Materials: European Conference on Renewable Energy Systems* (2015 and 2017). Ikhmayies is a reviewer for 24 international journals, chair of the TMS Materials Characterization Committee (2016–2017), and the leading organizer of more than three symposia in the TMS Annual Meeting & Exhibition.

2018 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 Jeffrey Wadsworth and Geraldine McCulley Wadsworth.



Bevlee Watford, Virginia Polytechnic Institute and Center for the Enhancement of Engineering Diversity (CEED)

Bevlee Watford is a professor of engineering education in the College of Engineering at Virginia Polytechnic Institute and State University (Virginia Tech). She received her B.S. in mining engineering, and her M.S. and

Ph.D. in industrial engineering and operations research from Virginia Tech.

She is the founding director of the Center for the Enhancement of Engineering Diversity (CEED) and has secured more than \$12 million dollars in funding and support for CEED and other undergraduate initiatives. Her research activities have focused on the recruitment and retention of students in engineering with a particular emphasis on under-represented students. In 2008, Watford received the Women in Engineering ProActive Network, Inc. (WEPAN) Founders Award. CEED received the 2010 Claire Felbinger Diversity Award from the Accreditation Board for Engineering and Technology, Inc (ABET) and the 2011 NSBE-ExxonMobil Impact award.

Watford has served as associate dean for academic affairs in the College of Engineering at Virginia Tech since 1997 and is responsible for all undergraduate activities from recruiting to commencement. From 2010 to 2011 she served as interim department head of engineering education. From 2005 to 2007, she served as a program manager in the Division of Undergraduate Education for the National Science Foundation, returning from 2013 to 2015 to serve as the program director for broadening participation in the Directorate for Engineering.

Watford was the 2004–5 president of WEPAN and has served on the board of directors of the National Association of Minority Engineering Program Administrators (NAMEPA). She is currently a member of the National Academy of Engineering's EngineerGirl Website Committee. Watford is a Fellow of the American Society of Engineering Education (ASEE) and has served in several capacities including as president.

Nominate a distinguished colleague for a TMS Diversity Award

Nominations due April 1, 2019.

Celebrate the contributions of a mentor or colleague who has helped to make the minerals, metals, and materials community more diverse and inclusive through their actions and example—nominate them for a TMS Diversity Award.



Frank Crossley

The **TMS Frank Crossley Diversity Award** annually honors an individual who has “overcome personal, professional, educational, cultural or institutional adversity to pursue a career in minerals, metals, and/or materials,” and includes a \$1,500 cash prize.



Ellen Swallow Richards

The **TMS Ellen Swallow Richards Diversity Award** is conferred on 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.” Travel assistance up to \$500 will be provided if requested by the recipient to assure that he/she can attend the award ceremony.



Both TMS Diversity Awards are made possible through a generous donation to the TMS Foundation by Jeffrey Wadsworth and Geraldine McCulley Wadsworth.

For more information on the nomination process and award criteria, visit awards.tms.org. For additional assistance contact Deborah Hixon, TMS Awards and Program Administrator, at hixon@tms.org.

You do not have to be a member of TMS to nominate individuals for these prestigious awards.

awards.tms.org



MONDAY MORNING: Room 1108, Loma Pelona

OPENING REMARKS AND WELCOME



Jonathan D. Madison, Sandia National Laboratories

Jonathan D. Madison is a research scientist at Sandia National Laboratories, in Albuquerque, New Mexico, within the Material, Physical, and Chemical Sciences Center. Madison received his bachelor's degree from Clark Atlanta University in engineering science with a concentration in mechanical engineering in 2003, and received his M.S. and Ph.D. in materials science and engineering from the University of Michigan in 2007 and 2010 respectively. Throughout his academic matriculation, Madison has supported basic and applied research at Washington State University, Pullman, WA; the Naval Research Laboratory, Washington, D.C.; and the Massachusetts Institute of Technology in Cambridge, MA. The department he currently serves provides multi-scale, experimental characterization that enables materials-based insight and solutions.

Professionally, Madison maintains active membership in The Association for Iron & Steel Technology (AIST), ASM International (ASM), The American Society of Mechanical Engineers (ASME), and TMS. A few of Madison's accolades include: Sandia National Laboratories—Early Career LDRD Award (2010); lead guest editor, special issue on 3D Materials Science, *Integrating Materials and Manufacturing Innovation*, Springer (2014); *Albuquerque Business Journals* "Forty Under 40" (2015); Black Engineer of the Year Awards—"Most Promising Scientist in Industry" (2015); and lead organizer of the TMS summit, Diversity in the Minerals, Metals & Materials Professions 3 (2018). While at Sandia, Madison has spearheaded a new in-house characterization capability by acquiring capital equipment within his first two years, expanded the customer base for materials characterization, developed new technical partnerships to conduct world-class research, and led complimentary modeling projects to leverage novel experimental capabilities.

Madison's research interests focus on the intersection of experimental and computational techniques for 3D reconstruction of microstructure, quantitative characterization, and models of microstructural evolution. Madison has seven U.S. Department of Energy published technical reports, more than 20 peer-reviewed journal articles, and more than 240 citations.

WELCOME TO UCSB



Carol Genetti, University of California, Santa Barbara

OPENING PLENARY: "PROFESSIONAL CULTURES AND INEQUALITY IN STEM"



Erin Cech, University of Michigan

Abstract: *Can the culture of STEM help reproduce inequality? The professional cultures of STEM, which give each discipline its particular "feel" and unite discipline members under a taken-for-granted system of meanings and values, are not benign. Drawing from several NSF-funded survey and interview-based studies, I argue that these professional cultures can have built within them disadvantages for women and other under-represented groups in STEM. Specifically, I discuss the role of three particular cultural ideologies—schemas of scientific excellence, depoliticization, and the meritocratic ideology—in producing these disadvantages. I end by explaining why decisions (e.g. admissions, hiring, tenure) that rely on assessments of individuals' "fit" with professional cultures are particularly important to critically examine for their potential to contribute to inequality.*

Erin Cech is an assistant professor of sociology at the University of Michigan. Before coming to Michigan in 2016, she was a postdoctoral fellow at the Clayman Institute for Gender Research at Stanford University and was on faculty at Rice University. She earned her Ph.D. in sociology in 2011 from the University of California, San Diego and undergraduate degrees in electrical engineering and Sociology from Montana State University.

Cech's research examines cultural mechanisms of inequality reproduction—specifically, how inequality is reproduced through processes that are not overtly discriminatory or coercive, but rather those that are built into seemingly innocuous cultural beliefs and practices.



Her work on inequality in STEM professions focuses on the recruitment and retention of women, LGBTQ, and racial/ethnic minority persons in STEM degree programs and STEM jobs. Cech's research is funded by multiple grants from the National Science Foundation, including the first grant ever awarded by NSF to study LGBTQ inclusion in STEM.

She is a member of the editorial board of the *American Sociological Review* and her research has been cited in *The New York Times*, *The Guardian*, *The Washington Post*, *Harvard Business Review*, and the news sections of *Science* and *Nature*.

KEYNOTE: "COHORTS, COMMUNITY AND COMMENCEMENT: FOSTERING INCLUSION IN SPARSENESS"



Keith J. Bowman, University of Maryland, Baltimore County

Abstract: *Cohort-based academic programs that provide a spectrum of support and establish a context for community have been shown to benefit all students. Some cohort-based programs targeted to advance diversity and inclusion have had extraordinary impact. The relatively modest scale of materials*

science and engineering (MSE) programs is often purported to offer a friendly context consistent with some cohort-based education programs, but this has not translated to success in providing a context for African Americans relative to even other engineering disciplines. As MSE has grown, e.g. the median graduating undergraduate class for U.S. programs has increased from about 15 to 25 in the last decade, only 26 of 63 programs reported any African American degree recipients in 2017. Of those 26 programs the average number of African American degree recipients was 1.9. This presentation will share some examples of cohort-based programs, assess data trends for MSE degrees and discuss approaches to make MSE more inclusive to all.

Keith J. Bowman is dean of the College of Engineering and Information Technology (COEIT) and Constellation Professor at UMBC, the University of Maryland, Baltimore County. COEIT offers six bachelor's degrees, 15 master's degrees, and eight doctoral degrees.

Bowman received B.S. and M.S. degrees from Case Western Reserve University (CWRU) and a Ph.D. in materials science and engineering from the University of Michigan. He served as a visiting professor for research at the Technical University of Darmstadt, Germany in 1996 and 2002 and he served as a visiting professor at the University of New South Wales in Sydney, Australia in 2003.

He is a Fellow of the American Ceramic Society. Awards at Purdue University include receiving Purdue's highest teaching award, the Charles Murphy Undergraduate Teaching Award. In 2007, he received the Purdue College of Engineering Mentoring Award and he became the first professor of engineering education (by courtesy) from MSE. In 2012 he was invested as the first Duchossois Leadership Professor in the Illinois Institute of Technology (IIT) Armour College of Engineering soon after joining as chair of Mechanical (ME), Materials and Aerospace (AE) Engineering. Prior to UMBC he served two years as dean of the College of Science & Engineering at San Francisco State University wherein he led more than 400 faculty and staff, and about 6,000 majors across nine departments.

In 2007, Bowman testified in the Indiana statehouse as a private citizen on the potential impacts of a marriage amendment on education and research at major universities as part of a successful effort to prevent the amendment from appearing on the ballot in 2008. He is author of "Queer Identities in Materials Science and Engineering," which appeared in the April 2018 *MRS Bulletin*.

KEYNOTE: "DIVERSITY AS A FORM OF INNOVATION"



Xavier L. Ochoa, McEwen Mining Inc.

Abstract: *The mining industry is starting to undergo probably one of its more transcendental changes in its long history, possibly comparable to the introduction of mechanization, flotation or use of cyanidation with the advent of digital information management and decision making. Human nature*

seeks the path of least resistance; relations and thinking are based on comfort of like people with a homogeneous make up limiting disruptive and innovative thinking. Mining and minerals business teams are no different with high resistance to human diversity thinking and beliefs. By resisting diversity, the mining industry is resisting the opportunity for new talent that can bring creative disruption. This translates into conservatism, resistance to change, and stagnation. If the mining industry finds new deposits in new unexplored geographies, then wouldn't new minds with a different make up in their teams be highly prospective for innovation? Those companies that embrace diversity in their 21st century mining teams have a higher potential for cognitive disruption and change.



Xavier L. Ochoa was born in Mexico City, Mexico. He attended college in the United States at the University of Arizona, where he graduated in 1991 with a bachelor of science in mining engineering with departmental honors. He started his career in northern Nevada at the now-closed Echo Bay Mines' McCoy-Cove Mine where he worked in various roles. He then worked for Barrick Gold Corporation at Goldstrike. In the late 1990s, he joined The Winters Company in Tucson, Arizona as a consultant; his activities required work in various commodities, in different locations with cross-cultural needs.

The Mining and Exploration Division of SME awarded Xavier with the Outstanding Young Professional Award in 1998. In 1999, he moved to Peru as engineering superintendent for Barrick Gold for the successful startup and expansion of the Pierina Mine. This was followed by a move to San Juan, Argentina, in 2002 as the project manager for Barrick's Veladero Mine where he participated in the permitting process, construction, and commissioning in late 2005.

In 2006, he joined Falconbridge in Chile, later Xstrata, as engineering manager for the El Pachon binational project spanning Argentina and Chile before becoming general manager. Then, as general manager, he led the 2012 shutdown of the historic Tintaya Mine in Southern Peru and the transition into a new 70,000 tpd Antapaccay Operation next door.

In 2014, he initiated a venture in solid biofuels called Bio Thermal Solutions with projects in Argentina and the Dominican Republic. In mid-2014, became general manager of the Cerro Negro Mine in the Argentinean Patagonia with Goldcorp to commission the underground mining operations and milling. In 2016, Xavier was appointed chief operating officer with McEwen Mining Inc., which operates mines and projects across the Americas from the Argentinean Patagonia, to the high Andes of Argentina, western Mexico, northeastern Nevada, and in Timmins, Ontario.

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MONDAY AFTERNOON

PROFESSIONAL DEVELOPMENT: UNCONSCIOUS BIAS



Talia Fox, KUSI Training
Pavilion, The Club & Guest House

When you meet someone, what are some of your initial assumptions? Do these assumptions impact the way you interact with them? Our brains naturally place people into larger groups or categories. These assumptions are helpful to some, yet harmful to others. In business, subtle biases can become major

roadblocks to fair and inclusive diversity practices. We gravitate toward certain types of people, or simply forget to acknowledge others. These biases create challenges that may include racial and gender stereotypes that cause our contributions to be ignored or diminished. How do we become examples of fair and inclusive practices? How do we challenge our culture to move toward greater levels of awareness? This seminar will challenge your personal biases and address ways to engage in conversations that test faulty thinking and increase cultural awareness.

Talia Fox is an internationally known leadership strategist. Over the last 12 years, she has committed to supporting government agencies and public leaders in cultivating skills to emerge as global visionaries. She has worked side-by-side with government, industry, and educational leaders to study and test leadership teaching approaches that support extraordinary success and advancement. She served as the lead diversity strategist at Harvard University and has been a leadership development consultant and keynote at both the Women of Color Conference and the Black Engineer of the Year Awards Conference (BEYA).

Each year, Talia supports and develops over 60 strategic leadership seminars for high ranking military personnel, executive military leaders, high performing engineers, and a host of other innovative leaders that are responsible for some of the largest and most complex missions, systems, and designs in the United States. Talia holds a B.A. in english and psychology and an M.Ed. in counseling psychology, both degrees from Howard University. She also graduated from the Harvard Leadership Fellowship Program in 2015.

EARLY CAREER & STUDENTS BREAKOUT SESSION

Session Chair: Natalie Larson, University of California, Santa Barbara

Room 1100, Loma Pelona

This session will engage attendees through short presentations discussing case studies and success stories on initiatives to improve diversity, equity, and inclusion within the student and early career stages. It will also include interactive small group discussions building on the presentations and focused on measuring and transforming diversity, equity, and inclusion in higher education and the workplace. There will be an emphasis on admissions, recruitment, hiring, and retention.



Chris Borg, Citrine Informatics

Chris Borg is a data engineer for Citrine Informatics. His projects focus on educating young materials scientists on how to integrate materials informatics and machine learning into their workflows. The NextGen Fellowship program, a 10-week program for undergraduates, was founded last summer with just four fellows. This year, NextGen

has 30 fellows across five universities.

Recently, Chris has co-directed a new collaboration between Citrine and the Colorado School of Mines (Mines). The Mines Initiative for Data-Driven Materials Innovation (MIDDMI) is a program dedicated to educating Mines students on the fundamentals of materials informatics. Before Citrine, Chris studied at the University of California, Santa Barbara as an undergraduate and worked with Ram Seshadri in the Materials Research Lab (MRL). In graduate school, Chris studied with Efrain Rodriguez at the University of Maryland.



Saemi Poelma, The Clorox Company

Saemi Poelma completed her Ph.D. under the supervision of Javier Read de Alaniz and Craig Hawker, with an emphasis on organic chemistry and materials chemistry at the University of California, Santa Barbara in 2016. During her graduate career, she was actively involved in outreach programs on

campus and served in different roles for Graduate Students for Diversity in Science (GSDS), including as president from 2014 to 2015. Since then, she has started her professional career as a product development scientist at The Clorox Company. Saemi formulates cleaning products based on innovative technologies and works on maintaining a range of cleaning products in the market.



Amy Wat, University of California, Berkeley

Amy Wat is a Ph.D. candidate from the University of California, Berkeley (UC Berkeley). She has been involved in several initiatives at her alma mater, California State University, Los Angeles (CSULA), at UC Berkeley, and at Lawrence Berkeley National Laboratory (LBNL). CSULA is a public

comprehensive university that is recognized as a Hispanic-serving institute and has been nationally recognized as the top university in terms of upward mobility of its students. Wat wants to emphasize the potential to grow retention and diversity in materials sciences by drawing attention to potential recruitment opportunities at universities similar to CSULA and by highlighting the effective retention strategies initiated by UC Berkeley and LBNL.

At CSULA, Wat has hosted several workshops for underrepresented minorities on life as a Ph.D. student and on how to write a competitive application for the NSF Graduate Research Fellowship Program. The workshops have helped two students receive the fellowship, as well as two Honorable Mentions. As a member of the Women Scientists & Engineers Council of LBNL, she worked on the Women at the Lab event—a program created to bring visibility to women within the lab—to ensure that outreach efforts were considered when choosing award recipients. At UC Berkeley, she was the graduate mentor for 10 underrepresented minority undergraduates through the Cal New Experiences for Research and Diversity in Science Summer Program. She looks forward to bringing a perspective from a broad range of institutions to the event.

EXECUTIVE LEADERSHIP I BREAKOUT SESSION

Session Chair: Rosa Maria Rojas, University of Arizona
Room 1108, Loma Pelona

Leadership and executive positions offer some of the greatest opportunities for broad impact on diversity and inclusion in the community. In this session, executives representing a cross-section of academia, government, and industry will discuss actions, policies, and initiatives related to diversity and inclusion and the role leadership plays in their formation and execution. Presenters will also discuss the influence of workplace culture as a sustaining or combating force to these initiatives and what leadership can do to influence the advancement of diversity and inclusion.



Joe Carella, Eller College of Management, University of Arizona

Joe Carella has more than 20 years of experience in helping executives and corporations with talent development, inclusive workplaces, managing change, strategy formulation, and execution.

His academic and research engagements have seen him focus on corporate strategy and business performance with a variety of corporate clients including Hershey's, Chevron, Fender Musical Instruments Corporation, Intel, Essilor, BBVA, Produce Marketing Association, Xenel Industries, P.F. Chang's, Raytheon, Wallenius Wilhelmsen Logistics, DP World, and Discover Financial Services. He is also responsible for designing, developing, and delivering successful executive education programs for global corporations.

Joe has also been keynote speaker on the state of the industry at the annual congress of the FITCE—the Forum of European Technology Professionals, the Society for the Plastics Industry, the Association for Talent Development, and Disrupt HR. Joe has been a contributor to the *Harvard Business Review*, focusing on the challenges of leadership.

His specialties include organizational change, talent development, diversity, business strategy, innovation, business intelligence, facilitation, coaching, leadership development, executive education, and global business.



Resa Furey, Stantec Inc.

Resa Furey is the director of marketing and business development at Stantec where she provides direction, guidance, and solutions that create sustainable returns for the company's global mining sector. She is experienced in growing businesses through strategic marketing by creating a positive brand image and

positioning to gain a competitive market edge. Her recent career has been spent primarily in mining, engineering, and environmental consulting. She has significant international expertise, having lived and worked in Europe and South America. Resa is a true believer that diversity, in particular diversity of thought, leads to better decisions and outcomes.



Amanda Reid, Caterpillar Surface Mining and Technology

Amanda Reid is the global talent & organizational development consultant for Caterpillar Surface Mining and Technology. She has more than 14 years of customer-focused consulting inclusive of leadership development, succession planning, and diversity & inclusion initiatives.

Her work developing and facilitating a global program for Mine Site Performance Managers earned her a nomination by her peers for a Bridge Builder Award. The project and team were additionally recognized as finalists for the Enterprise Excellence Award. Her recruitment process project in 2017 doubled female applicant rates within the United States. She presently manages the succession planning and diversity related initiatives within Caterpillar Surface Mining.

Within greater Caterpillar, Amanda has held multiple leadership roles in Caterpillar's Women's Employee Resource Group with projects including the global Introduce a Girl to Engineering Day program. Her support of the Caterpillar Women's Breakthrough Leadership program was recognized as a finalist for the Chairman's Award for Diversity & Inclusion, and winner of the Chairman's Award for Delivered Innovation. She is also a member of the Corporate Diversity Champion team, working to impact the organizational culture. She also volunteers her time to support negotiation and emotional intelligence workshops to college students looking to enter the workforce.

Amanda is also a certified Gallup StrengthsFinder Coach as well as an industrial and organizational psychologist, and a member of the Society of Industrial and Organizational Psychology.

PROFESSIONAL DEVELOPMENT: LEADERSHIP, DIVERSITY, AND INCLUSION



Talia Fox, KUSI Training Pavilion, The Club & Guest House

Seasoned and emerging leaders alike will be held accountable for negotiating and collaborating in an ever-evolving world of differences. Professional cultural competence expands the definition of diversity by encompassing other factors such as lifestyle, learning styles, industry, positional power, etc. No

matter where you are in your career, this course will challenge you to examine "what you know," "what you don't know," and "what you need to do" to move forward toward greater cultural competence. While we will focus on leadership, diversity, and inclusion, the discussion is grounded in a systems thinking framework and offers the opportunity for us to put the learning into action by drawing from emotional intelligence and unconscious bias content.

Talia Fox is an internationally known leadership strategist. Over the last 12 years, she has committed to supporting government agencies and public leaders in cultivating skills to emerge as global visionaries. She has worked side-by-side with government, industry, and educational leaders to study and test leadership teaching approaches that support extraordinary success and advancement. She served as the lead diversity strategist at Harvard University and has been a leadership development consultant and keynote at both the Women of Color Conference and the Black Engineer of the Year Awards Conference (BEYA).

Each year, Talia supports and develops over 60 strategic leadership seminars for high ranking military personnel, executive military leaders, high performing engineers, and a host of other innovative leaders that are responsible for some of the largest and most complex missions, systems, and designs in the United States. Talia holds a B.A. in english and psychology and an M.Ed. in counseling psychology, both degrees from Howard University. She also graduated from the Harvard Leadership Fellowship Program in 2015.



ESTABLISHED WORKFORCE BREAKOUT SESSION

Session Chair: Emily Kinser, 3M Corporate Research Laboratory
Room 1100, Loma Pelona

This session will center on issues related to diversity and inclusion for those who have greater than three to five years of career employment but are not serving in an executive leadership role. In this session, there will be a focus on preparing for the next level of your career while successfully balancing personal and external expectations for professional service and volunteerism among under-represented populations. Speakers spanning industrial, government, and academic settings will offer guidance, experiences, and approaches to address challenges and adversity in the workplace. Additionally, an interactive panel discussion will allow participants to share their own experiences while also learning new strategies to navigate this stage of their careers.



Emily Kinser, 3M Corporate Research Laboratory

Emily Kinser serves as the laboratory manager of the inorganics and ceramics cluster in the 3M Corporate Research Materials Laboratory in St. Paul, Minnesota.

Emily earned both her B.S. and M.S. in materials science and engineering, and her B.A. in political science from Iowa State University. In 2011 Emily began pursuing her Ph.D. at Yale University in mechanical engineering and materials science while working at IBM. She earned her M.S. and M.Phil. in December 2014, and is expected to complete her Ph.D. in 2018. Her dissertation research focused on surface engineering for novel biomaterials and next generation biosensors. To date, Emily has 16 publications and filed over 50 US patent applications.

Prior to 3M, Emily served in various technical roles at IBM from 2005 to 2018. Emily joined IBM as a process engineer in the Semiconductor Research and Development Center. In 2014, she became a patent engineer in the Corporate IP Licensing and Development team. In 2016, Emily was selected to coordinate IBM Research's internal corporate annual Global Technology Outlook program. Emily's most recent IBM assignment was as a technical advisor in IBM Research in the Health Care Life Science Research team.

While at IBM, Emily received several honors including the IBM Women Inventors Patent Challenge Grand Prize (2008), selection to the IBM Corporate Service Corps Program, and was selection as an IBM Master Inventor (2015). In addition, she has received a variety of external honors including: the Iowa State University Alumni Association "Outstanding Young Alumni Award" (2015) and the ASM International Bronze Medal (2015). Emily has recently been selected to attend the NAE 2018 Frontiers in Engineering Symposium in September of 2018.



Simona Hunyadi Murph, National and Homeland Security Directorate, Savannah River National Laboratory

Simona Hunyadi Murph is a principal scientist in the National and Homeland Security Directorate at Savannah River National Laboratory (SRNL) and an adjunct professor in the Department of Physics and

Astronomy at the University of Georgia. She is also a technical monitor for the Department of Energy—Office of Environmental Management Minority Serving Institutions Partnership Program.

Murph is a veteran educator and the founder of SRNL's Group for Innovation and Advancements in Nano-Technology Sciences (GIANTS) program which assists young scholars in pursuing a career in STEM fields. Through her position at SRNL, Murph is "putting nanoscience to work" for national security missions, environmental stewardship and clean energy applications. Over the years, she has been awarded nearly \$8 million in grants leading to pioneering nanotechnologies, 10 patents/invention disclosures, more than 80 technical publications, and nearly 150 invited and contributed presentations. She mentored and supported more than 40 students and postdoctoral researchers.

Murph is the recipient of many prestigious awards including the SRNL Director's Award for Exceptional Scientific and Engineering Achievements, SRNL's Exceptional Leadership Award, the U.S. Clean Energy Education and Empowerment (C3E) Award Finalist in Research, and the Principal Investigator of the Year at the National Nuclear Security Administration, NA-42 Program. Murph was named Inspirational Woman in STEM by the U.S. Department of Energy and recognized as one of the Women at the Forefront of their Fields at NNSA. She is the recipient of Augusta University's Distinguished Alumna and Presidential Alumna Awards for outstanding contributions to one's professional career and exemplary dedication to the advancement of the community. Murph holds a Ph.D. in chemistry from the University of South Carolina, an education specialist in educational leadership from Augusta University, and both an M.S. in chemistry and B.S. in chemistry/physics with a minor in education from Babes-Bolyai University, Romania.



Rosa Maria Rojas, University of Arizona

Rosa Maria Rojas holds a M.Sc. and B.S. in mining engineering from University of Arizona and Pontificia Universidad Católica del Perú, respectively. She has more than 10 years of experience and a proven track record of performance in the mining industry of Chile, Peru, and the United States. Her expertise

is in mine operations, strategic mine planning, business improvement, and management in various commodities.

In the past, she has held positions such as long-range planning engineer, mine operations supervisor, dispatch engineer, stockpile planner engineer, mine for leach engineer, ore control engineer, and business improvement engineer, among others working for BHP Billiton and Freeport-McMoran Inc. Her graduate research work was in “reengineering frontline supervision through a centralized control room and mobile computing” presented at SME, PERUMIN, Codelco Tech, and MININ international conferences.

Rosa is a wife and a mother. She is passionate about promoting STEM within younger female generations. She is also part of the leadership of various SME committees. Currently, she is a professor of practice at the Mining and Geological Engineering department at the University of Arizona where she is the leading the Mining 360 Executive Program.

EXECUTIVE LEADERSHIP II BREAKOUT SESSION

Session Chair: Oscar Dubón, University of California, Berkeley

Room 1108, Loma Pelona



Kristen Constant, Iowa State University

Kristen Constant is the interim vice president and chief information officer at Iowa State University (ISU) where she is leading information technology and the implementation of a comprehensive enterprise software modernization. She holds the rank of Morrill Professor and is the Wilkinson Professor

of Interdisciplinary Engineering in Materials Science and Engineering at ISU where she served as chair prior to her current position.

She earned a B.S. in ceramic engineering from ISU and a Ph.D. in materials science and engineering from Northwestern University. 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 a fellow of the American Society for Engineering Education (ASEE) and serves on the ASEE Diversity Committee and is the WEPAN delegate to the Board of Delegates of the Accreditation Board for Engineering and Technology.



Euridice González, McEwen Mining Inc.

Euridice González has more than 15 years of experience in the mining industry, of which 10 have been in the management of mining operations and exploration projects, which include analysis and business development, as well as project management from start-up and development. Originally

certified as an English teacher at Cambridge University, she obtained a diploma from La Salle University, and completed her Executive Program in Innovation for Economic Development at Harvard’s John F. Kennedy School of Government.

Appointed in 2007 as general manager for Pangea Mining Company in Mexico, she became one of the first women to obtain the highest executive rank in the mining sector for managing day to day exploration and open pit gold mine operations.

In 2012, González took the position of country manager in Mexico for the operations of McEwen Mining Inc. and in October 2013, she became the founding president of the Mining Business Council of Mexico (CONMIMEX)—an institution that brings together formal mining companies in the state of Sinaloa, as well as small and gold prospectors. In October 2016, International Women in Mining (WIM) appointed her to found Mujeres WIM de Mexico as the first NGO in favor of gender equity and mining in the country.

González was named the second-most important executive of Latin America as covered in the March 2015 issue of *Latin America Business Review*. She was also named one of the 100 Global Inspirational Women in Mining in the 2016 book by WIM UK. She has also recently begun participating in the mining industry inclusion program promoted by the Inter-American Development Bank.

She currently serves McEwen Mining Inc. as the director of corporate affairs and sustainability, in addition to her previous responsibilities. González represents the interests of McEwen Mining in Mexico and promotes all CSR actions and is responsible for promoting mining in Sinaloa and Mexico.



Debbie Mazziotti, GE Aviation

Debbie Mazziotti joined GE Aviation in 2003 on a rotational engineering development program. She held various roles within the materials science and engineering function including materials behavior, failure analysis, and application engineering. Her off-program role allowed her to become proficient in the hot section of the engine,

including high temperature superalloys and coatings. She has diversified her experiences by leading digital projects that delivered data analytics to the airline customer. Debbie then became a systems certification and test manager leading a new engine through a certification test program with the FAA. Before entering her current role, Debbie had the opportunity to work at multiple GE businesses on corporate technology Staff. Her projects included delivering a sourcing strategy for model-based enterprise and guiding a controls team with Fastworks principles to lower software requisition costs and enable future software revenue growth.

Debbie currently leads the Military & New Technology Introduction section within the Engineering Materials Systems Department at GE Aviation. The group is responsible for materials application and development for all legacy and next generation military products. She also has the awesome responsibility of growing additive manufacturing use in GE Aviation products.

Debbie holds a bachelor's degree in materials engineering from Rensselaer Polytechnic University and a master's degree in materials engineering from The Ohio State University. She also received an MBA from Xavier University with a concentration in management information systems. Debbie enjoys being active and is training for an eleventh marathon coming up in September. She also enjoys volunteering her time to the Women's Network and STEM efforts.

TUESDAY MORNING

PROFESSIONAL DEVELOPMENT SESSION: "CREATING A MORE INCLUSIVE FIELD: BUILDING YOUR DIVERSITY TOOLBOX"

Session Chairs: Matthew Korey, Purdue University, and Michael Rawlings, AAAS Fellow at the National Science Foundation

Room 1100, Loma Pelona

This session focuses on identifying critical issues around race, ethnicity, gender identity, and sexual orientation as they apply to STEM fields. In addition to discussing terms and inclusive language, participants will learn skills for supporting LGBTQIA+ individuals and people of color in their places of work. Through a discussion of theory and practice, participants will understand frameworks about power and privilege, practice gender pronouns, and understand identity-based leadership and values. In these ways, this workshop will incorporate the intersections of identities and the role unconscious bias plays in daily interactions. Attendees will leave with a toolbox on how to build more inclusive and affirming environments for LGBTQIA+ people of color in their workplaces, labs, and classrooms.



Dolan, University of California, Santa Barbara

Dolan is a non-binary, queer, white, and Latinx biracial educator who lives in Santa Barbara. Most recently the director of the Resource Center for Sexual & Gender Diversity at the University of California, Santa Barbara, they have seven years of experience doing LGBTQIA+ work with college students. Before their master's degree in higher education at the University of Vermont, Dolan received a bachelor's degree in science in mechanical engineering at Lehigh University. It is this blend that propels Dolan in their passion for learning, exploring, and solving problems and it drives their empathy and care for marginalized students in STEM fields.



Erin-Kate Escobar, California Institute of Technology

Erin-Kate Escobar is the assistant director in the Caltech Center for Diversity at the California Institute of Technology (Caltech). She holds a master's degree in higher education and student affairs from the University of Vermont. Escobar provides leadership, outreach, policy, and programming support for campus-wide diversity initiatives. Her primary responsibilities include the Women's Engagement Board, Women Mentoring Women, LGBTQ+ support, and facilitating workshops and trainings on topics of diversity and inclusion.

PROFESSIONAL DEVELOPMENT SESSION: TITLE TO BE ANNOUNCED

Sharoni Denise Little, The Strategist Company
Pavilion, The Club & Guest House

RACE AND ETHNICITY BREAKOUT SESSION

Session Chair: Michael Rawlings, AAAS Fellow at the National Science Foundation

Room 1108, Loma Pelona

This session focuses on identifying and discussing critical issues around race and ethnicity that limit the participation of underrepresented groups in STEM fields and, in particular, minerals, metals, and materials. A combination of experienced presenters will share their perspectives and provide participants with an opportunity to learn the latest cultural awareness practices. The aim is for attendees to take away practical skills and insights they can immediately implement in their own workplace.



Darryl Dickerson, Advanced Regenerative Technologies

Darryl Dickerson serves as chief executive officer of Advanced Regenerative Technologies and the associate director of the Minority Engineering Program at Purdue University. Dickerson has extensive research experience in biomaterials development, orthopedic tissue biomechanics, and tissue engineering. He received a bachelor's degree in biomedical engineering from Tulane University in New Orleans, Louisiana. He continued his education at the Weldon School of Biomedical Engineering at Purdue University.

Research for his doctoral dissertation "Bio-template Mediated Regeneration of Orthopedic Interfaces" was carried out in the Human Injury and Regenerative Research Technologies Laboratory under the direction of Eric Nauman. Subsequently, he and Nauman founded Advanced Regenerative Technologies to translate the benchtop work performed during his graduate studies to clinical practice.

During his time as a graduate student, Dickerson gained significant management and leadership experience as a member of the board of directors (2004 to 2009) of the National Society of Black Engineers (NSBE). His work with NSBE culminated in his service as president, chair of the board, and chief executive officer in 2007 to 2008. During his tenure, he honed his management and leadership skills overseeing a full-time staff of 30 at the world headquarters in Alexandria, VA; managing a budget of \$11 million; implementing a new programmatically-based strategic direction; and forging new partnerships with corporations, including Battelle and Microsoft.

Dickerson received his Ph.D. from Purdue University in May 2009. In 2012, he joined the staff of the Minority Engineering Program at Purdue and has since taken on the role of Associate director, managing the execution of programming designed to increase enrollment, retention, and success of underrepresented minority students in engineering. Within this realm, he has also taken on national leadership roles including as a member of the board of directors for the National Association of Multicultural Engineering Program Advocates.



Ashley Huderson, American Society of Mechanical Engineers

Ashley Huderson is a native of New Orleans, Louisiana. She completed her undergraduate training at Spelman College in 2006, a certificate in health policy in 2012, doctoral work at Meharry Medical College in 2013, and a post-doctoral fellowship at

Georgetown University Lombardi Cancer Center's Office of Health Disparities and Minority Research in 2015. During her two years at Georgetown University, her interest in helping minority students navigate their STEM careers flourished as she accepted her first adjunct position, affording her the opportunity to teach and advise undergraduate and graduate level students. It was during this time that she decided to turn her sights completely to diversity and inclusion issues within STEM education and embark on a career that would allow her to make a meaningful contribution to diversifying the scientific workforce and empowering those interested in STEM, regardless of their background.



Hudson was a 2015–2017 American Association for the Advancement of Science, Science and Technology Policy (AAAS S&T) Fellow in the Division of Engineering Education and Centers at the National Science Foundation, where she provided leadership on developing, coordinating, and implementing support for programs that foster an inclusive climate for pre-collegiate and collegiate STEM students. Currently Hudson serves as the manager of engineering education at the American Society of Mechanical Engineers, where she is responsible for advancing and managing the research, development, promotion, implementation, and assessment of products and services that will help colleges of engineering develop their curricula and faculty. Hudson is also the founder and CEO of STEM Innovation Consulting, a consulting firm that provides educational consulting services that include professional development, infrastructure development, capacity building, project management, curriculum development, and grant writing.



Darrell Hudson, Washington University in St. Louis

Darrell Hudson is an associate professor at the Brown School at Washington University in St. Louis. Hudson holds a joint appointment with the Department of Psychiatry and is a faculty scholar with the Institute for Public Health. His research agenda focuses on racial/ethnic health disparities and

the role of social determinants of health, particularly how socioeconomic position and social context affect health and health disparities.

Hudson completed his doctoral studies at the University of Michigan School of Public Health, where he also received his MPH. He earned a B.S. in psychology from Morehouse College. Prior to his faculty appointment, Hudson completed a postdoctoral fellowship with the Kellogg Health Scholars Program at the University of California's San Francisco and Berkeley campuses, focusing on social epidemiology.



Fatemeh Molaei, University of Arizona

Fatemeh Molaei earned a M.Sc. and B.S. in mining engineering from the University of Tehran in Iran in 2009. She came to the United States in 2015 and obtained her second M.Sc. in mineral engineering from New Mexico Institute of Mining and Technology in 2017. Her research

topic was numerical simulation in rock. She worked as a mining engineer in various companies in Tehran where

her focus was mostly on feasibility studies. Her expertise is in rock mechanics, geotechnical engineering, project management, and feasibility studies.

Molaei started her Ph.D. at the University of Arizona in 2017 and her focus is on the numerical simulation in nanoscale.



Rosa Maria Rojas, University of Arizona

Rosa Maria Rojas holds a M.Sc. and B.S. in mining engineering from University of Arizona and Pontificia Universidad Católica del Perú, respectively. She has more than 10 years of experience and a proven track record of performance in the mining industry of Chile, Peru, and the United

States. Her expertise is in mine operations, strategic mine planning, business improvement, and management in various commodities.

In the past, she has held positions such as long-range planning engineer, mine operations supervisor, dispatch engineer, stockpile planner engineer, mine for leach engineer, ore control engineer, and business improvement engineer, among others working for BHP Billiton and FreeportMcMoran Inc. Her graduate research work was in “reengineering frontline supervision through a centralized control room and mobile computing,” presented at SME, PERUMIN, Codelco Tech, and MININ international conferences.

Rosa is a wife and a mother. She is passionate about promoting STEM within younger female generations. She is also part of the leadership of various SME committees. Currently, she is a professor of practice at the Mining and Geological Engineering Department at the University of Arizona where she is the leading the Mining 360 Executive Program.

LGBTQ+ BREAKOUT SESSION

Session Chair: Dolan, University of California, Santa Barbara, and Erin-Kate Escobar, California Institute of Technology

Room 1100, Loma Pelona

This session focuses on developing the skills necessary to combat prejudice around gender and sexual orientation and to serve as a better ally to the lesbian, gay, bisexual, and transgender (LGBTQ+), also known as the gender and sexual minority (GSM), community in STEM fields and, in particular, minerals, metals, and materials. Attendees will leave with a better sense of the needs of this diverse community and awareness of the resources necessary to help create a more inclusive environment in the workplace.



Roberta Beal, Los Alamos National Laboratory

Roberta Beal received a B.A. in earth and planetary science from the University of New Mexico where she studied meteorite impact craters and the effects of the size to energy ratio. She served in the United States Navy as a quartermaster second class petty officer (surface warfare) and

completed two deployments to the Middle East. She currently works at Los Alamos National Laboratory (LANL) as a research technician in the Materials Science and Technology Division where she works on characterization of additively manufactured metals.

She was a member of GetEqual New Mexico where she helped organize and participated in marches and actions to win marriage equality in New Mexico. She currently serves as the co-chair of Prism, LANL's LGBTQ+ Employee Resource Group, and is also a board member of Friends of Los Alamos Pride, where she is helping to plan the town's first pride week.



Keith J. Bowman, University of Maryland, Baltimore County

Keith J. Bowman is dean of the College of Engineering and Information Technology (COEIT) and Constellation Professor at UMBC, the University of Maryland, Baltimore County. COEIT offers six bachelor's degrees, 15 master's degrees, and eight doctoral degrees.

Bowman received B.S. and M.S. degrees from Case Western Reserve University (CWRU) and a Ph.D. in materials science and engineering from the University of Michigan. He served as a visiting professor for research at the Technical University of Darmstadt, Germany in 1996 and 2002 and he served as a visiting professor at the University of New South Wales in Sydney, Australia in 2003.

He is a Fellow of the American Ceramic Society. Awards at Purdue University include receiving Purdue's highest teaching award, the Charles Murphy Undergraduate Teaching Award. In 2007, he received the Purdue College of Engineering Mentoring Award and he became the first professor of engineering education (by courtesy) from MSE. In 2012 he was invested as the first Duchossois Leadership Professor in the Illinois Institute of Technology (IIT) Armour College of Engineering soon after joining as chair of Mechanical (ME), Materials and Aerospace (AE) Engineering. Prior to UMBC he served two years as dean of the College of Science & Engineering at San Francisco State University wherein he led more than 400 faculty and staff, and about 6,000 majors across nine departments.

In 2007, Bowman testified in the Indiana statehouse as a private citizen on the potential impacts of a marriage amendment on education and research at major universities as part of a successful effort to prevent the amendment from appearing on the ballot in 2008. He is author of "Queer Identities in Materials Science and Engineering," which appeared in the April 2018 *MRS Bulletin*.



K. Cunningham (KC), ATI

KC is an early-career R&D engineer at ATI Specialty Alloys & Components in Albany, Oregon. They received their B.S. in chemical engineering as a Jack Welch Scholar at the University of Massachusetts Amherst, where they researched polymer thin films. They received their M.S. in materials from the University of

California, Santa Barbara in 2015, with a thesis on ductile-phase toughening in tungsten composites for nuclear fusion applications.

As a research metallurgist for a primary metals company, KC focuses on applying materials science fundamentals to develop new processes and next-generation reactive and refractory alloys for a wide range of applications, including those in the energy, medical, and aerospace industries. As a nonbinary person, KC is personally invested in promoting allyship and championing policies to support transgender and gender-nonconforming people. KC independently funds research in harmonic analysis—as a competitive amateur barbershop quartet singer, they have received several awards from performing with various groups.



Rochelle Diamond, California Institute of Technology

Rochelle Diamond, member of the professional staff at the California Institute of Technology (Caltech), has been the lab manager for Ellen Rothenberg's developmental immunology group in the Division of Biology and Biological Engineering since 1982. Since 1984, she has also been facility managing director and applications specialist in Beckman Institute's Flow Cytometry/Cell Sorting Facility. Notably, she was a member of the City of Hope/Genentech research team that cloned the human gene for insulin in 1978. She is co-editor of *In Living Color: Protocols in Flow Cytometry and Cell Sorting* (Springer, 2000). Outside of Caltech, Rochelle is chair of the board of directors of the National Organization of Gay and Lesbian Scientists and Technical Professionals (NOGLSTP).

Awards include the Dr. Fred Shair Award for Program Diversity from the Caltech Center for Diversity, Fellow of the American Association for the Advancement of Science, the Lesbian and Bisexual Women Active in Community Empowerment (L.A.C.E.) Award by the Los Angeles Gay and Lesbian Center, and the Walt Westman Volunteer of the Year Award by NOGLSTP. She is a member of the International Society for the Advancement of Cytometry, American Chemical Society, American Association for the Advancement of Science (AAAS), Thought Leader for DiscoverE, and is a founding member and treasurer for the Southern California Flow Cytometry Association. Rochelle gave the keynote for the National Science Foundation Pride Celebration in 2017. She was the lead organizer for the diversity and inclusion events at the AAAS 2018 Annual Meeting.



Michael Anthony Morris, University of California, Irvine

Mike Morris is currently a fourth year chemistry Ph.D. candidate in the Nowick Group at the University of California, Irvine (UCI), where he synthesizes imaging probes for self-assembling peptides. He was born and raised outside of Boston and received his B.S. in biochemistry at Union College in New York. As a gay scientist, Mike is concerned with the visibility and treatment of LGBTQ+ people in STEM, wondering if there is space for diversity and inclusion in the intense atmosphere of the research laboratory. To address such issues, Mike has organized symposia at the American Chemical Society (ACS) conferences to promote awareness and community for LGBTQ+ chemists. Mike is also the chair of the Gay and Transgender Chemists and Allies (GTCA)

ACS subdivision, where he organizes ACS programming designed specifically for LGBTQ+ chemists. Mike also has a passion for science outreach and has served as the manager of the UCI Chemistry Outreach Program for the past three years, where he organizes science outreach visits to low-income schools in Orange County.



Thomas Cole Reeve, Purdue University

Thomas Cole Reeve was born and raised in Chillicothe, Missouri, United States. Thomas attended Iowa State University (Iowa State) for his undergraduate degree in materials engineering. During his time at Iowa State, Thomas was involved in materials research with a number of faculty members, served as a department peer mentor, and a member, fundraising co-chair, and president of the Iowa State chapter of Material Advantage. Thomas also held multiple summer engineering internships during his undergraduate career for three recurring summers with Honeywell Federal Manufacturing and Technology. Thomas graduated from Iowa State in May 2013 with a B.S. in materials engineering and two minor degrees, in nuclear engineering, and in economics.

After graduation, Thomas immediately joined the Ph.D. program in the materials engineering department at Purdue University, where he performed research through the collaborative advisement of Carol Handwerker (Purdue University) and Iver Anderson (Ames Laboratory) on Pb-free solder alloy design. During his time at Purdue, Thomas served the department through his service to the graduate student association as a member, professional development chair, and treasurer, and through his involvement with the NSF funded IGERT program. He volunteered through professional societies, including ASM, TMS, and ACerS, particularly through his involvement as a member of the TMS Electronics Packaging and Interconnection Materials Committee and the TMS Diversity Committee.

During his graduate studies, Thomas received several awards, including: the National Defense Science and Engineering Graduate (NDSEG) fellowship, the College of Engineering Outstanding Graduate Student Service Award, the *Journal of Phase Equilibria and Diffusion* Editor's Choice Award, the ACerS Basic Science Divisions Graduate Excellence in Materials Science Diamond Award, the Surface Mount Technology Association Charles Hutchins Education Grant, and the Purdue University Ross Fellowship.



METRICS & ASSESSING THE STATE OF DIVERSITY AND INCLUSION BREAKOUT SESSION

Session Chair: Ann Gabriel, Elsevier
Pavilion, The Club & Guest House

This session aims to help attendees better understand the current landscape of diversity and inclusion and how to enable progress through the development of informed metrics and evaluation. Some of the most commonly cited quantitative metrics for diversity and inclusion are percentages of the population at a university or workplace from underrepresented groups. However, this falls far short of capturing key qualitative information that can be utilized to help advance diversity, equity, and inclusion. Speakers in this session will present their perspectives on how to develop, analyze, and apply well informed and proactive measures and metrics.



Alma R. Clayton-Pedersen, Emeritus Consulting Group

Since 2010, Alma R. Clayton-Pedersen has been CEO of Emeritus Consulting Group which works to enhance nonprofits success for the public good. From 2010 to 2016 she was also an Association of American Colleges & Universities (AAC&U) senior scholar directing the work of

its Preparing Critical Faculty for the Future Program, funded by the National Science Foundation. She was AAC&U's vice president for education and institutional renewal (2001 to 2010), directing both ongoing programs and several grant-funded projects. Currently it is the Office of Diversity, Equity, and Student Success. She was senior policy director and special assistant to the president prior to her role as vice president. She joined AAC&U after nearly 16 years at Vanderbilt University where she served in senior leadership roles that included student affairs, the Vanderbilt Institute for Public Policy Studies, academic affairs, and athletic affairs. While at Vanderbilt she conducted more than 20 institutional studies of student retention, campus climate for diversity, and student use and impact of student programming and services.

She has directed projects funded by the BellSouth, Ford, Gund, James Irvine, and Lumina Foundations, as well as the Carnegie Corp. of New York, the Lilly Endowment, the Fund for the Improvement of Post-Secondary Education (FIPSE), and the Metropolitan Nashville Government. Clayton-Pedersen has provided consultation on program evaluation, diversity, equity and inclusion, inter-organizational collaboration, and institutional change. She has undertaken these projects in a wide range of stakeholders and in higher education settings in the United States and internationally including Canada, China, the Netherlands, and the United Kingdom. She received her B.Sc. from the University of Wisconsin, Milwaukee, and both her M.Ed. and Ph.D. from Vanderbilt University.



Ann Gabriel, Elsevier

Ann Gabriel is a vice president for academic & research relations in global strategic networks at Elsevier. She has held a variety of positions at the forefront of scholarly communication including as publishing director for journals in computer science and engineering and in electronic product development roles for Elsevier's

online platforms. Ann's current work focuses on outreach and partnerships related to scientific impact; open science; sustainability; and diversity and inclusion.



Lynn Milan, National Center for Science and Engineering Statistics, National Science Foundation

Lynn Milan is a project officer in the National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation (NSF). Currently she manages the National Survey of College Graduates (NSCG), a

biennial longitudinal survey that provides data on the nation's college graduates, with a focus on those in the science and engineering workforce. Prior to her work on the NSCG, she managed the Survey of Earned Doctorates (a census of all research doctorate recipients in the United States) and the Survey of Doctorate Recipients (a biennial longitudinal survey focused on individuals with a U.S. research doctoral degree in a science, engineering, or health field). Results from these and other NCSES surveys are used to inform policies related to the science and engineering enterprise and are published regularly in two congressionally mandated reports: *Science and Engineering Indicators* and *Women, Minorities, and Persons with Disabilities in Science and Engineering*.



Prior to starting at NSF, Milan was a survey statistician at the U.S. Army Research Institute for the Behavioral and Social Sciences and a data analyst at the U.S. Government Accountability Office (GAO). She received her Ph.D. in psychology from the Graduate Center of the City University of New York.

NCSES is one of 13 U.S. federal statistical agencies. Its mission is to serve as a central federal clearinghouse for the collection, interpretation, analysis, and dissemination of objective data on science, engineering, technology, and research and development. To accomplish this mission, NCSES designs, supports, and directs periodic national surveys and performs a variety of other data collections and research related to the science and engineering enterprise in the United States and other nations.

TUESDAY AFTERNOON

GRASSROOTS APPROACHES BREAKOUT SESSION

Session Chair: Megan Brewster, Launch Forth
Room 1108, Loma Pelona

Grassroots efforts are commonly an effective tool for enacting meaningful change. This session will feature a collection of individuals who have tackled issues related to diversity and inclusion from outside the usual channels by grassroots conversations and organizing. Through their own examples, speakers will illustrate a breadth of avenues one can pursue while providing details on how they achieved success and the tools they used to get there. The final portion of the session will focus on how participants can create their own toolboxes for bottom-up efforts to impact diversity and inclusion in their workplace and surrounding environment.



Megan Brewster, Launch Forth

Megan Brewster is the vice president of advanced manufacturing for Launch Forth, a leading crowd-powered product development platform that connects big engineering challenges from category leaders like GE, Airbus, USMC, and Allianz with a worldwide community of more than 180,000 solvers. At Launch Forth,

Brewster brings the community's ideas to life through rapid prototyping with advanced making technologies, with a focus on additive manufacturing, and leads initiatives to define the future of work through the organic formation of teams in a distributed online community.

Prior to her current role, Brewster served as the senior policy analyst for advanced manufacturing at the White House Office of Science and Technology Policy, where she led the advanced manufacturing and semiconductors portfolio areas. During her time in the federal government, Brewster also served as a fellow at the Department of Energy Advanced Manufacturing Office and the Senate Committee on Energy and Natural Resources, handling portfolio areas such as critical minerals, methane emissions, and the energy-water nexus.

Brewster is a materials scientist and engineer and previously worked for Applied Materials defining metrology processes for in-line detection of surface imperfections for next-generation lithium ion battery anodes, and at GE Global Research investigating performance degradation mechanisms and developing next-generation chemistries for the new sodium metal halide battery business. Brewster earned her Ph.D. from the Massachusetts Institute of Technology (MIT) and her B.S. from the University of Washington, both in materials science and engineering, as well as a Ph.D. minor in technology and public policy from MIT. Brewster is a member of the Leadership Council of Manufacturing Foresight, an independent, nonprofit, expert-driven organization focused on the future of manufacturing technology, policy, and the workforce.



Judi Brown Clarke, Bio-Computational Evolution in Action Consortium, Michigan State University

Judi Brown Clarke is the diversity director for the National Science Foundation's Bio-Computational Evolution in Action Consortium (BEACON Center) housed at Michigan State University (MSU). She is a member of the

International Advisory Committee for the Joint Institute of Nuclear Astrophysics' Center for the Evolution of the Elements; Nevada's EPSCoR Grant for the Study of Solar, Wind, and Water Power; W.K. Kellogg's Biological Research Station; the Director's Research Scholars Program at MSU's National Superconducting Cyclotron Laboratory; MSU's College of Human Medicine's Research Education Program to Increase Diversity in Health Research; and the Alfred P. Sloan Foundation for Minorities in Engineering at MSU.

She holds a bachelor's degree in clinical audiology & speech sciences, a master's in education, and a doctorate in public policy and administration. Judi has ventured into local politics and was voted onto Lansing City Council in an at-large seat (citywide). She just completed a four-year term chairing the Ways & Means and Development & Planning Committees, and was responsible for a \$210M budget and oversight of all development projects across the city.



Judi has experienced great athletic success. In the 400-meter hurdles event, she is a five-time National Champion, three-time Pan American Gold medalist, and silver medalist in the 1984 Olympic Games. She has held numerous national records, and still owns an unbroken world record as a member of the sprint medley relay team. She was named as one of the “Athletes of the Year,” specifically “1987 Sportswoman of the Year” by *Sports Illustrated* magazine. She just completed her term as vice president of the U.S. Olympians & Paralympians Association and is a current member of the board of directors for USA Taekwondo.

Judi is a wife (Judge Hugh Clarke) and mother of three sons (Dorian, Mychael, and Antonio). She has an unquenchable thirst for knowledge!



Darryl Dickerson, *Advanced Regenerative Technologies*

Darryl Dickerson serves as chief executive officer of Advanced Regenerative Technologies and the associate director of the Minority Engineering Program at Purdue University. Dickerson has extensive research experience in biomaterials development, orthopedic tissue biomechanics,

and tissue engineering. He received a bachelor’s degree in biomedical engineering from Tulane University in New Orleans, Louisiana. He continued his education at the Weldon School of Biomedical Engineering at Purdue University.

Research for his doctoral dissertation “Bio-template Mediated Regeneration of Orthopedic Interfaces” was carried out in the Human Injury and Regenerative Research Technologies laboratory under the direction of Eric Nauman. Subsequently, he and Nauman founded Advanced Regenerative Technologies to translate the benchtop work performed during his graduate studies to clinical practice.

During his time as a graduate student, Dickerson gained significant management and leadership experience as a member of the board of directors (2004 to 2009) of the National Society of Black Engineers (NSBE). His work with NSBE culminated in his service as president, chair of the board, and chief executive officer in 2007 to 2008. During his tenure, he honed his management and leadership skills overseeing a full-time staff of 30 at the world headquarters in Alexandria, VA; managing a budget of \$11 million; implementing a new programmatically-based strategic direction; and forging new partnerships with corporations, including Battelle and Microsoft.

Dickerson received his Ph.D. from Purdue University in May 2009. In 2012, he joined the staff of the Minority Engineering Program at Purdue and has since taken on the role of associate director, managing the execution of programming designed to increase enrollment, retention, and success of underrepresented minority students in engineering. Within this realm, he has also taken on national leadership roles including as a member of the board of directors for the National Association of Multicultural Engineering Program Advocates.

INTERNAL SUPPORT PRACTICES BREAKOUT SESSION
Session Chair: Michael Rawlings, AAAS Fellow at the National Science Foundation

Room 1100, Loma Pelona

This session will focus on a survey of internal support practices and approaches in various companies, organizations or institutions and how they enabled successful diversity and inclusion initiatives. Internal supports are broadly defined here as any activity or program existing within a larger institution that supports diversity and inclusion but is not necessarily required or mandated. Examples may include corporate affinity groups, pipeline and retention strategies or even marketing and branding campaigns. The final portion of the session will focus on how participants can create their own toolboxes for their own internal support efforts relative to diversity and inclusion.



Jodi Banta, *Lowell Institute for Mineral Resources, University of Arizona*

Jodi Banta recently joined the mineral resources industry after spending nearly 15 years in financial services with insurance giant American International Group (AIG) and its former foreign subsidiary AIA Group. With AIG world headquarters, she managed

project teams around the globe to implement CRM technology and customer-centric business strategies. Subsequently with AIA Singapore as assistant vice president (AVP) of business intelligence, she established the company’s first Business Intelligence Unit, focusing on customer-centric data science and market research. In this, and her later role as AVP of product and customer communications, she managed diverse teams to address emerging risks and opportunities across the organization. She recently returned to her alma mater, the University of Arizona, where she is senior program coordinator for the Lowell Institute for Mineral Resources.



Paul T. Charles, U.S. Naval Research Laboratory

Paul T. Charles has more than 27 years of experience as a research chemist in the Center for Bio/Molecular Science and Engineering at the U.S. Naval Research Laboratory (NRL). He has a master's degree from the University of Maryland, University College (emphasis in administration

and health care) and a bachelor of arts in biological sciences from the University of Maryland, Baltimore County (UMBC). Charles has conducted research in the design of novel fluorescence-based biomolecular sensors for the detection of explosives, toxins, and other environmental pollutants. His current research has focused on the development of a prototype underwater autonomous vehicle (UAV) biosensor for use in the marine environment. Charles's expertise spans in the design, synthesis, and characterization of 3-dimensional (3D) polymeric material and nanomaterials for protein immobilization. His skill set includes synthesis and characterization of molecular products via HPLC, UV-Vis, DSC, FT-IR or GC-MS.

In addition, Charles serves as the director of the NRL Historically Black Colleges and Universities/Minority Institutions (HBCU/MI) internship program. This program encourages underrepresented talented minority students (undergraduate and graduate) to pursue graduate degrees in the STEM disciplines and careers in research by providing a 10-week "hands-on" research and mentoring experience with NRL scientists. Students are provided opportunities that include professional development workshops and team-building events to enhance their NRL summer experience. As a result of his direction, Charles was awarded the 2011 VADM Samuel L. Gravely Jr. Award for STEM outreach.

Charles has 50 publications (with over 1,600 citations), six patents, and has delivered numerous presentations at national and international conferences. In addition, he has been recognized and awarded the following: ARPAD Research Publication Award, Tech Transfer Award, Commanding Officers Award for Achievements in EEO, and the U.S. Naval Research Laboratory Alan Berman Publication Award. Charles is a current member of the American Chemical Society.



Melvin R. Webb, Clark Atlanta University

Melvin R. Webb, professor of biological sciences, has been a faculty member at Clark Atlanta University for 45 years. Webb received his B.S. from Albany State College, M.A. from Atlanta University, and Ph.D. from The Ohio State University. He served as dean of faculty and instruction at Clark

College, and dean of education at Clark Atlanta University. Webb has devoted his career to enhancing the participation of students from groups who are underrepresented in STEM.

He has amassed considerable experience and expertise on the K-16 STEM 100 education pipeline and has written several articles and made presentations on the subject at the annual meetings of organizations that include the American Association for the Advancement of Science, the American Chemical Society, the National Science Teachers Association, and the Congressional Black Caucus Brain Trust on Science and Technology. Webb has served on numerous national advisory committees and panels. During his appointment to the Office of Technology Assessment of the Congress of the United States, he served as a member of the Advisory Panel for three publications: *Higher Education for Science and Engineering—A Background Paper*, *Educating Scientists and Engineers: Grade School to Grad School*, and *Elementary and Secondary Education for Science and Engineering—A Technical Memorandum*.

Webb's efforts to broaden the participation of underrepresented students in STEM generated \$40 million from grants to agencies, such as the Howard Hughes Medical Institute, the National Science Foundation, the National Institutes of Health, and the Office of Naval Research.

Programs created include the Saturday Science Academy for students in grades 3–8; the Summer Science, Engineering, and Mathematics Institute (which significantly increased the number of students in grades 10–12); and the Program for Research Integration and Support for Matriculation to the Doctorate (PRISM-D). At least 70 participants have earned Ph.D. or M.D. degrees and 90 percent of the participants earned B.S. and M.S. degrees. Webb is married to Brenda Burton Webb and their son, Melvin Cecil-Paul, is a Clark Atlanta University graduate.



INSTITUTIONAL CULTURE BREAKOUT SESSION

Session Chair: Kristen Constant, Iowa State University Pavilion, The Club & Guest House

This session is centered on examining the risk/reward opportunities associated with seeking to directly change the institutional culture and practices of a company or organization. These changes include, for example, reshaping recruiting and hiring practices, redefining employee benefits and instituting measures for teaching about unconscious bias in the workplace. Speakers will share generalized forms of their toolboxes and how they were able to use them to enact shifts in the institutional culture of their places of employment.



Kaila Bertsch, University of Wisconsin-Madison

Kaila Bertsch is currently a postdoctoral researcher working at the University of Wisconsin-Madison (UW) Materials Science and Engineering Department, in collaboration with the Grainger Institute for Engineering and Dan Thoma. Her research focuses on investigating mechanical properties

and microstructure of additively manufactured metals for the UW 2020 initiative, as well as solidification processes, advanced manufacturing techniques, and alloy design.

Kaila obtained her Ph.D. in materials science and engineering from the University of Illinois at Urbana-Champaign in December 2017. Her previous research areas focused on utilizing microstructural analysis of metals across length scales, particularly electron microscopy, to study mechanical properties and hydrogen embrittlement, with a focus on grain boundaries, dislocation interactions, and the evolution of plastic deformation. She was awarded the National Science Foundation (NSF) Graduate Research Fellowship in 2013 and the NSF Graduate Research Opportunities Worldwide (GROW) scholarship in 2014 in collaboration with the Technical University of Denmark at Risø. She graduated magna cum laude with her B.S. in mechanical engineering from Texas A&M University in May 2012.



Blythe G. Clark, Sandia National Laboratories

Blythe G. Clark is an R&D department manager at Sandia National Laboratories, currently managing the Department of Materials Characterization & Performance. Clark received a B.S. in materials science and engineering from Northwestern University, Evanston, IL in 2001, and a Ph.D. in materials science and engineering from the University of Illinois at Urbana-Champaign in 2006. She followed her thesis work with an Alexander von Humboldt Research Fellowship position at the Max Planck Institute for Metals Research in Stuttgart, Germany, before joining the technical staff at Sandia National Laboratories in December 2008. Her research has primarily focused on applying advanced electron microscope techniques to understand nanomechanical behavior of metals, stability of nanocrystalline alloys, and characterize fundamental physical mechanisms for predictive simulation development. Clark was promoted to manager in September 2015, where she brought her love of materials science and of materials forensics to a department that applies and pursues a breadth of cutting-edge materials characterization techniques.

While at Sandia, Clark has been engaged in multiple initiatives to improve the research environment and nurture an inclusive culture at Sandia. She initiated and continues to engage with the PI Workshop initiative at SNL-NM, which has been successful in providing a peer-to-peer learning opportunity to those either seeking to become a principal investigator or currently in that role. In addition, she is the co-chair of the Sandia Women's Action Network (SWAN) where she is engaged in activities to mitigate implicit bias, improve diversity in hiring and promotions, and support a more inclusive culture at work. She is also lead of the Division 1000 Workplace Enhancement Council for Managers, a group that facilitates communication between managers and executive leadership and partners across Sandia to build stronger ties between mission and support functions.



Oscar Dubón Jr., University of California, Berkeley

Oscar Dubón Jr. is vice chancellor of equity & inclusion and professor of materials science and engineering at the University of California, Berkeley (UC Berkeley). He leads campus-wide efforts through the Division of Equity & Inclusion to broaden the participation of all members of the campus

community, particularly those who have been historically underrepresented. Working with division professionals, campus partners, and the broader university community, he pursues programs and services that lead to academic access and success for students; enable pathways to leadership and advancement for staff; build equitable structures for all members of the campus community; and close opportunity gaps for the university's most marginalized groups.

Prior to appointment as vice chancellor, Oscar served as the associate dean for student affairs and equity & inclusion in the College of Engineering at UC Berkeley. In these roles, he was charged with guiding Engineering Student Services, building programs to recruit and retain students from historically underrepresented groups, supporting efforts to achieve a more diverse faculty, and ensuring that the college fosters and maintains a welcoming and inclusive environment for the college community. For his efforts Oscar received the 2016 Chancellor's Award for Advancing Institutional Excellence and Equity.

Oscar is a faculty scientist at the Lawrence Berkeley National Laboratory. He received a B.S. from UCLA in 1989 and M.S. and Ph.D. from UC Berkeley in 1992 and 1996, respectively. After postdoctoral positions at UC Berkeley and Harvard University, he joined the UC Berkeley faculty in 2000. His research focuses on understanding the role of crystalline imperfections on the electronic behavior of materials for applications in semiconductor technologies. Oscar is the recipient of the 2000 TMS Robert Lansing Hardy Award, a 2004 NSF CAREER Award, and the 2004 Presidential Early Career Award for Scientists and Engineers (PECASE).

SUMMARY OF DMMM3



Jonathan D. Madison, Sandia National Laboratories
Room 1108, Loma Pelona

Jonathan D. Madison is a research scientist at Sandia National Laboratories, in Albuquerque, New Mexico within the Material, Physical, and Chemical Sciences Center. Madison received his bachelor's degree from Clark Atlanta University in engineering

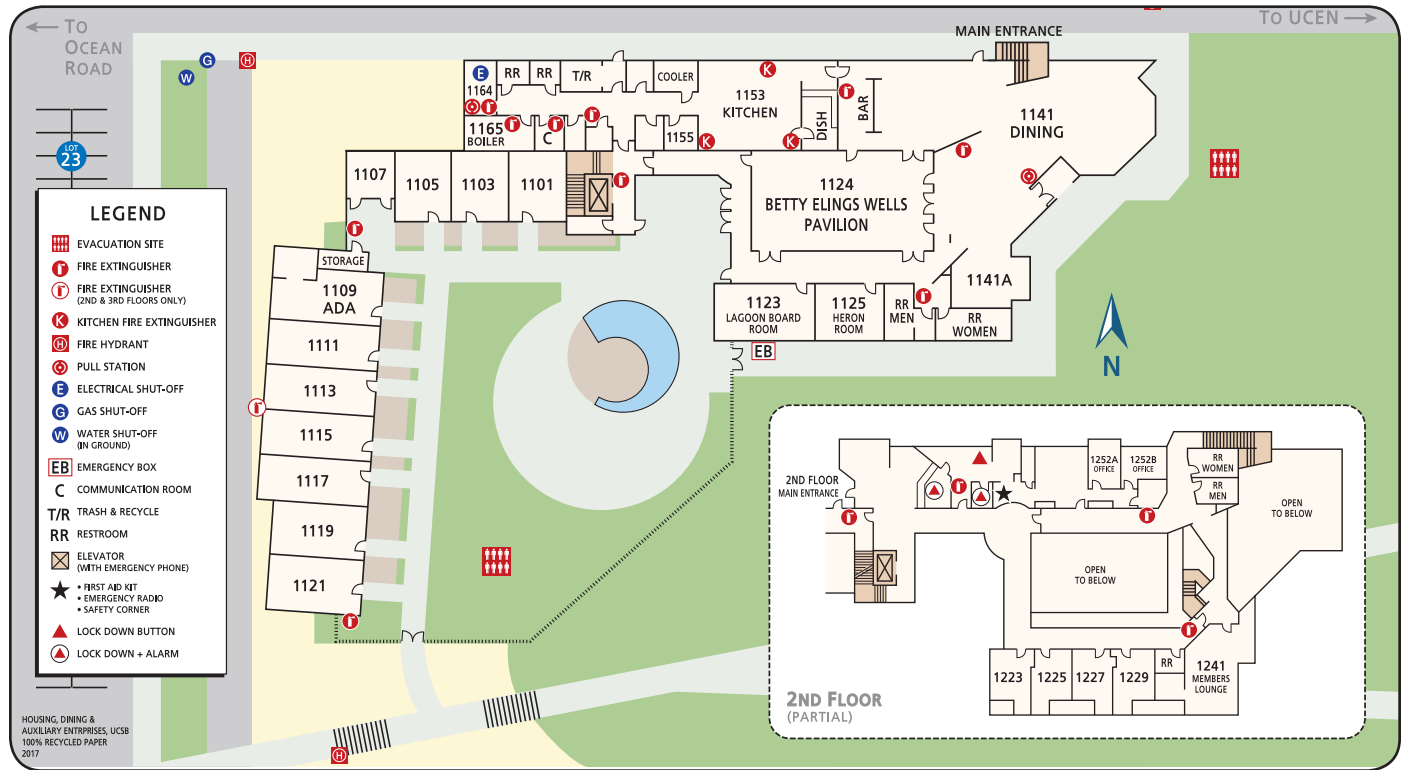
science with a concentration in mechanical engineering in 2003, and received his M.S. and Ph.D. in materials science and engineering from the University of Michigan in 2007 and 2010, respectively. Throughout his academic matriculation, Madison has supported basic and applied research at Washington State University, Pullman, WA; the Naval Research Laboratory, Washington, D.C.; and the Massachusetts Institute of Technology in Cambridge, MA. The department he currently serves provides multi-scale, experimental characterization that enables materials-based insight and solutions.

Professionally, Madison maintains active membership in The Association for Iron & Steel Technology (AIST), ASM International (ASM), The American Society of Mechanical Engineers (ASME), and TMS. A few of Madison's accolades include: Sandia National Laboratories—Early Career LDRD Award (2010); lead guest editor, special issue on 3D materials science, *Integrating Materials and Manufacturing Innovation*, Springer (2014); *Albuquerque Business Journals* "Forty Under 40" (2015); Black Engineer of the Year Awards—"Most Promising Scientist in Industry" (2015); and lead organizer of the TMS summit, Diversity in the Minerals, Metals & Materials Professions 3 (2018). While at Sandia, Madison has spearheaded a new in-house characterization capability by acquiring capital equipment within his first two years, expanded the customer base for materials characterization, developed new technical partnerships to conduct world-class research, and led complimentary modeling projects to leverage novel experimental capabilities.

Madison's research interests focus on the intersection of experimental and computational techniques for 3D reconstruction of microstructure, quantitative characterization, and models of microstructural evolution. Madison has seven U.S. Department of Energy published technical reports, more than 20 peer-reviewed journal articles, and more than 240 citations.



THE CLUB & GUEST HOUSE EMERGENCY MAP



LOMA PELONA EMERGENCY MAP





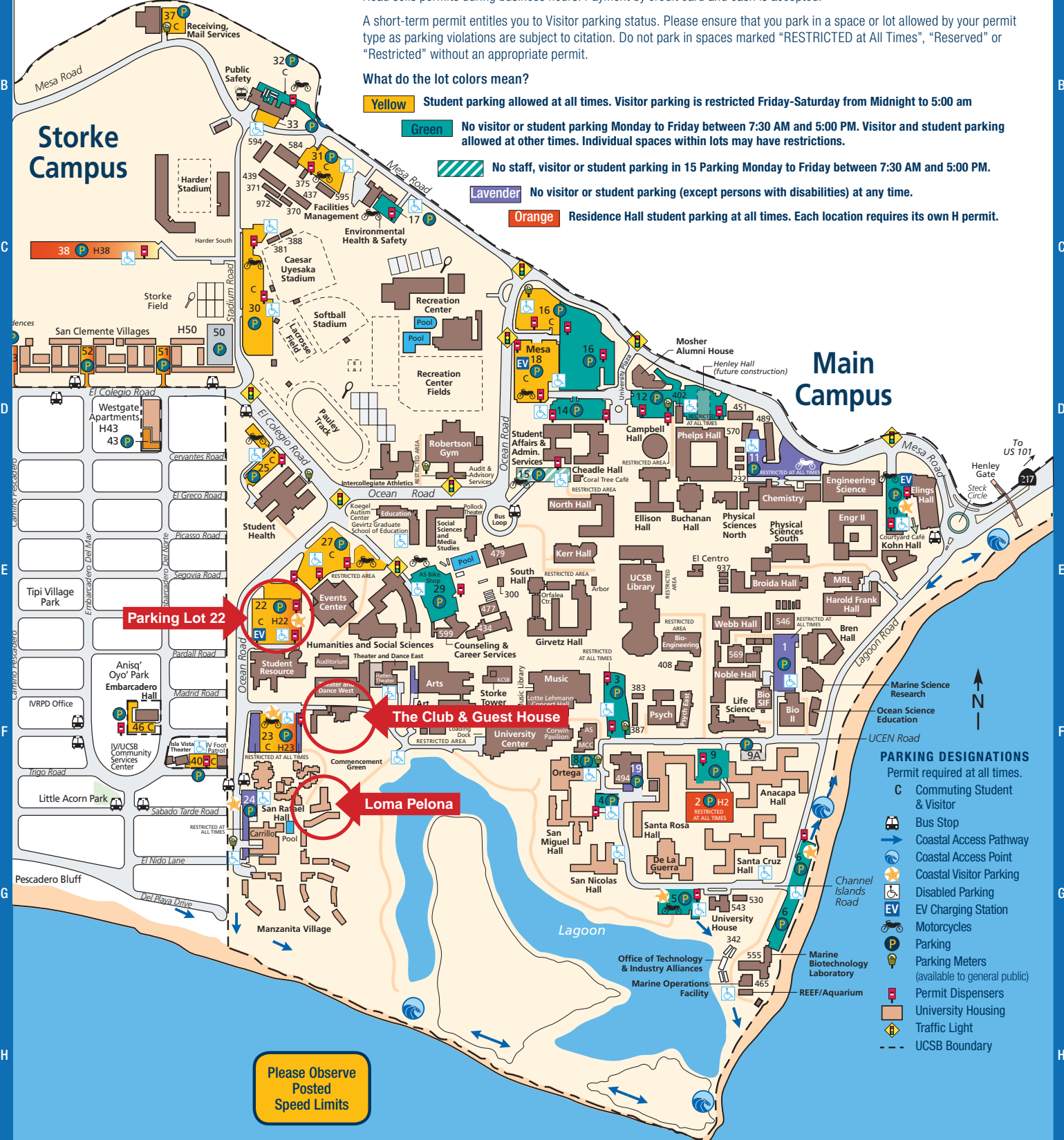
Transportation & Parking Services UNIVERSITY OF CALIFORNIA, SANTA BARBARA MAP & DIRECTORY

UCSB parking permit must be displayed on vehicle at all times. Permit dispensers throughout campus sell short-term permits at all times. The Parking Sales Office in Building 381 off Stadium Road sells permits during business hours. Payment by credit card and cash is accepted.

A short-term permit entitles you to Visitor parking status. Please ensure that you park in a space or lot allowed by your permit type as parking violations are subject to citation. Do not park in spaces marked "RESTRICTED at All Times", "Reserved" or "Restricted" without an appropriate permit.

What do the lot colors mean?

- Yellow** Student parking allowed at all times. Visitor parking is restricted Friday-Saturday from Midnight to 5:00 am
- Green** No visitor or student parking Monday to Friday between 7:30 AM and 5:00 PM. Visitor and student parking allowed at other times. Individual spaces within lots may have restrictions.
- Blue/White Stripes** No staff, visitor or student parking in 15 Parking Monday to Friday between 7:30 AM and 5:00 PM.
- Lavender** No visitor or student parking (except persons with disabilities) at any time.
- Orange** Residence Hall student parking at all times. Each location requires its own H permit.



Parking Lot 22

The Club & Guest House

Loma Pelona

Please Observe Posted Speed Limits

- ### PARKING DESIGNATIONS
- Permit required at all times.
- C Commuting Student & Visitor
 - Bus Stop
 - Coastal Access Pathway
 - Coastal Access Point
 - Coastal Visitor Parking
 - Disabled Parking
 - EV Charging Station
 - Motorcycles
 - Parking
 - Parking Meters (available to general public)
 - Permit Dispensers
 - University Housing
 - Traffic Light
 - UCSB Boundary