FINAL PROGRAM & EXHIBIT DIRECTORY

Technical Meeting and Exhibition

MS&T22

MATERIALS SCIENCE & TECHNOLOGY

DAVID L. LAWRENCE CONVENTION CENTER | PITTSBURGH, PA, USA

OCTOBER 9–12, 2022

THE Advanced Materials SHOW | USA

THE NANOTECHNOLOGY SHOW

Brought to you by: Event Partners

New co-locate for 2022! Hall A, October 11 - 12, 2022

WHERE MATERIALS INNOVATION HAPPENS

Featuring:

The American Ceramic Society www.ceramics.org Annual Meeting

AIST Association for Iron & Steel Technology | STEEL PROPERTIES & APPLICATIONS

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THE Advanced Materials SHOW | USA

THE NANOTECHNOLOGY SHOW

Brought to you by: EP Event Partners

New co-locate for 2022! Hall A, October 11 - 12, 2022

WELCOME TO MS&T22!

MS&T22 PROGRAM COORDINATING COMMITTEE

Chair and ACerS Representative
JESSICA RIMSZA, Sandia National Laboratory

AIST Representative
SIDDHARTHA BISWAS, Big River Steel

TMS Representatives
JOHN CARPENTER, Los Alamos National Laboratory
ERIC LASS, University of Tennessee, Knoxville

CONTENTS

UPCOMING MS&T SCHEDULE

➲ **Columbus, Ohio, USA**
October 1-5, 2023

PLENARY SESSION

Tuesday, October 11 | 2:00 – 4:40 p.m. | David L. Lawrence Convention Center

ACERS EDWARD ORTON JR. MEMORIAL LECTURE

Sanjay Mathur

Director and Chair, Institute of Inorganic Chemistry, University of Cologne, Germany

Ceramic Particles for Precision Drug Delivery

Abstract *Chemical processing of functional ceramics has played a key role in converging disciplines, which is especially true for biomedical applications. For example, the development of biocompatible drug-carriers that can hold back the payloads and release the drugs or antibiotics at the specific diseased area is a materials processing challenge. The selective transport and retention of drugs in sufficiently high concentrations at the target site is inhibited by various physiological barriers, which reduces or even blocks the therapeutic efficiency of molecular drugs. Therefore, advanced drug-delivery systems designed to overcome biological barriers are needed to meet the specific traits of physiological and disease-related barriers. In this context, chemically functionalized nanoparticles act as efficient drug-carriers to transport higher amounts of therapeutic payloads to diseased sites that also reduces the undesired off-site effects. Moreover, hollow nanocarriers can incorporate more than one drug enabling theranostic and theraregenerative approaches. Finally, ceramic nanoparticles can be modified with surface-bound target ligands to exploit the overexpression of receptors and promote cell specific attachment of the carriers for a localized high concentration of drug around disease sites. This talk will discuss the potential benefits of inorganic nanoparticles toward precision drug delivery.*

Biography Sanjay Mathur is director and chair, Institute of Inorganic Chemistry at the University of Cologne, Germany. Mathur earned a Doctor of Philosophy in Chemical Laboratories from University of Rajasthan, Jaipur, India; Master of Philosophy (M. Phil) in Physical Chemistry and Master of Science (M. Sc.) in Physical Chemistry both from Vikram University, Ujjain, India.

An ACerS Fellow, Mathur is also the recipient of the Engineering Ceramics Division's Global Star Award and Bridge-Building Award. He is a past chair and member of the Engineering Ceramic Division and served on the ACerS and Ceramic and Glass Industry Foundation boards, as well as several of ACerS committees, including the Diversity & Inclusion, Strategic Planning for Emerging Opportunities, Kingery Award, Jeppson Award, ECerS-ACerS Joint Award, and Morgan Medal & Global Distinguished Doctoral Dissertation Award committees. Mathur has chaired or co-chaired several meetings and was an associate editor of ACerS *International Journal of Applied Ceramics Technology*.

AIST ADOLF MARTENS MEMORIAL STEEL LECTURE

Matthias Militzer

The University of British Columbia, Vancouver, BC, Canada

Interface-based Design – A New Frontier for Microstructure Engineering of High-Performance Steels

Abstract *The steel industry continues to develop new high-performance steels and innovative processing strategies to meet societal demands of sustainability in the energy, transportation and construction sectors. Computational tools have aided these developments since the introduction of thermo-mechanically controlled processed steels in the 1970s. In particular, the concept of microstructure engineering permits a knowledge-based approach by simulating the microstructure evolution to link the operational process parameters with the properties of the steel product. Recent advances in computational materials science have enabled modeling across different length and time scales where atomistic scale simulations are combined with meso-scale modeling on the microstructure length scale to establish predictive tools for the industrially relevant macro-scale. The present lecture will review these modeling strategies to provide a critical assessment of their achievements and limitations with*

an emphasis on phase transformations in advanced high-performance low carbon steels. In particular, an interface-based steel design approach will be discussed.

Biography Prof. Matthias Militzer, ArcelorMittal Dofasco Chair in Advanced Steel Processing at the University of British Columbia (UBC), is the preeminent researcher in the area of steel microstructure modeling in North America. His work in modeling and novel in-situ microstructure measurement is helping to aid the transition to computational materials engineering. Those familiar with hot-strip mill production may recall Prof. Militzer's outstanding work as a principal researcher for the AISI Hot Strip Mill Model, which was subsequently marketed by Integ Process Group. Prof. Militzer has built upon that foundation in detailed research to model more complex steel types and other steel manufacturing processes, such as continuous annealing and welding. Prof. Militzer's achievements are reflected in the 70 keynote and invited presentations he as delivered at conferences and symposia, underpinned by more than 120 publications in refereed journals and more than 40 publications in refereed conference proceedings. He is the author of four book chapters and edited three additional books. Prof. Militzer has advised or coadvised more than 50 graduate students while at UBC since 1993, where he has also been the Director of the Centre for Metallurgical Process Engineering since 2007. Prof. Militzer is a Fellow of CIM, and his work has earned many distinctions, including the ASM Henry Marion Howe Medal for best publication in *Metallurgical and Materials Transactions* (2010) and "Best Publication" in *Acta Metallurgica* (1986). Prof. Militzer has been an active member of AIST since its founding in 2004 (and its predecessor ISS since 1998). He served as the Chair of the TMS Steel Committee, is an Editor of *Metallurgical and Materials Transactions A*, and is on the Editorial Board of the Iron and Steel Institute of Japan (ISIJ).

TMS/ASM DISTINGUISHED LECTURESHIP IN MATERIALS AND SOCIETY

Iver E. Anderson

Senior Metallurgist, Division of Materials Sciences and Engineering, Ames Laboratory (USDOE) and Adjunct Professor, Materials Science and Engineering Department, Iowa State University

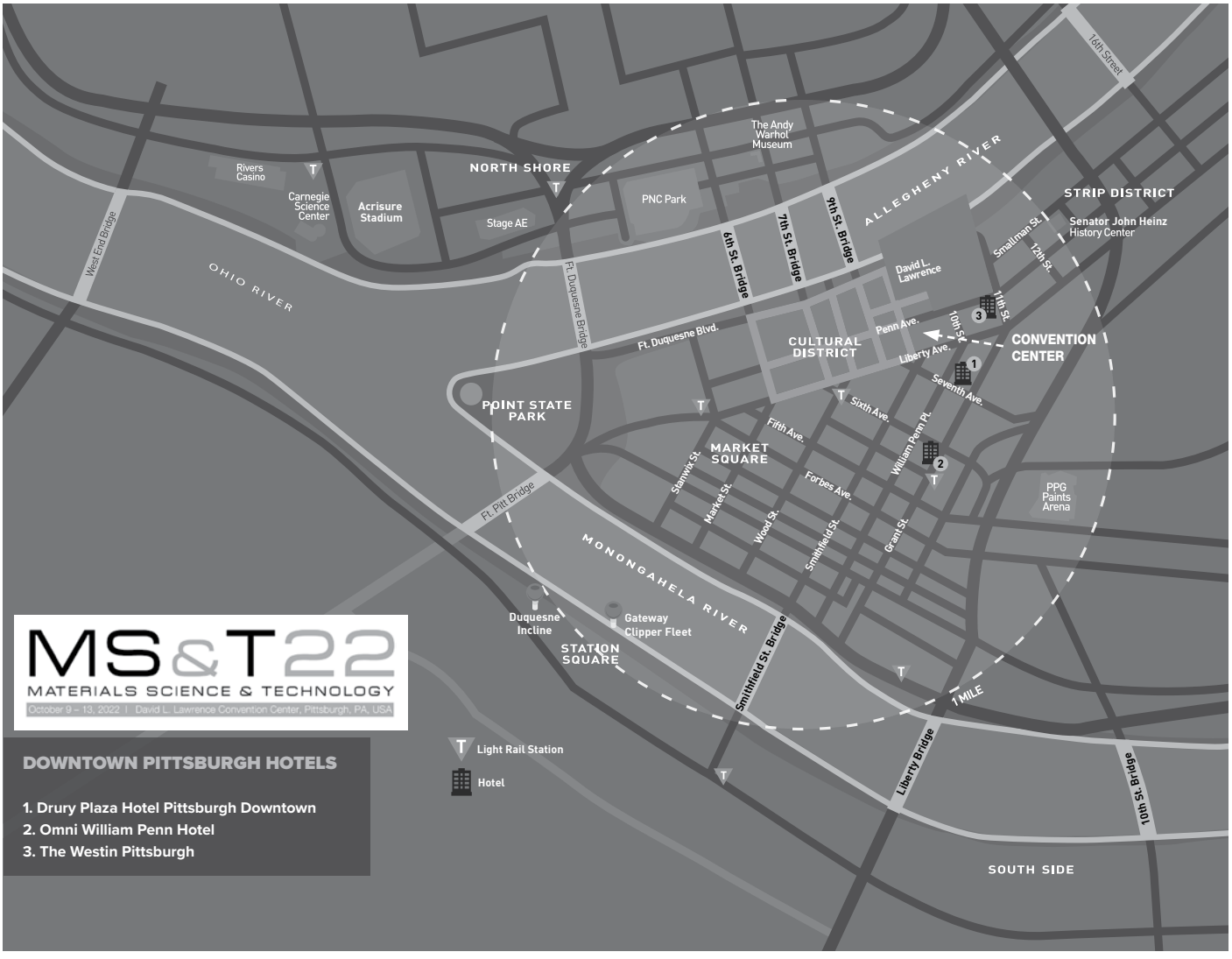
Materials Research on Clean Energy: For the Sake of our Grandchildren

Abstract *To attack and, hopefully, to reverse greenhouse gas (GHG) growth, the critical but formidable goal of net zero GHG emissions by 2050 must be reached. This will require major efforts from across our society, especially a "leap of faith" by all the world's economies. From the latest report by the Intergovernmental Panel on Climate Change (IPCC), it is becoming increasingly apparent that we must do this for the health and well-being of our own children and grandchildren, if we want to help them avoid predictable climate disasters. Therefore, we professionals in the materials science and engineering community must make our best efforts to work on important GHG emission challenges to make the economic leap to green technologies more pragmatic and palatable. Recent analysis shows that there are huge market opportunities that can arrive with clean energy transitions, particularly if several key materials technology barriers are overcome. With solutions to these critical materials problems resulting from research that is supported by enlightened governments and industry leaders, a new global energy economy can emerge quite naturally. This new sustainable economy has the potential to create millions of excellent jobs across a host of new supply chains, along with many more generations of smiling grandchildren!*

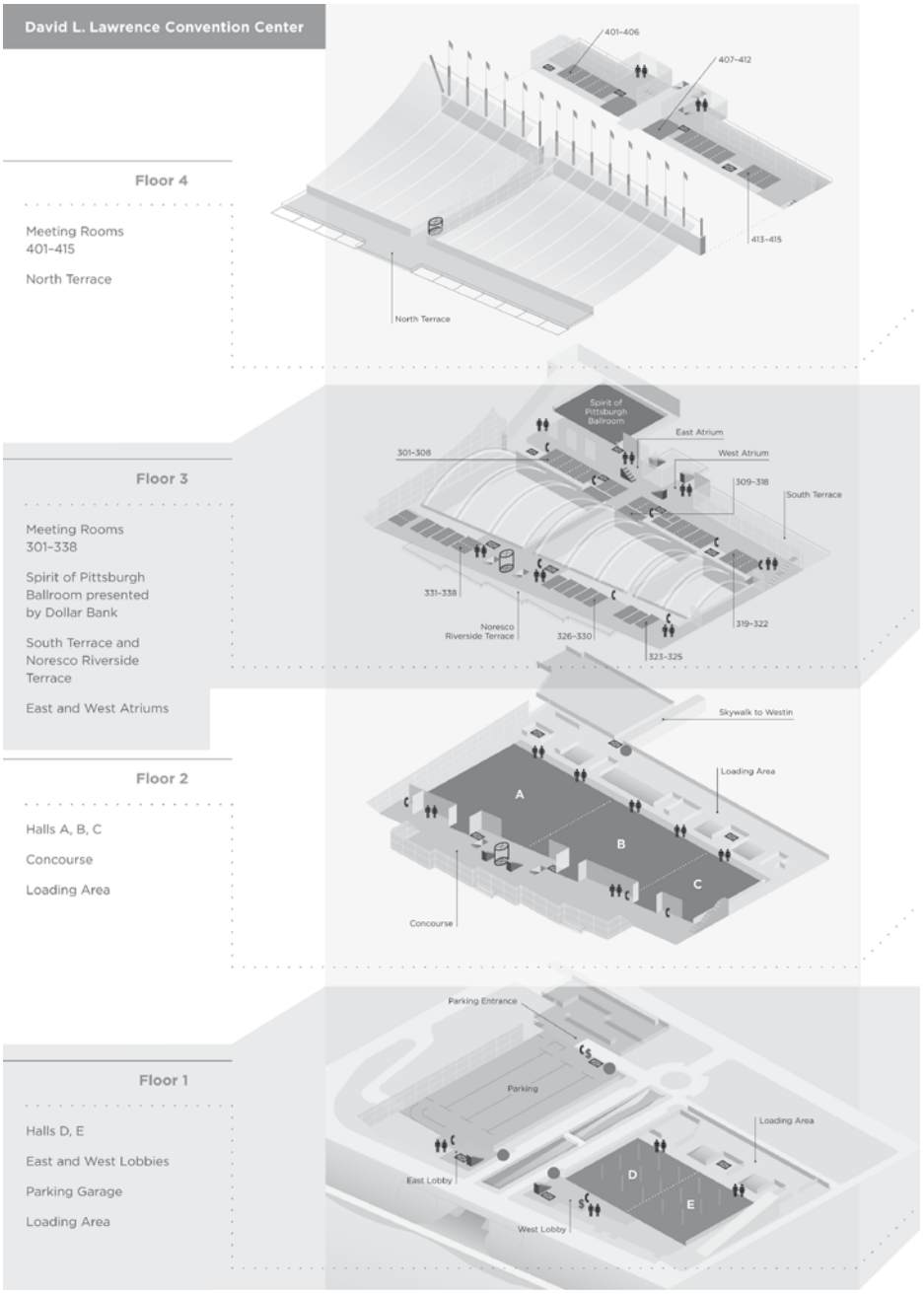
Biography Iver E. Anderson earned his Ph.D. and M.S. in metallurgical engineering in 1982 and 1977, respectively, from the University of Wisconsin-Madison and his B.S. in metallurgical engineering in 1975 from Michigan Technological University. From 1982 to 1987, he was staff metallurgist, Materials Science and Technology Division at the U.S. Naval Research Laboratory. After joining Ames Laboratory (U.S. Department of Energy) in 1987, Anderson currently is a senior metallurgist and adjunct professor of materials science and engineering at Iowa State University. His research is focused on powder metallurgy and rapid solidification; high pressure gas atomization of fine metal powders; centrifugal atomization/fluid quenching of spherical powders of rare-earth metals/compounds and other alloys, as well as materials joining including lead-free solders, resistance welding, and ceramic composite bonding. He has over 280 publications and 50 patents.

Anderson is a member and Fellow (2015) of TMS and served as a member of the TMS Board of Directors. He is a member and Fellow (2006) of APMI International and was a Board of Directors member. He is a member and Fellow (1994) of ASM International and has served as an ASM Trustee. He is also a Fellow of Alpha Sigma Mu and the National Academy of Inventors and a Member (2017) of the National Inventors Hall of Fame. In 2019, Anderson was named a Distinguished Alumni of Michigan Technological University. He has also received other awards including the 2001 Energy 100 Award; 1996 TMS Distinguished Service Award; 1991 R&D-100 Award; and the 1991 Federal Laboratory Consortium Award for Excellence in Technology Transfer.

NAVIGATING THE CITY



NAVIGATING THE CONVENTION CENTER



CONFERENCE PERKS/POLICIES

Your MS&T Full Conference Registration Includes:

- Welcome and General Poster Reception Hosted by the MS&T Partners (Monday)
- Technical Sessions and Poster Session (Monday – Wednesday)
- Tuesday lunch ticket (full conference attendees, one-day if Tuesday ticket purchased and students)
- Wednesday lunch ticket (full conference attendees, one-day if Wednesday ticket purchased and students)
- Complimentary memberships* in ACerS, AIST, TMS, if selected (for non-members only)

*Non-members students receive one free year of Material Advantage membership

Exhibit Dates & Show Hours

Tuesday, October 11	9:00 a.m. – 6:00 p.m.
Wednesday, October 12	9:00 a.m. – 5:00 p.m.

Refreshment Breaks

Refreshment breaks will be conveniently located outside the session rooms and plenary room.

Society Member Lounges—Not Just for Members!

Visit ACerS, AIST and TMS member lounges located in the David L. Lawrence Convention Center in the main concourse outside of Exhibit Hall A to:

- Meet members and society staff
- Learn about membership and benefits offered by each society
- Find books, magazines, journals and other technical resources
- Network with colleagues

Internet Access

Complimentary WiFi is available in all public spaces of the David L. Lawrence Convention Center.

Meeting App

Download the MS&T22 app to serve as your hand-held guide to the meeting. Search for MS&T22 in the App Store and Google Play Store. Once downloaded, log in with the email address you used at registration. App features include:

- Up-to-date program information
- Build your personal conference schedule
- Exhibitor and product details
- Special events and lectures
- Pittsburgh, Pennsylvania information
- Message fellow attendees
- And much more!

Badge Pick-up and Onsite Conference Registration

The MS&T Conference registration desk will be located in the David L. Lawrence Convention Center 1st level concourse.

Registration hours:

Sunday, October 9, 2022	Noon – 5:00 p.m.
Monday, October 10, 2022	7:00 a.m. – 6:00 p.m.
Tuesday, October 11, 2022	7:00 a.m. – 6:00 p.m.
Wednesday, October 12, 2022	7:00 a.m. – 5:00 p.m.

Guests with Special Needs and Family Needs

ACerS, AIST, TMS, the David L. Lawrence Convention Center (DLCC), and all the conference hotels strive to accommodate all guests with special needs. The DLCC has a designated nursing mother room located on the Concourse B (near the glass elevator) on the 2nd Floor.

Please see staff at the MS&T registration desk for assistance with any special needs.

Audio and Visual Recording of Technical Paper Presentations/Sessions

ACerS, AIST, and TMS reserve the right to any still photography, audio, and video reproduction of presentations at every technical session. Recording of sessions (audio, video, still photography) intended for personal use, distribution, publication, or copyright is **strictly prohibited** without the express written consent of MS&T and the individual authors. MS&T will take photographs and video during the MS&T Conference and Exhibition, and reproduce them in MS&T educational, news or promotional material, whether in print, electronic, or other media, including the MS&T website. By participating in the MS&T Technical Meeting and Exhibition, you grant MS&T the right to use your name, photograph, and biography for such purposes. All postings become the property of MS&T. Postings may be displayed, distributed, or used by MS&T for any purpose.

Cellular Phone Usage

In consideration of attendees and presenters, MS&T22 organizing societies kindly request your cooperation in minimizing disturbances during technical sessions. Please place phones and other electronic devices in silent mode while you are in the meeting rooms.

Be Materials-minded

The MS&T22 organizing societies are committed to being environmentally responsible. Please join us in our efforts by using recycling bins located throughout the convention center.

Start in the Session Room

Presenters and session chairs are asked to report to their session rooms 30 minutes prior to the start of their sessions in order to confirm attendance, to load presentations onto the session room laptop computer, and to network.

Presenters and session chairs for morning sessions should report to their session rooms by 7:30 a.m. and for afternoon sessions by 1:30 p.m.

CALENDAR OF EVENTS

current as of Sept. 1, 2022 (subject to change)

Legend:

DLCC: David L. Lawrence Convention Center
Omni William Penn Hotel: ACerS Headquarters
Westin Convention Center Hotel: AIST & TMS Headquarters

Event	Society	Time	Venue	Room
FRIDAY, OCTOBER 7, 2022				
Committee and Business Meetings				
ACerS President's Council of Student Advisors (PCSA) Business Meeting	ACerS	2:00 p.m. – 6:00 p.m.	Omni	Bob & Dolores Hope
SATURDAY, OCTOBER 8, 2022				
Committee and Business Meetings				
ACerS President's Council of Student Advisors (PCSA) Business Meeting	ACerS	7:00 a.m. – 5:00 p.m.	Omni	Bob & Dolores Hope
ACerS Board of Directors Meeting	ACerS	9:00 a.m. – 5:00 p.m.	Omni	Lawrence Welk
SUNDAY, OCTOBER 9, 2022				
Conference Activities				
Registration		Noon – 5:00 p.m.	DLCC	2nd Floor Concourse
Society Lounges		Noon – 5:00 p.m.	DLCC	2nd Floor Concourse
Programming Support Desk		2:00 p.m. – 5:00 p.m.	DLCC	3rd Floor by 307/310
Exhibition				
Exhibitor Move-in: Custom-builds only		8:00 a.m. – 5:00 p.m.	DLCC	Hall A
Committee and Business Meetings				
ACerS Keramos National Board and Business Meeting	ACerS	7:00 a.m. – 9:00 a.m.	Omni	Omni Restaurant
ACerS President's Council of Student Advisors (PCSA) Business Meeting	ACerS	8:00 a.m. – 11:00 a.m.	Omni	Monongahela
ACerS Keramos Student Chapter Business Meeting	ACerS	8:00 a.m. – 9:00 a.m.	Omni	Urban
TMS Board of Directors' Meeting	TMS	8:00 a.m. – 2:00 p.m.	Westin	Pennsylvania Ballroom
ACerS Keramos Convocation & Business Meeting	ACerS	9:00 a.m. – 11:00 a.m.	Omni	Urban
ACerS Board of Directors Meeting	ACerS	9:00 a.m. – 5:00 p.m.	Omni	Lawrence Welk
ACerS Keramos Career Speaker	ACerS	11:00 a.m. – Noon	Omni	Urban
ACerS Mentors Program Mixer (Ticketed Event)	ACerS	Noon – 1:00 p.m.	Omni	Shadyside
Publications Committee Meeting	ACerS	Noon – 3:00 p.m.	Omni	Carnegie III
CGIF Board of Trustees Meeting	ACerS	Noon – 5:00 p.m.	Omni	Allegheny (Meeting) and Franklin/Greene (Lunch)
Accreditation Committee Meeting	TMS	112:30 p.m. – 2:30 p.m.	Westin	Butler
Additive Manufacturing Materials and Processes Workshop (ticketed)	TMS	1:00 p.m.	5:30 p.m.	DLCC315
JACerS Editor/AE Meeting	ACerS	3:00 p.m. – 4:30 p.m.	Omni	Carnegie III
TMS Program Committee Meeting	TMS	4:00 p.m. – 6:00 p.m.	Westin	Westmoreland West
Steels Committee Meeting	TMS	6:00 p.m. – 7:00 p.m.	Westin	Butler
Mechanical Behavior of Materials Committee Meeting	TMS	7:00 p.m. – 8:30 p.m.	Westin	Somerset
Phase Transformation Committee Meeting	TMS	7:30 p.m. – 8:30 p.m.	Westin	Westmoreland West
Material Advantage Student Functions				
Material Advantage Chapter Officer Workshop		10:00 a.m. – Noon	Westin	Allegheny Ballroom III
Undergraduate Student Speaking Contest Semi-Finals		1:00 p.m. – 3:00 p.m.	Westin	Allegheny Ballroom I
Undergraduate Student Speaking Contest Finals		3:00 p.m. – 4:00 p.m.	Westin	Allegheny Ballroom I
Student Networking Mixer		6:00 p.m. – 7:30 p.m.	Westin	Allegheny Ballroom II

Event	Society	Time	Venue	Room
SUNDAY, OCTOBER 9, 2022 (cont.)				
Posters				
ACerS Basic Science Division Ceramographic Exhibit and Competition Participants Set Up	ACerS	Noon – 5:00 p.m.	DLCC	Outside 310-311
Poster Installation		3:00 p.m. – 5:00 p.m.	DLCC	Ballroom BC
Undergraduate Student Poster Contest Installation		3:00 p.m. – 5:00 p.m.	DLCC	Ballroom BC
Graduate Student Poster Contest Installation		3:00 p.m. – 5:00 p.m.	DLCC	Ballroom BC
Social Functions				
MS&T Women in Materials Science Reception		5:00 p.m. – 6:00 p.m.	DLCC	Allegheny Overlook
LIFT & Thermo-Calc 'ICME for Ceramics' Kick-Off Event at MS&T22		6:00 p.m. – 9:00 p.m.	Westin	Pennsylvania Ballroom
TMS Pride Mixer		8:00 p.m. – 10:00 p.m.	Westin	Allegheny Ballroom I
MONDAY, OCTOBER 10, 2022				
Conference Activities				
Registration		7:00 a.m. – 6:00 p.m.	DLCC	2nd Floor Concourse
Programming Support Desk		7:00 a.m. – 6:00 p.m.	DLCC	3rd Floor by 307/310
Society Lounges		7:00 a.m. – 6:00 p.m.	DLCC	2nd Floor Concourse
MS&T Technical Sessions		8:00 a.m. – 5:00 p.m.	DLCC	3rd & 4th Levels
MS&T Partners' Welcome and Poster Session Reception		5:00 p.m. – 6:00 p.m.	DLCC	Ballroom BC
Exhibition				
Exhibitor Move-in: Custom-builds only		8:00 a.m. – 5:00 p.m.	DLCC	Hall A
Exhibitor Move-in: All exhibitors		9:00 a.m. – 5:00 p.m.	DLCC	Hall A
Exhibitor Badge/ Lead Retrieval Collection		Noon – 5:00 p.m.	DLCC	Hall A
Committee and Business Meetings				
AIST University Industry Relations Roundtable	AIST	10:30 a.m. – 1:00 p.m.	Westin	Pennsylvania Ballroom
Glass and Optical Materials Division General Business Meeting	ACerS	11:00 a.m. – Noon	DLCC	410
TMS Executive Committee Meeting	TMS	11:30 a.m. – 1:00 p.m.	Westin	Fayette
Engineering Ceramics Division General Business Meeting	ACerS	Noon – 1:00 p.m.	DLCC	412
Electronics Division General Business Meeting	ACerS	Noon – 1:00 p.m.	DLCC	415
Integrated Computational Materials Engineering Committee Meeting	TMS	12:15 p.m. – 1:45 p.m.	Westin	Somerset
TMS Pride Working Group Meeting	TMS	1:00 p.m. – 2:00 p.m.	Westin	Westmoreland West
International Affairs Committee Meeting	TMS	1:30 p.m. – 3:30 p.m.	Westin	Executive Boardroom - 26th Floor
ACerS Education and Professional Development Council (EPDC)	ACerS	2:00 p.m. – 4:00 p.m.	Westin	Carnegie III
AIST Board of Trustees Meeting	AIST	2:00 p.m. – 5:00 p.m.	Westin	Washington Room
Professional Development Networking Skill Building	TMS	4:00 p.m. – 5:15 p.m.	Westin	Cambria
ICME 2023 Organizing Committee Meeting	TMS	4:30 p.m. – 5:30 p.m.	Westin	Fayette
Energy Materials and Systems Division General Business Meeting	ACerS	5:30 p.m. – 6:30 p.m.	DLCC	408
Composite Materials Committee Meeting	TMS	5:45 p.m. – 6:45 p.m.	Westin	Westmoreland West
Additive Manufacturing Committee Meeting	TMS	6:00 p.m. – 7:30 p.m.	Westin	Somerset
Lectures				
ACerS/EPDC: Arthur L. Friedberg Ceramic Engineering Tutorial and Lecture	ACerS	9:00 a.m. – 10:00 a.m.	DLCC	407
ACerS Richard M. Fulrath Award Session	ACerS	2:30 p.m. – 5:15 p.m.	DLCC	407
Material Advantage Student Functions				
Professional Student Headshots		8:30 a.m. – 3:00 p.m.	DLCC	308
AIST Student Plant Tour - watch for details	AIST	11:00 a.m. – 4:00 p.m.	DLCC	1st Floor East Lobby

CALENDAR OF EVENTS

current as of Sept. 1, 2022 (subject to change)

Legend:

DLCC: David L. Lawrence Convention Center
Omni William Penn Hotel: ACerS Headquarters
Westin Convention Center Hotel: AIST & TMS Headquarters

Event	Society	Time	Venue	Room
MONDAY, OCTOBER 10, 2022 (cont.)				
Posters				
ACerS Basic Science Division Ceramographic Exhibit and Competition	ACerS	8:00 a.m. – 6:00 p.m.	DLCC	Outside 310-311
Undergraduate Student Poster Contest Installation		Noon – 1:00 p.m.	DLCC	Ballroom BC
Graduate Student Poster Contest Installation		Noon – 1:00 p.m.	DLCC	Ballroom BC
General Poster Installation		Noon – 2:00 p.m.	DLCC	Ballroom BC
Undergraduate Student Poster Contest Judging		1:00 p.m. – 2:00 p.m.	DLCC	Ballroom BC
Graduate Student Poster Contest Judging		1:00 p.m. – 2:00 p.m.	DLCC	Ballroom BC
Undergraduate Student Poster Contest Judging with Presenters		2:00 p.m. – 3:00 p.m.	DLCC	Ballroom BC
Graduate Student Poster Contest Judging with Presenters		2:00 p.m. – 3:00 p.m.	DLCC	Ballroom BC
General Poster Viewing		2:00 p.m. – 5:00 p.m.	DLCC	Ballroom BC
Undergraduate Student Poster Contest Display		3:00 p.m. – 5:00 p.m.	DLCC	Ballroom BC
Graduate Student Poster Contest Display		3:00 p.m. – 5:00 p.m	DLCC	Ballroom BC
Social Functions				
AIST Steel to Students Reception	AIST	6:00 p.m. – 8:00 p.m.	Westin	Pennsylvania Ballroom
ACerS Annual Honor and Awards Reception	ACerS	6:30 p.m. – 7:30 p.m.	Omni	Sky
ACerS Annual Honor and Awards Banquet	ACerS	7:30 p.m. – 10:00 p.m.	Omni	Grand Ballroom
Annual Meetings				
ACerS Annual Business Meeting	ACerS	1:00 p.m. – 2:00 p.m.	DLCC	407
TUESDAY, OCTOBER 11, 2022				
Conference Activities				
Registration		7:00 a.m. –6:00 p.m.	DLCC	2nd Floor Concourse
Programming Support Desk		7:00 a.m. – 6:00 p.m.	DLCC	3rd Floor by 307/310
Society Lounges		7:00 a.m. – 6:00 p.m.	DLCC	2nd Floor Concourse
MS&T Technical Sessions		8:00 a.m. – Noon	DLCC	3rd & 4th Levels
Exhibition				
Exhibit Hall Registration		8:00 a.m. – 5:00 p.m.	DLCC	2nd Floor Concourse
Exhibitor Hall Access		8:00 a.m. – 6:30 p.m.	DLCC	Hall A
Exhibit Hall Show Hours		9:00 a.m. – 6:00 p.m.	DLCC	Hall A
The Advanced Materials Show USA Conference		9:30 a.m. – 4:00 p.m.	DLCC	Hall A
The Nanotechnology Show Conference		19:30 a.m. – 4:00 p.m.	DLCC	Hall A
Refreshment Break		10:30 a.m. – 11:30 a.m.	DLCC	Hall A
MS&T Food Court		Noon – 2:00 p.m.	DLCC	Hall A
Exhibit Hall Networking Reception		4:00 p.m. – 6:00 p.m.	DLCC	Hall A
Committee and Business Meetings				
Materials Processing & Manufacturing Division Council Meeting	TMS	7:00 a.m. – 8:30 a.m.	Westin	Fayette
Education Committee Meeting	TMS	7:30 a.m. – 9:00 a.m.	Westin	Butler
Functional Committee Chairs Discussion	TMS	7:30 a.m. – 9:30 a.m.	Westin	Westmoreland West
HEA 2023 Organizing Committee Meeting	TMS	11:00 a.m. – Noon	Westin	Butler
Basic Science Division General Business Meeting	ACerS	Noon – 1:00 p.m.	DLCC	410
AIST Metallurgy-Processing, Products and Applications Technical Committee Meeting	AIST	Noon – 2:00 p.m.	Westin	Somerset
Structural Materials Division Council Meeting	TMS	Noon – 2:00 p.m.	Westin	Fayette
TMS Financial Planning Committee Meeting	TMS	2:00 p.m. – 4:30 p.m.	Westin	Washington
Titanium Committee Meeting	TMS	5:00 p.m. – 6:00 p.m.	Westin	Somerset
Shaping & Forming Committee Meeting	TMS	5:00 p.m. – 6:30 p.m.	Westin	Westmoreland West
High Temperature Alloys Committee Meeting	TMS	5:30 p.m. – 6:30 p.m.	Westin	Butler
Professional Development Committee Meeting	TMS	5:30 p.m. – 7:00 p.m.	Westin	Washington
Biomaterials Committee Meeting	TMS	6:00 p.m. – 7:00 p.m.	Westin	Somerset
Refractory Metals & Materials Committee Meeting	TMS	6:00 p.m. – 7:00 p.m.	Westin	Fayette
Corrosion & Environmental Effects Committee Meeting	TMS	6:30 p.m. – 7:30 p.m.	Westin	Butler

Event	Society	Time	Venue	Room
TUESDAY, OCTOBER 11, 2022 (cont)				
Lectures				
ACerS Alfred R. Cooper Award Session	ACerS	8:00 a.m. – 10:00 a.m.	DLCC	412
Emerging Professional Tutorial Luncheon (ticketed)	TMS	Noon – 12:45 p.m.	DLCC	309
Emerging Professional Tutorial Lecture (open)	TMS	12:45 p.m. – 2:00 p.m.	DLCC	309
ACerS Frontiers of Science and Society - Rustum Roy Lecture	ACerS	1:00 p.m. – 2:00 p.m.	DLCC	407
MS&T Plenary Lectures		2:00 p.m. – 4:40 p.m.	DLCC	Ballroom A
Material Advantage Student Functions				
Mug Drop Contest		10:00 a.m. – 11:00 a.m.	DLCC	Hall A
Disc Golf Contest		11:15 a.m. – 12:15 p.m.	DLCC	Hall A
Student Awards Ceremony		1:00 p.m. – 2:00 p.m.	DLCC	Hall A
Posters				
ACerS Basic Science Division Ceramographic Exhibit & Competition	ACerS	8:00 a.m. – 5:00 p.m.	DLCC	Outside 310-311
General Poster Display		8:00 a.m. – 5:00 p.m.	DLCC	Ballroom BC
Undergraduate Student Poster Contest Display		8:00 a.m. – 5:00 p.m.	DLCC	Ballroom BC
Graduate Student Poster Contest Display		8:00 a.m. – 5:00 p.m.	DLCC	Ballroom BC
Social Functions				
AIST University Industry Relations Roundtable	AIST	10:30 a.m. – 1:00 p.m.	Westin	
ACerS YPN+1 Program Mixer	ACerS	6:30 p.m. – 7:30 p.m.	Omni	Carnegie III
WEDNESDAY, OCTOBER 12, 2022				
Conference Activities				
Registration		7:00 a.m. – 5:00 p.m.	DLCC	2nd Floor Concourse
Programming Support Desk		7:00 a.m. – 6:00 p.m.	DLCC	3rd Floor by 307/310
Society Lounges		7:00 a.m. – 5:00 p.m.	DLCC	2nd Floor Concourse
MS&T Technical Sessions		8:00 a.m. – 5:20 p.m.	DLCC	3rd & 4th Levels
Exhibition				
Exhibit Hall Registration		8:00 a.m. – 4:30 p.m.	DLCC	2nd Floor Concourse
Exhibitor Hall Access		8:00 a.m. – 5:30 p.m.	DLCC	Hall A
Exhibit Hall Show Hours		9:00 a.m. – 5:00 p.m.	DLCC	Hall A
The Advanced Materials Show USA Conference		9:30 a.m. – 4:00 p.m.	DLCC	Hall A
The Nanotechnology Show Conference		9:30 a.m. – 4:00 p.m.	DLCC	Hall A
MS&T Food Court		Noon – 2:00 p.m.	DLCC	Hall A
Exhibitor Move-out (all exhibitors)		5:30 p.m. – 10:00 p.m.	DLCC	Hall A
Committee and Business Meetings				
AIM 2024 Organizing Committee	TMS	11:00 a.m. – Noon	Westin	Butler
Art, Archaeology & Conservation Science Division General Business Meeting	ACerS	2:00 p.m. – 2:20 p.m.	DLCC	402
Lectures				
ACerS Basic Science Division Robert B. Sosman Lecture	ACerS	1:00 p.m. – 2:00 p.m.	DLCC	407
Material Advantage Student Functions				
ACerS Student Tour - Almatis	ACerS	7:00 a.m. – 2:00 p.m.	Omni	Hotel Lobby
Posters				
ACerS Basic Science Division Ceramographic Exhibit & Competition	ACerS	8:00 a.m. – Noon	DLCC	Outside 310-311
General Poster Viewing		8:00 a.m. – Noon	DLCC	Ballroom BC
Undergraduate Student Poster Contest Display		8:00 a.m. – Noon	DLCC	Ballroom BC
Graduate Student Poster Contest Display		8:00 a.m. – Noon	DLCC	Ballroom BC
ACerS Basic Science Division Ceramographic Exhibit Dismantle	ACerS	Noon – 2:00 p.m.	DLCC	Ballroom BC
General Poster Session Removal		Noon – 2:00 p.m.	DLCC	Ballroom BC
Undergraduate Student Poster Contest Display Dismantle		Noon – 1:00 p.m.	DLCC	Ballroom BC
Graduate Student Poster Contest Display Dismantle		Noon – 2:00 p.m.	DLCC	Ballroom BC
THURSDAY, OCTOBER 13, 2022				
Exhibition				
Exhibitor Move-out (custom-builds & freight collection only)		8:00 a.m. – Noon	DLCC	Hall A

LECTURES (all are located in the convention center)

MONDAY, OCTOBER 10

ACerS/EPDC ARTHUR L. FRIEDBERG CERAMIC ENGINEERING TUTORIAL AND LECTURE
9:00 a.m. – 10:00 a.m. | Room 407

From Moon Rocks to Melting Gels

ACERS RICHARD M. FULRATH AWARD SESSION
2:30 p.m. – 5:10 p.m. | Room 407

This session will feature the following presenters:

– **Takuya Hoshina**, Tokyo Institute of Technology, Japan
Elucidation of Dielectric Polarization Mechanism Using THz Spectroscopy

– **Shoichiro Suzuki**, Murata Manufacturing Co., Ltd., Japan
Material Development for High Performance and Miniaturization of Multilayer Ceramic Capacitors by Using Sn

– **Tobias Schaedler**, HRL Laboratories, LLC, USA
Additive Manufacturing of Ceramics Using Preceramic Polymers

– **Masatake Takahashi**, NEC Corporation, Japan
Development of Ultra-thin Piezoelectric Type Loudspeaker for Mobile Phones

– **Jacob Jones**, North Carolina State University, USA
Advancing Solid State Reaction Science Through In Situ X-ray Diffraction and Processing Control

TUESDAY, OCTOBER 11

ACerS ALFRED R. COOPER AWARD SESSION
8:00 a.m. – 10:00 a.m. | Room 412

2022 COOPER DISTINGUISHED LECTURE

– **Liping Huang**, Rensselaer Polytechnic Institute, USA
Uncovering Hidden Glasses

2022 ALFRED R. COOPER YOUNG SCHOLAR AWARD PRESENTATION

– **Jessica J. Sly**, Washington State University, USA
Lithium-iron Silicate Glasses as Simulations of High-Fe Nuclear Waste Glass

– **William Guthrie** , Coe College, Iowa, USA
Utilizing Electrical Impedance Spectroscopy (E.I.S.) to Observe In-situ Phase Changes in Lithium Diborate Glass Undergoing Thermal Relaxation

– **Ian Slagle**, Coe College, Iowa, USA
Multispectroscopic Study of Lead Borate Glasses

– **Presley Philipp**, Iowa State University, USA
Structure-property Relationship in Mixed Oxy-sulfide Glassy Solid Electrolyte Material: 0.58Li_2S + 0.42 [(1–y)SiS_2 + y$LiPO_3$]

TUESDAY, OCTOBER 11 (continued)

ACerS FRONTIERS OF SCIENCE AND SOCIETY – RUSTUM ROY LECTURE
1:00 p.m. – 2:00 p.m. | Room 407

– **Yury Gogotsi**, Drexel University, USA
Ceramics in Flatlands or How to Build New Materials and Devices Using Nanoscale Bricks

MS&T22 PLENARY SESSION
2:00 p.m. to 4:40 p.m. | Ballroom A

ACerS Edward Orton Jr. Memorial Lecture

– **Sanjay Mathur**, Director and Chair, Institute of Inorganic Chemistry, University of Cologne, Germany
Ceramic Particles for Precision Drug Delivery

AIST Adolf Martens Memorial Steel Lecture

– **Matthias Militzer**, The University of British Columbia, Vancouver, BC, Canada
Interface-based Design – A New Frontier for Microstructure Engineering of High-Performance Steels

TMS/ASM Distinguished Lectureship in Materials and Society

– **Iver E. Anderson**, Senior Metallurgist, Division of Materials Sciences and Engineering, Ames Laboratory (USDOE)
Materials Research on Clean Energy: For the Sake of Our Grandchildren

WEDNESDAY, OCTOBER 12

ACerS BASIC SCIENCE DIVISION ROBERT B. SOSMAN LECTURE
1:00 p.m. – 2:00 p.m. | Room 407

– **William Fahrenholtz**, Missouri University of Science & Technology, USA
Advancing the Science of Materials for Extreme Environments

SPECIAL EVENTS

SUNDAY, OCTOBER 9

TMS Additive Manufacturing Materials and Processes Workshop
1:00 p.m. to 5:30 p.m. | DLCC - Room 315
Led by experienced expert instructors, this workshop is designed for people in the materials community already familiar with Additive Manufacturing processes who want to learn more. Registration required.

Lift & Thermo-Calc "ICME for Ceramics" Kick-Off Event at MS&T22
6:00 p.m. – 9:00 p.m. | Westin - Pennsylvania Ballroom
LIFT, the Detroit-based national manufacturing innovation institute, and Thermo-Calc Software, the global leader in CALPHAD simulation technology, have planned a forum for networking and technical discussions on the state of ICME for ceramics and CMCs. Learnings from the discussion will lead to a conversation series at LIFT in 2023. Advance registration via LIFT required.

MS&T Women in Materials Science Reception
5:00 p.m. – 6:00 p.m. | Allegheny Overlook
Enjoy the chance to network with professionals and peers in a relaxed environment.

MONDAY, OCTOBER 10

ACerS 124th Annual Membership Meeting
1:00 p.m. – 2:00 p.m. | Room 407
The president reports on Society activities and newly elected officers take their positions during the annual membership meeting. All ACerS members and guests are welcome.

Improve Your Networking Skills Workshop by TMS
4:00 p.m. – 5:15 p.m. | Westin - Cambria Room
Students and professionals are invited to participate in this event, which will help you develop a practical approach to networking. Emily Kinser of 3M and Vice Chair of the TMS Professional Development Committee will present an interactive learning opportunity where attendees will identify personal networking goals, learn how to lower barriers to personal networking, and develop a personal elevator speech. This will be followed by a fun and relaxed networking activity to practice new skills.

Welcome and General Poster Reception Hosted by the MS&T Partners
5:00 p.m. – 6:00 p.m. | Ballroom BC
Come together to browse posters, speak with poster presenters, and connect with your fellow MS&T attendees.

AIST Steel to Students Recruiting Reception
6:00 p.m. – 8:00 p.m. | Westin - Pennsylvania Ballroom
Students with an interest in steel are encouraged to attend this networking event hosted by AIST.

ACerS Annual Honor and Awards Banquet
TICKETED EVENT
7:30 p.m. – 10:00 p.m.
Omni William Penn Hotel; Grand Ballroom
Enjoy dinner, conversation, and the presentation of Society awards. You can purchase tickets through the MS&T22 Registration form.

TUESDAY, OCTOBER 11

TMS Emerging Professionals Tutorial Luncheon & Lecture
TICKETED EVENT
Noon – 2:00 p.m. | Room 309

– **Joy Gockel**, Colorado School of Mines
Making Opportunities and Breaking Barriers

This presentation will dig into the history of additive manufacturing and 3D printing, paralleled with career path stories from the pioneers and Gockel's own personal experience. Self-reflection themes will be presented to inspire attendees to make the most of early-career opportunities and break perceived barriers.

All MS&T22 registrants are welcome to attend the lecture portion of this event, but to receive lunch, a ticket purchase is required.

WEDNESDAY, OCTOBER 12

ACerS Basic Science Division Ceramographic Exhibit & Competition
Various Times | Outside Rooms 310 - 311

Ceramographic Competition Times:
Mon: 8:00 a.m. – 6:00 p.m.
Tues: 8:00 a.m. – 5:00 p.m.
Wed: 8:00 a.m. – Noon

STUDENT EVENTS

2022 UNDERGRADUATE STUDENT POSTER CONTEST
DLCC - BALLROOM BC
The purpose of this contest is to encourage undergraduate students to present their undergraduate research experiences and to improve their communication skills. The poster entered must be the work of an undergraduate and completed during the undergraduate education of the student.
The work presented in the poster does not have to be performed at the student's home institution, but could be, for example, from a project performed as part of a co-op experience, a summer internship, or a Research Experience for Undergraduates (REU) project.

2022 GRADUATE STUDENT POSTER CONTEST
DLCC - BALLROOM BC
The purpose of the contest, open to current graduate students pursuing M.S. or Ph.D. degrees, is to recognize superior research performed during graduate study. Posters must be accepted for the MS&T technical program to be entered into the contest. Entries will be displayed in the general poster session.

Sunday, October 9

2022 UNDERGRADUATE STUDENT SPEAKING CONTEST
WESTIN - ALLEGHENY BALLROOM I
Semi-Final: 1:00 p.m. – 3:00 p.m. | Final: 3:00 p.m. – 4:00 p.m.
MS&T is the host to the Material Advantage Undergraduate Student Speaking Contest. The purpose of the contest is to encourage undergraduate students to present technical papers and to improve their presentation skills. The presentation subject must be technical but can relate to any aspect of materials science and engineering. One contestant from a university is able to compete in this contest.
and hiring managers interested in investing in the next generation of the steel industry. Take advantage of the opportunity to network and maybe even secure an internship or job after graduation!

Monday, October 10

PROFESSIONAL STUDENT HEADSHOTS
9:00 a.m. – 3:00 p.m. | DLCC - Room 308
Everyone needs a good headshot for LinkedIn. Adding a professional photo conveys who you are and how you want to be perceived by your future employer. Undergrads and graduate students may take advantage of this FREE service provided by the Material Advantage Program. Attire recommendation: As the adage goes, dress for the job you want. No registration needed.

AIST STUDENT PLANT TOUR
11:00 am – 4:00 pm
AIST will offer students the opportunity to tour a local steel plant.

AIST FOUNDATION STEEL TO STUDENTS RECRUITING RECEPTION
6:00 p.m. – 8:00 p.m. | Westin - Pennsylvania Ballroom
Position yourself ahead of your peers by attending the Steel to Students Recruiting Reception held in conjunction with MS&T22! The reception is a golden opportunity to meet established professionals and hiring managers interested in investing in the next generation of the steel industry. Take advantage of the opportunity to network and maybe even secure an internship or job after graduation!

Tuesday, October 11

CERAMIC MUG DROP CONTEST
10:00 a.m. – 11:00 a.m. | DLCC - Exhibition Hall
The Ceramic Mug Drop contest allows students to demonstrate their prowess in designing and manufacturing a ceramic mug possessing high strength, mechanical reliability, and/or aesthetics. Mugs fabricated by students from ceramic raw materials are judged (separately) on aesthetics and then by dropping them from ever-increasing heights. The mug with the highest successful drop height will win! Please note that students who chose to make fiber-reinforced mugs may use individual commercial fibers in the construction of their mug, but the use of commercially woven mats is not allowed.

CERAMIC DISC GOLF CONTEST
11:15 a.m. – 12:15 p.m. | DLCC - Exhibition Hall
This contest always draws a crowd! Students create discs from ceramic or glass materials to meet certain specifications, and the discs are thrown into a regulation disc golf basket. Each disc will be judged in the categories of farthest distance achieved and artistic merit (aesthetics). The disc that is successfully thrown into the disc golf basket from the farthest distance in the fewest number of shots will be named winner of the Ceramic Disc Golf Contest, and the most aesthetically pleasing/creative disc will be recorded as "Best Looking" disc.
The Ceramic Disc Golf Contest is sponsored by Keramos.

STUDENT AWARDS CEREMONY
1:00 p.m. – 2:00 p.m. | Exhibition Hall, David L. Lawrence Convention Center
Congratulate the winners of this year's contests: Material Advantage Chapters of Excellence, Student Speaking Contest, Graduate and Undergraduate Poster Contests, Ceramic Mug Drop Contest, Ceramic Disc Golf Contest, TMS Superalloys Awards, AIST/AISI Scholarships, and Keramos National Awards.

Wednesday, October 12

ACERS STUDENT TOUR AT ALMATIS
7:00 a.m. – 2:00 p.m.
Students will have the opportunity to tour Almatis in Leetsdale, Pennsylvania, on Wednesday, October 12, 2022 during MS&T22. The ACerS Student Tour at Almatis is open to all MS&T22 student registrants and is free of charge.
With more than 100 years of alumina expertise, Almatis is the world's leader in the development, manufacture and supply of premium alumina and alumina-based products.
Space is limited and registration is on a first come, first served basis. If you have any questions, please contact Yolanda Natividad. The tour is organized by ACerS President's Council of Student Advisors (PCSA).

UPCOMING CONFERENCES

Event	Date	Location/Sponsor
Continuous Casting – A Practical Training Seminar	October 18-20, 2022	Fort Worth, TX, USA – AIST
Environmental Solutions: Meeting EPA Air Emission Requirements	October 25-27, 2022	Orlando, FL, USA – AIST
83rd Conference on Glass Problems	October 31-November 3, 2022	Columbus, OH, USA – ACerS
The Making, Shaping & Treating of Steel: 101	November 2-3, 2022	Syracuse, NY, USA – AIST
Electronic Materials and Applications 2023 (EMA 2023)	January 17-20, 2023	Orlando, FL, USA – ACerS
47th International Conference and Expo on Advanced Ceramics and Composites (ICACC 2023)	January 22-27, 2023	Daytona Beach, FL, USA – ACerS
Cold Rolling Fundamentals – A Practical Training Seminar	February 20-23, 2023	San Antonio, TX, USA – AIST
Modern Electric Furnace Steelmaking-A Practical Training Seminar	February 20-25, 2023	San Antonio, TX, USA – AIST
Scrap Supplements & Alternative Ironmaking 9	March 6-8, 2023	Orlando, FL, USA – AIST
Digital Transformation Forum for the Steel Industry	March 7-8, 2023	Pittsburgh, PA, USA – AIST
TMS 2023 Annual Meeting & Exhibition	March 19-23, 2023	San Diego, California, USA – TMS
AISTech 2023 – the Iron & Steel Conference & Exhibition	May 8-11, 2023	Detroit, MI, USA – AIST
Superalloy 718 & Derivatives 2023	May 14-17, 2023	Pittsburgh, Pennsylvania, USA – TMS
7th World Congress on Integrated Computational Materials Engineering (ICME 2023)	May 21–25, 2023	Orlando, Florida, USA – TMS
2023 Glass & Optical Materials Division Annual Meeting (GOMD 2023)	June 4-9, 2023	New Orleans, LA, USA – ACerS
2023 Structural Clay Products Division & Southwest Section Meeting in conjunction with the National Brick Research Center Meeting	June 5 – 8, 2023	Austin, TX, USA – ACerS
29th Crane Symposium	June 12-14, 2023	Pittsburgh, PA, USA – AIST
New Developments in Advanced High-Strength Sheet Steels	June 19-23, 2023	Vail, CO, USA – AIST
Materials Challenges in Alternative & Renewable Energy 2023 (MCARE 2023) combined with the 6th Annual Energy Harvesting Society Meeting (EHS 2023)	August 21 – 24, 2023	Bellevue, WA, USA – ACerS
MS&T 2023	October 1-5, 2023	Columbus, OH, USA – ACerS, AIST, TMS

ORGANIZED BY THE LEADING MATERIALS SOCIETIES:

The American Ceramic Society is the premier global membership organization for the technical ceramics and glass community. Celebrate with us Monday evening at the ACerS 124th Annual Honors and Awards Banquet for the induction of the 2022 Class of Fellows and awards presentations. The Society's prestigious award lectures will be presented at MS&T22: **ACerS/EPDC: Arthur L. Friedberg Ceramic Engineering Tutorial and Lecture, Frontiers of Science and Society - Rustum Roy Lecture, Edward Orton, Jr. Memorial Lecture** and **Robet B. Sosman Lecture**. All attendees are welcome to attend the ACerS lectures. Be sure to stop by the member lounge to relax between the sessions, network with peers, hear what's new with the Society and much more. Visit **ceramics.org** to learn more about ACerS.

The Association for Iron & Steel Technology (AIST) is a non-profit entity with over 17,500 members from more than 70 countries. AIST is recognized as a global leader in networking, education and sustainability programs for advancing iron and steel technology. Serving the entire iron and steel community, including steel manufacturers, suppliers, consumers and academics, our mission is to advance the technical development, production, processing and application of iron and steel. Visit **www.aist.org** to learn more about AIST.

The Minerals, Metals & Materials Society (TMS) is a member-driven international professional society dedicated to fostering the exchange of learning and ideas across the entire range of minerals, metals, and materials science and engineering, from minerals processing and primary metals production, to basic research and the advanced applications of materials. Included among its more than 12,000 professional and student members are metallurgical and materials engineers, scientists, researchers, educators, and administrators from more than 80 countries on six continents. Visit **www.tms.org** to learn more about TMS.

Technical Meeting and Exhibition

MS&T22

MATERIALS SCIENCE & TECHNOLOGY

OCT. 9– 12, 2022 | DAVID L. LAWRENCE CONVENTION CENTER | PITTSBURGH, PA, USA

THE Advanced Materials SHOW | USA

THE NANOTECHNOLOGY SHOW

Brought to you by: Event Partners

New co-locate for 2022! Hall A, October 11 - 12, 2022

PROGRAM AT A GLANCE

MATSCITECH.ORG

Organizers: The American Ceramic Society www.ceramics.org | AIST Association for Iron & Steel Technology | TMS The Minerals, Metals & Materials Society | Society For Biomaterials Giving life to a world of materials

WHERE MATERIALS INNOVATION HAPPENS

Topic Area/Symposium	Date	Time	Room
Program Highlights			
MS&T22 Plenary Session	TUE	PM	Ballroom A
MS&T22 Poster Session	MON	PM	Ballroom B
ACerS Richard M. Fulrath Award Session I	MON	PM	407
ACerS Richard M. Fulrath Award Session II	TUE	AM	407
ACerS Basic Science Division Robert B. Sosman Lecture	WED	PM	407
ACerS Frontiers of Science and Society - Rustum Roy Lecture	TUE	PM	407
ACerS GOMD Alfred R. Cooper Award Session	TUE	AM	412
ACerS/EPDC: Arthur L. Friedberg Ceramic Engineering Tutorial and Lecture	MON	AM	407
Additive Manufacturing			
Additive Manufacturing and Cellular/Lattice Structures: Designs, Realization and Applications			
Cellular/Lattice Structures I	MON	AM	305
Cellular/Lattice Structures II	MON	PM	305
Poster Session	MON	PM	Ballroom B
Cellular/Lattice Structures III	WED	AM	307
Additive Manufacturing Modeling, Simulation, and Machine Learning: Microstructure, Mechanics, and Process			
Mechanical Properties	MON	AM	303
Microstructures & Defects I	MON	PM	303
Poster Session	MON	PM	Ballroom B
Machine Learning and Artificial Intelligence	TUE	AM	303
Microstructures & Defects II	WED	AM	303
AM Processes	WED	PM	303
Additive Manufacturing of Ceramic-based Materials: Process Development, Materials, Process Optimization and Applications			
Additive Manufacturing of Ceramics-based Materials I	MON	AM	307
Additive Manufacturing of Ceramics-based Materials II	MON	PM	307
Poster Session	MON	PM	Ballroom B
Additive Manufacturing of Ceramics-based Materials III	WED	PM	307
Additive Manufacturing of High and Ultra-high Temperature Ceramics and Composites: Processing, Characterization and Testing			
Composites and Reinforcements	WED	AM	306
New Methods and Characterization	WED	PM	306
Additive Manufacturing of Metals: Microstructure, Properties and Alloy Development			
Fe-based Alloys - 316L	MON	AM	301
Ni-based Super Alloys	MON	AM	302
Functional Materials and W-based Systems	MON	PM	301
Al-based Alloys	MON	PM	302
Fe-based Alloys II	TUE	AM	301
Ni-based Alloys II	TUE	AM	302
High Temperature and Refractory Materials	WED	AM	301
Other Non-ferrous Materials	WED	AM	302
Other Materials	WED	PM	301
Processing and Characterization	WED	PM	302
Additive Manufacturing of Polymeric-based Materials: Challenges and Potentials			
Modeling/Simulation and Innovation of Additive Manufacturing of Polymeric-based Materials	MON	PM	306
Characterization and Novel Approaches to Mitigate the Challenges of Polymeric-based Materials in Additive Manufacturing	TUE	AM	306
Additive Manufacturing of Titanium-based Materials: Processing, Microstructure and Material Properties			
Poster Session	MON	PM	Ballroom B
Ti6Al4V	TUE	AM	305
Ti-alloys	WED	AM	305
Ti-processing	WED	PM	305

Program At A Glance

Topic Area/Symposium	Date	Time	Room
Additive Manufacturing: An Industrial, Academic and Governmental Perspective			
Session I	MON	AM	306
Additive Manufacturing: Equipment, Instrumentation and In-Situ Process Monitoring			
Standards in Additive Manufacturing Materials	MON	PM	304
Poster Session	MON	PM	Ballroom B
Equipment, Instrumentation and In-Situ Process Monitoring I	TUE	AM	304
Equipment, Instrumentation and In-Situ Process Monitoring II	WED	AM	304
Equipment, Instrumentation and In-Situ Process Monitoring III	WED	PM	304
Additive Manufacturing: Mechanisms and Mitigation of Aqueous Corrosion and High-temperature Oxidation			
Corrosion Behavior of Additively Manufactured Metals and Alloys	TUE	AM	307
Artificial Intelligence			
AI for Big Data Problems in Advanced Imaging, Materials Modeling and Automated Synthesis			
AI and ML for Materials Discovery I	MON	AM	304
Poster Session	MON	PM	Ballroom B
AI and ML for Imaging and Characterization	TUE	AM	311
AI for Materials Discovery II	WED	AM	311
AI for Materials Design	WED	PM	311
Materials Informatics for Images and Multi-dimensional Datasets			
Poster Session	MON	PM	Ballroom B
Session I	WED	AM	310
Session II	WED	PM	310
Materials Processing and Fundamental Understanding Based on Machine Learning and Data Informatics			
AI-guided Microstructure Study	MON	AM	311
AI-guided Processing Study	MON	PM	311
Poster Session	MON	PM	Ballroom B
Uncertainty Quantification in Data-Driven Materials and Process Design			
Data-driven Process-Structure-Property Surrogate Modeling	MON	AM	310
Materials Design under Uncertainty	MON	PM	310
Biomaterials			
3D Printing of Biomaterials and Devices			
Session I	MON	AM	319
Session II	MON	PM	319
Poster Session	MON	PM	Ballroom B
Session III	TUE	AM	319
Next Generation Biomaterials			
Next Generation Biomaterials I	MON	AM	318
Next Generation Biomaterials II	MON	PM	318
Poster Session	MON	PM	Ballroom B
Next Generation Biomaterials III	TUE	AM	318
Next Generation Biomaterials IV	WED	AM	318
Society for Biomaterials: Biological Response to Materials and Material's Response to Biological Environments			
Session I	MON	AM	315
Session II	MON	PM	315
Poster Session	MON	PM	Ballroom B
Society for Biomaterials: Biomaterial Applications			
Cardiovascular Biomaterials	MON	AM	316
Biomaterials for Healing and Regeneration	MON	PM	316
Poster Session	MON	PM	Ballroom B
Biomaterials for Drug Delivery and Stimuli-responsive function	TUE	AM	316
Dental and Orthopaedic Biomaterials	WED	AM	316

Topic Area/Symposium	Date	Time	Room
Society for Biomaterials: Biomaterial Applications in Today's Industry: Development, Translation & Commercialization			
Society for Biomaterials: Applications in Today's Healthcare Industry	MON	AM	317
Poster Session	MON	PM	Ballroom B
Ceramic and Glass Materials			
Advances in Dielectric Materials and Electronic Devices			
Processing, Properties, and Biomedical Applications	MON	AM	410
Piezoelectrics, Microwave Materials, and Conductive Applications	MON	PM	410
Poster Session	MON	PM	Ballroom B
Capacitors, Relaxors, Electrostriction, and Energy Applications	TUE	AM	410
Ceramics and Glasses Modeling by Simulations and Machine Learning			
Machine Learning Modeling of Glass and Ceramics	MON	AM	408
Simulation of Glass and Ceramics	MON	PM	408
Poster Session	MON	PM	Ballroom B
Dislocations in Ceramics: Processing, Structure, Mechanics, and Functionality			
Dislocations in Ceramics: Mechanics and Functionality	WED	PM	409
Engineering Ceramics: Microstructure-Property-Performance Relations and Applications			
Advanced Processing and Properties of Engineering Ceramics	MON	PM	415
Poster Session	MON	PM	Ballroom B
Mechanical Properties of Engineering Ceramics	TUE	AM	415
Processing-Microstructure-Property Relations of Engineering Ceramics	WED	AM	415
Properties and Applications of Engineering Ceramics and Composites	WED	PM	415
Glasses and Optical Materials: Current Issues and Functional Applications			
Silicate (rich) Glasses	MON	AM	412
Non-silicate Glasses	MON	PM	412
Poster Session	MON	PM	Ballroom B
Cooper Distinguished Lecture	TUE	AM	412
Journal of the American Ceramic Society Awards Symposium			
Journal of the American Ceramic Society Awards Symposium	TUE	AM	408
Manufacturing and Processing of Advanced Ceramic Materials			
New Advances in Ceramic Processing I: Sintering	MON	PM	411
New Advances in Ceramic Processing II: Conventional vs. Additive Manufacturing	TUE	AM	411
Novel Processing of Oxide Ceramics I	WED	AM	411
Processing of Carbides, Borides, and Nitrides	WED	PM	410
Novel Processing of Oxide Ceramics II	WED	PM	411
Mesoscale Phenomena in Functional Polycrystals and Their Nanostructures			
Poster Session	MON	PM	Ballroom B
Electronic, Thermal and Optical Phenomena	WED	AM	412
Dielectric and Magnetic Phenomena	WED	PM	412
Phase Transformations in Ceramics: Science and Applications			
Poster Session	MON	PM	Ballroom B
Session I	WED	AM	408
Session II	WED	PM	408
Solid-state Optical Materials and Luminescence Properties			
Processing and Study of Advanced Optical Materials I	MON	AM	409
Processing and Study of Advanced Optical Materials II	MON	PM	409
Poster Session	MON	PM	Ballroom B
Optical Materials and Luminescence Properties	TUE	AM	409
Undergraduate Research in Ceramics			
Undergraduate Research in Ceramics	WED	AM	409

Program At A Glance

Topic Area/Symposium	Date	Time	Room
Education			
ACerS/TMS Emerging Faculty Symposium			
Faculty Life and Collaborations	WED	AM	312
Funding, Mentorship, and Growth as Faculty Members	WED	PM	312
Curricular Innovations and Continuous Improvement of Academic Programs (and Satisfying ABET along the Way): The Elizabeth Judson Memorial Symposium			
Curricular Advances and Accreditation	MON	AM	312
What Should We Teach and How Should We Teach it?	MON	PM	312
Fundamentals and Characterization			
Alloy Phase Transformations at Elevated Temperatures			
Session I	MON	PM	326
Poster Session	MON	PM	Ballroom B
Session II	TUE	AM	326
Session III	WED	AM	319
Dynamic Behavior of Materials: Experiments and Molecular Dynamics Simulations			
Dynamic Behavior of Materials: Experiments and Molecular Dynamics Simulations	MON	AM	326
Emergent Materials under Extremes and Decisive In Situ Characterizations			
In Situ Characterization	WED	AM	325
Extreme Conditions	WED	PM	325
Grain Boundaries, Interfaces, and Surfaces: Fundamental Structure-Property-Performance Relationships			
Interfaces in Functional Materials	MON	AM	335
Mechanics at Interfaces	MON	PM	323
Poster Session	MON	PM	Ballroom B
Segregation	TUE	AM	323
Grain Growth	WED	AM	323
Processing and Microstructure	WED	PM	323
High Entropy Materials: Concentrated Solid Solutions, Intermetallics, Ceramics, Functional Materials and Beyond III			
Processing and Properties	MON	AM	324
Theory and Modeling	MON	PM	324
Poster Session	MON	PM	Ballroom B
Materials Discovery and Design	TUE	AM	324
Processing and Properties II	WED	AM	324
Materials Discovery and Design II & Theory and Modeling II	WED	PM	324
Inference-based Approaches for Material Discovery and Property Optimisation			
Structure-Property Inference from Experiments	WED	AM	326
Structure-Property Inference from Simulations	WED	PM	326
Metal Powder Synthesis and Processing			
Session I	MON	AM	323
Poster Session	MON	PM	Ballroom B
Synthesis, Characterization, Modeling and Applications of Functional Porous Materials			
Porous Materials I	MON	AM	325
Porous Materials II	MON	PM	325
Poster Session	MON	PM	Ballroom B
Porous Materials III	TUE	AM	325
Porous Materials IV	WED	PM	334
Iron and Steel (Ferrous Alloys)			
Advancements in Steel Structural Refinement			
Poster Session	MON	PM	Ballroom B
Session I	TUE	AM	406

Topic Area/Symposium	Date	Time	Room
Advances in Ferrous Metallurgy			
HSLA Steel and Advances in Characterization Techniques	MON	AM	406
AHSS and Steelmaking Process Innovation	TUE	AM	405
Advances in Zinc-coated Sheet Steel Processing and Properties			
Advances in Zinc-coated Sheet Steel Processing and Properties	MON	PM	406
Steels for Sustainable Development			
Poster Session	TUE	PM	Ballroom B
Hydrogen & New Applications	WED	AM	406
Renewables & Power Generation	WED	PM	406
Lightweight Alloys			
Development in Light Weight Alloys and Composites			
Processing and Mechanical Performance	MON	PM	317
Data Processing and Performance	TUE	AM	403
Microstructure and Mechanical Properties	WED	AM	403
Microstructure, Processing and Mechanical Properties	WED	PM	403
ICME-based Titanium Alloys and Processes Design			
ICME-based Titanium Alloys and Processes Design	MON	PM	403
Light Metal Technology			
Light Metal Technology	TUE	AM	402
Processing-Microstructure-Property Relationships of Titanium and Titanium Alloys			
Session I	MON	AM	328
Session II	TUE	AM	312
Materials-Environment Interactions			
Advanced Coatings for Wear and Corrosion Protection			
Session I	MON	AM	334
Session II	MON	PM	334
Advanced Materials for Harsh Environments			
Session I	MON	PM	333
Session II	MON	PM	333
Poster Session	MON	PM	Ballroom B
Session III	TUE	AM	333
Session IV	WED	AM	334
Computation Assisted Materials Development for Improved Corrosion Resistance			
Session I	TUE	AM	334
High Temperature Oxidation of Metals and Ceramics			
Corrosion	MON	PM	335
Poster Session	MON	PM	Ballroom B
Oxidation of Metals and Accident Tolerant Fuel	TUE	PM	335
Environmental Barrier Coatings, Thermal Barrier Coatings, and Hypersonics	WED	AM	335
Oxidation of Ceramics and HEA/Refractory Alloys	WED	PM	335
Progressive Solutions to Improve Corrosion Resistance for Nuclear Waste Storage			
Molecular Dynamics Simulations and Machine Learning for Glass Corrosion, Glass Design and Canisters Lifetime	WED	AM	333
Thermal History Effects on Borosilicate Glasses and Glass Ceramics and Canisters Stress Corrosion Cracking Mitigation	WED	PM	333
Thermodynamics of Materials in Extreme Environments			
Thermodynamics of Molten Salts	MON	AM	415
Poster Session	MON	PM	Ballroom B
Thermodynamics and Stabilities of Alloys and Ceramics	TUE	AM	310

Program At A Glance

Topic Area/Symposium	Date	Time	Room
Modeling			
Integration between Modeling and Experiments for Crystalline Metals: From Atomistic to Macroscopic Scales IV			
Session I	MON	AM	401
Session II	MON	PM	401
Session III	TUE	AM	401
Session IV	TUE	AM	404
Session V	WED	AM	401
Session VI	WED	PM	401
Multi Scale Modeling of Microstructure Deformation in Material Processing			
Multi Scale Modeling of Microstructure Deformation in Material Processing	MON	AM	403
Nanomaterials			
Advances in Emerging Electronic Nanomaterials: Synthesis, Enhanced Properties, Integration, and Applications			
2D TMDC and Quantum Materials	MON	AM	321
Graphene and Other Nanomaterials	MON	PM	321
Poster Session	MON	PM	Ballroom B
Atomic Layer Processing: In-Situ Characterization, Modeling, Area-Selective Deposition, and Microelectronics Applications	TUE	AM	321
Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials			
2D Materials Synthesis & Properties	MON	AM	320
Nanostructure Synthesis & Mechanisms	MON	PM	320
Poster Session	MON	PM	Ballroom B
Nanostructured Films & Properties	TUE	AM	320
Energy Applications	WED	AM	320
Heterostructures & Polymer-Derived Ceramics	WED	PM	320
Nanotechnology for Energy, Environment, Electronics, Healthcare and Industry			
Poster Session	MON	PM	Ballroom B
Session I	WED	AM	321
Nuclear Energy			
Advanced Characterization of Materials for Nuclear, Radiation, and Extreme Environments III			
Thermomechanical Properties	MON	AM	329
Beamline/Scattering	MON	PM	329
In Situ Microscopy	TUE	AM	329
Spectroscoy/Tomography	WED	AM	327
Ceramics for a New Generation of Nuclear Energy Systems and Applications			
Ceramic Nuclear Fuel	MON	PM	402
Poster Session	MON	PM	Ballroom B
Ceramics for Nuclear Energy Application	WED	AM	329
Nuclear Waste Management	WED	PM	329
Tackling Structural Materials Challenges for Advanced Nuclear Reactors			
Advanced Structural Materials	MON	AM	330
Molten Salt Systems	MON	PM	330
Investigating Microstructural Features	TUE	AM	330
Advanced Manufacturing	WED	AM	330
Mechanical Behaviors	WED	PM	330
Processing and Manufacturing			
Advanced Joining Technologies for Automotive Lightweight Structures			
Poster Session	MON	PM	Ballroom B
Self-piercing Riveting (SPR)	TUE	AM	317
Friction Stir Welding (FSW)	WED	AM	328
Resistance and Ultrasonic Spot Welding Plus (RSW & USW, etc.)	WED	PM	328

Topic Area/Symposium	Date	Time	Room
Advances in Surface Engineering			
Session I	MON	PM	328
Session II	TUE	AM	328
Innovative Process Design and Processing for Advanced Structural Materials			
Welding, Electrical Current-induced Phenomenon, and Additive Manufacturing	MON	AM	327
Mechanics and Modeling	MON	PM	327
Poster Session	MON	PM	Ballroom B
Advanced Structural Materials	TUE	AM	327
Processing and Performance of Materials Using Microwaves, Electric and Magnetic Fields, Ultrasound, Lasers, and Mechanical Work – Rustum Roy Symposium			
Session I	MON	AM	402
Poster Session	MON	PM	Ballroom B
Sustainability, Energy, and the Environment			
14th Symposium on Green and Sustainable Technologies for Materials Manufacturing and Processing			
Application of Sustainable Materials for Functional Applications I/Novel Manufacturing Methods	MON	AM	414
Application of Sustainable Materials for Functional Applications II	MON	PM	414
Poster Session	MON	PM	Ballroom B
Sustainable Processing of Ceramics and Composites I/Novel Processing of Coatings and Metals	TUE	AM	414
Sustainable Processing of Ceramics and Composites II	WED	AM	414
Advanced Ceramics for Environmental Remediation			
Session I	MON	AM	411
Advances and Challenges in Decarbonization of the Steel Industry			
Session I	WED	AM	405
Energy Materials for Sustainable Development			
Storage Batteries I	MON	AM	413
Radiative and Electrochemical Conversion/Storage Batteries	MON	PM	413
Poster Session	MON	PM	Ballroom B
Fuel Cells and Electrolyzers	TUE	AM	413
Electrets and Magnetic Conversion/Capacitative Storage and Electrochemical Conversion	WED	AM	413
Thermal Conversion	WED	PM	413
Special Topics			
ACerS Robert B. Sosman Award Symposium: Advancing the Science of Materials for Extreme Environments			
Session I	WED	AM	407
Session II	WED	PM	407
Art and Cultural Heritage: Discoveries during the Pandemic Year			
Poster Session	MON	PM	Ballroom B
Session I	WED	AM	402
Session II	WED	PM	402
K-12 Educators Forum			
Session I	MON	AM	405
Session II	MON	PM	405
Resisting Degradation from the Environment: A Symposium Honoring Carolyn M. Hansson's Research and Pioneering Experiences as a Woman in STEM			
Talks to Introduce Posters I	MON	AM	404
Talks to Introduce Posters II	MON	PM	404
Poster Session	MON	PM	Ballroom B

EXHIBIT DIRECTORY

Technical Meeting and Exhibition

MS&T22

MATERIALS SCIENCE & TECHNOLOGY

OCTOBER 9–12, 2022

THE Advanced Materials SHOW | USA

THE NANOTECHNOLOGY SHOW

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Hall A, October 11 - 12, 2022

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HOW TO GET THE MOST FROM YOUR VISIT

You probably have your own special system for seeing a show. Whether you look for specific exhibitors first or start by looking for particular products or services, this directory will guide you. You will be able to find exactly what you need quickly and easily.

SHOW HOURS

Tuesday, October 11, 2022 | 9:00 a.m. – 6:00 p.m.

Refreshment Break	10:30 a.m.
General Poster Session	1:00 p.m. – 6:00 p.m.
Lunch on Show Floor	Noon – 2:00 p.m.
Exhibitor Networking Reception	4:00 p.m. – 6:00 p.m.

Wednesday, October 12, 2022 | 9:00 a.m. – 5:00 p.m.

Lunch on Show Floor	Noon – 2:00 p.m.

CONVENIENT INQUIRY SYSTEM

Your conference badge allows you to enter the exhibition during show hours. When visiting exhibits, please present your name badge to the exhibitor's representative to request additional information about products and services.

MESSAGE BOARD

A bulletin board for messages will be located in the Registration area.

PHOTOGRAPHY/VIDEO EQUIPMENT

Please keep in mind that the exhibits are the property of the exhibiting companies. Photography and/or the recording of the exhibit hall or contents of any exhibitor booth are strictly prohibited at all times. Photography inside any exhibit space is limited to only the company that has contracted for the exhibit space or to an MS&T representative (or their contracted agent) with the consent of the exhibitor.

Because there may have been some late changes in booth assignments, some exhibitors may have a different booth number than was shown on their invitations and advertising. Please check the MS&T22 app or onsite signage for the most-up-to-date listings.

EXHIBITOR LIST (As of 9/23/21)

COMPANY	BOOTH
Across International	911
ACS Material, LLC	536
AdValue Technology, LLC	733
AEM Canada Group Inc	1129
Alfred University	811
Allied High Tech Products Inc	508
American Stress Technologies Inc	913
ANCORP	918
Angstrom Scientific, Inc	1133
Anton Paar USA Inc	1137
Applied Test Systems Inc	635
Bruker	916
BURR & FORMAN LLP	735
Cameca Instruments, Inc	1123
Carl Zeiss Microscopy, LLC	819
Cerion Nanomaterials	802
CHASM Advanced Materials	1034
Clemex Tech USA	1118
CompuTherm LLC	835
CPS Technologies Corporation	933
Edax Inc	1121
Electron Microscopy Sciences Inc	836
Ferrotec (USA) Corp	611
Fischer Technology Inc	935
Flacktek Inc	636
FORGE NANO	1016
Fortis Life Sciences	727
FRITSCH Milling and Sizing, Inc	1128
General Graphene Corporation	1017
Goodfellow	627
Graphene Layers	729
Harper International	609
HAUSCHILD GMBH & CO. KG	1038
HORIBA Scientific	912
HydroGraph Clean Power	840
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Independent Particle Labs	1126
Jeol USA Inc	928
KEYENCE CORPORATION	522
Key To Metals Americas Inc	1007
Kleindiek Incorporated	516
Kocks GmbH & Co KG	524
Laufer Group International	930
LECO Corporation	622

COMPANY	BOOTH
Leica Microsystems Inc	1031
Linkam Scientific Instruments Ltd	1130
Linseis Inc	834
Lithoz America LLC	934
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Malvern Panalytical Inc	614
Materials Data Inc	634
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McCrone Associates Inc	1134
Metcut Research Inc	1026
Mettler-Toledo, LLC	629
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NeoGraf Solutions, LLC	528
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Oxford Instruments	809
Park Systems Inc	615
Photron, Inc	612
Plasmaterials Inc	1033
Princeton Scientific Corp	814
Protochips Inc	1127
Proto Manufacturing Inc	630
Psylotech Inc	910
Quantum Design Inc	813
Rhineland Specialties, Inc	623
Rigaku Corp	507
Sente Software Ltd	510
Stat Peel AG	1030
Sugino Corp	1043
TA Instruments Inc	533
TESCAN USA Inc	810
The Graphene Council	1022
Thermcraft Incorporated	1116
Thermo-Calc Software Inc	621
Thermo Fisher Scientific	940
Thinky USA, Inc	1028
Torr International	1135
Touchstone	727
UES Inc	633
United Mineral & Chemical Corp	624
Westmoreland Mechanical Testing & Research, Inc	608
William Blythe Ltd	1015

WHERE MATERIALS INNOVATION HAPPENS

MS&T22

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MATERIALS SCIENCE & TECHNOLOGY

OCTOBER 9 – 12, 2022

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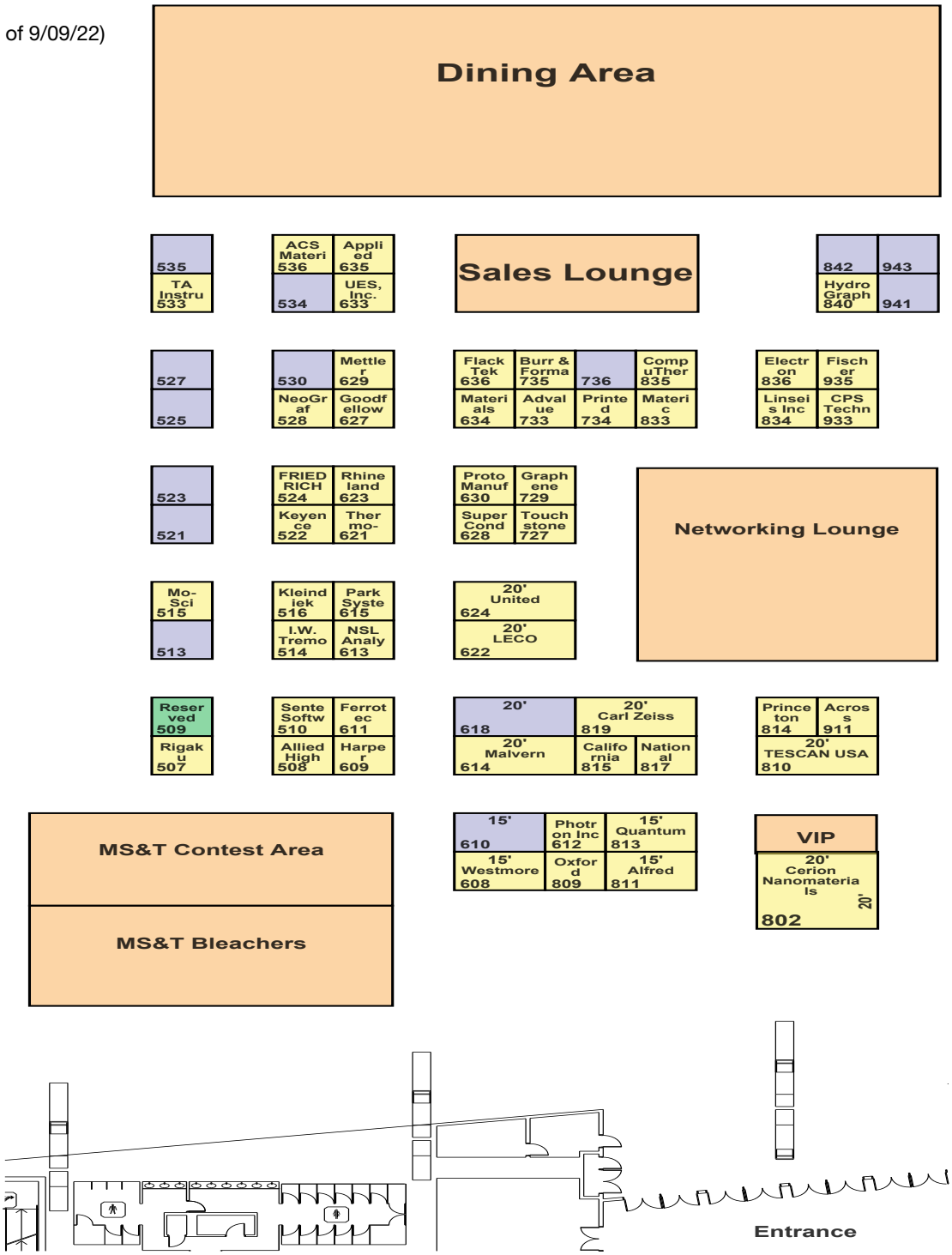


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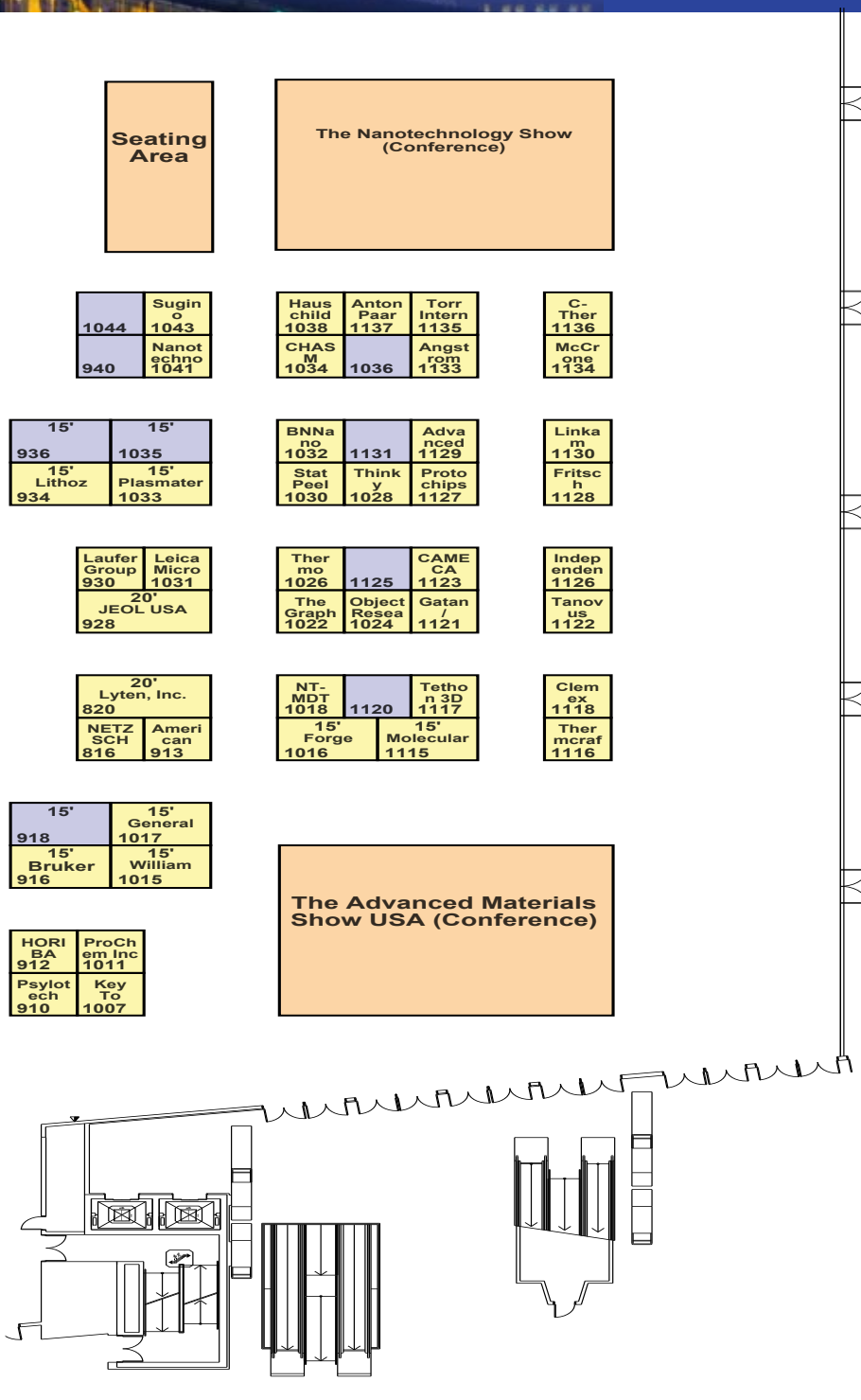
Seating Area
The Nanotechnology Show (Conference)
1044
Sugino 1043
940
Nanotechnho 1041
Haus child 1038
Anton Paar 1137
Torr Intern 1135
CHASM 1034
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Angstrom 1133
C-Ther 1136
McCrone 1134
15' 936
15' 1035
15' Lithoz 934
15' Plasmater 1033
BNNano 1032
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Advanced 1129
Stat Peel 1030
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Protochips 1127
Linkam 1130
Fritsch 1128
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Leica Micro 1031
20' JEOL USA 928
Thermo 1026
1125
CAMECA 1123
The Graph 1022
Object Resea 1024
Gatan / 1121
Independen 1126
Tanovus 1122
20' Lyten, Inc. 820
NETZSCH 816
American 913
NT-MDT 1018
1120
Tethon 3D 1117
15' Forge 1016
15' Molecular 1115
Clemex 1118
Thermcraf 1116
15' 918
15' General 1017
15' Bruker 916
15' William 1015
HORIBA 912
ProChem Inc 1011
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COMPANY DESCRIPTIONS (As of 9/24/22)

Across International LLC
Stand: 911 Across International, an ISO 9001:2015 manufacturer with 25+ years' experience, supplies laboratory equipment including ovens, furnaces, pumps, solvent evaporators, reactors, ball mills, cold storage and more. Awarded numerous times including PittCon's Today's Excellence 2020, Across International's NJ, NV & Australia locations offer advancements improving quality & ease of scientists' work.

ACS Material
Stand: 536 ACS Material is a high-tech enterprise involved in the development and production of high quality advanced nanomaterials and equipment.

Advalue Technology LLC
Stand: 733 A leading supplier of high quality materials for advanced material research and production, AdValue Technology take pride in serving the needs from our customers for high temperature and high purity solutions.

AEM Canada
Stand: 1129 Advanced Energy Minerals (AEM) is a privately owned company focused on applying its patented and proprietary technology to become a leading supplier of ultra high purity alumina (HPA) manufactured to the highest environmental performance standards. Its target markets include the global synthetic sapphire, advanced ceramics and lithium ion battery sectors.

Alfred University
Stand: 811 Alfred University is a globally recognized leader in ceramics and glass education – being the only institution in the country offering a glass science PhD and is one of two dedicated to ceramic engineering. Alfred's research centers work to solve real-world problems and provide scalable solutions in the fields of technical ceramics and glass.

Allied High Tech Products, Inc
Stand: 508 Allied High Tech Products, Inc has served the metallurgical industry for over 31 years, providing quality products for metallographic sample preparation and analysis. Allied manufactures a full range of state-of-the-art equipment including the MultiPrep™ Polishing System, X-Prep® Milling/Grinding/Polishing System, and TechCut 5™ Sectioning Saw. Allied also carries a full range of polishing products to complement their equipment.

American Stress Technologies
Stand: 913 For more than 30 years, Stresstech has been providing non-destructive and destructive testing solutions for process control and quality inspection. Stresstech is headquartered in Finland and has offices in Germany, the United States, and India, as well as sales and service representatives around the world.

ANCORP
Stand: 918 Manufacturer of high and ultra-high vacuum components since 1965, ANCORP offers an extensive line of vacuum flanges, fittings, feedthroughs, traps, viewports, valves, chambers, and custom fabrications to researchers, OEMs, and industrial users around the world. ANCORP products are designed to meet or exceed the standards required by our customers, such as those involved with thin film deposition, surface analysis, laser devices, cryogenics, and the aerospace industry.

Angstrom Scientific Inc
Stand: 1133 Angstrom Scientific Inc represents a number of leading manufacturers supporting materials imaging and analysis. These include Hitachi: tabletop SEMs, Imina: nano-probe system and Point: EBIC/EBAC, Leica: Sample prep., Deben: Tensile Stages, and NenoVision: in-Situ SEM AFM. Please visit our booth 1133 at MS&T to discuss your analysis needs.

Anton Paar USA Inc
Stand: 1137 Anton Paar develops, produces and distributes highly accurate laboratory instruments and process measuring systems, and provides custom-tailored automation and robotic solutions. It is the world leader in the measurement of density, concentration and CO_2 and in the field of rheometry. Anton Paar GmbH is owned by the charitable Santner Foundation.

Applied Test Systems
Stand: 635 Applied Test Systems (ATS) takes pride in offering affordable custom solutions to our customer's individual needs by providing reliable, accurate, user-friendly materials testing machines, process heating equipment, and accessories. The A2LA accredited service department at ATS offers outstanding field service and worldwide calibration on all manufacturers' equipment.

COMPANY DESCRIPTIONS (As of 9/24/22)

Bruker
Stand: 916 Bruker is a leading global developer and manufacturer of analytical X-ray systems for elemental analysis and materials research. Our innovative solutions enable a wide range of customers in research and industry – including chemistry, petrochemistry, pharmaceuticals, metals and steel, semiconductor, cement, minerals and mining, automotive, forensics, environmental, art and conservation, nanotechnology and life sciences.

Burr and Forman
Stand: 735 Harvey is a registered patent attorney with a focus on intellectual property litigation and prosecution. He serves clients in the areas of patent, trademark and trade secret litigation, patent and trademark prosecution, IP risk management, portfolio licensing, and client counseling. Prior to becoming an attorney, Harvey worked as an engineer and as a product manager in the semiconductor industry.

CAMECA Instruments, Inc
Stand: 1123 CAMECA is a world leading supplier of microanalytical and metrology instrumentation for research and process control. Our instruments measure elemental and isotopic composition in materials down to atomic resolution and equip government and university labs as well as high-tech industrial companies around the world.

Carl Zeiss Microscopy
Stand: 819 ZEISS is one of the world leading manufacturers of microscopes. In addition to excellent light-/ion- and electron microscopes, ZEISS also manufactures a diverse range of fluorescence optical sectioning systems as well as high-resolution x-ray microscopes. Carl Zeiss Microscopy is a leading provider of microscope solutions in the life sciences and materials research markets and QA/QC and also manufactures optical sensor systems for integrated process analysis.

Cerion Nanomaterials
Stand: 802 Cerion is a leader in designing, scaling and manufacturing metal, metal oxide and ceramic nanomaterials for companies developing products in 40+ industries. Our specialty is designing nanomaterials to be compatible with your products and processes, allowing you to seamlessly integrate them and preserve performance, while ensuring we can scale them up to meet your volume and cost targets. Accelerate your R&D and commercialization process by focusing on product development, while we deliver the precise nanoparticles you require.

CHASM
Stand: 1034 CHASM Advanced Materials is revolutionizing design and fabrication of printed electronics and energy storage devices through exclusive development and manufacture of CNT hybrid transparent conductive films and CNT hybrid electrode materials.

Clemex Tech USA
Stand: 1118 Since 1990, Clemex has been at the forefront of high-end image analysis, developing solutions for the characterization and analysis of microstructures. We specialize in the integration of advanced computer vision, building out tailor-made software/hardware solutions that best suit our clients' needs. We exclusively use leading brands of microscopes, stages, and cameras in order to uphold our unwavering commitment to delivering high-quality results.

CompuTherm LLC
Stand: 835 CompuTherm LLC spun off from the University of Wisconsin-Madison in 1996, is a leading developer of software and databases for thermodynamic and phase diagram calculations as well as kinetic simulations based on the CALPHAD approach. CompuTherm's products include the PandatTM software and a variety of databases for numerous alloy systems.

CPS Technologies Corp
Stand: 933 CPS is the world leader in developing and manufacturing advanced materials solutions and products, particularly combinations of metals and ceramics, to improve performance and reliability of applications in a variety of end markets.

EDAX
Stand: 1121 EDAX is a leading provider of innovative materials characterization systems encompassing Energy Dispersive Spectroscopy (EDS), Wavelength Dispersive Spectrometry (WDS), Electron Backscatter Diffraction (EBSD), and X-ray Fluorescence (XRF). The company designs, manufactures, distributes, and services hardware and software solutions for a broad range of industries, educational institutions, and research organizations.

Electron Microscopy Sciences
Stand: 836 EMS is committed to providing the highest quality products along with competitive pricing, prompt delivery and outstanding customer service.

Electron Microscopy Sciences is XEI Scientific's distributor for North and South America and will be representing Evactron at the conference.

COMPANY DESCRIPTIONS (As of 9/24/22)

Ferrotec
Stand: 611 Ferrotec provides customers with advanced technology solutions that make their products better, more precise, and more reliable. Our product portfolio started with FerroFluid (magnetic liquid) & Ferrofluidic® rotary sealing products and has since expanded to custom Ceramics (advanced/machinable [rapid prototype]), Quartz, CVD-SiC, etc. to meet the evolving needs of our customers.

Fischer Technology Inc
Stand: 935 As a full-service supplier in the field of surface testing, Fischer has been developing instruments for non-destructive material analysis, coating thickness measurement and material testing since 1953. We offer a wide range of measuring devices for different industries: from simple handheld devices for quick testing on the go to fully integrated, high-end systems that automatically monitor your production.

FlackTek Speedmixer
Stand: 636 FlackTek Speedmixer has been creating mixing solutions since 1996. With a core focus on quality and performance, we strive to deliver industry-best results at every point in the mixing process. To that end, we offer SpeedMixers, supplies, and accessories for all scales of needs ranging from R&D to production, as well as in-depth training, technical service, and customer support.

Forge Nano
Stand: 1016 Forge Nano is a global leader in surface engineering and precision nano-coating technology, using Atomic Layer Deposition (ALD). The Company's proprietary technology and manufacturing processes make angstrom-thick coatings fast, affordable, and commercially viable for a wide range of materials, applications, and industries.

Fortis Life Sciences
Stand: 710 Since 2004, Fortis Life Sciences has provided monodisperse and unagglomerated metal and metal-oxide nanomaterials to thousands of customers. Hundreds of different variants of material, size, shape, and surface are available as stock products and we have produced over 2000 custom core/shell, biofunctionalized, fluorescent, and magnetic nanocomposites to meet client specifications.

FRIEDRICH KOCKS GmbH & Co KG
Stand: 524 Kocks is in the market of high-quality 3-roll technology with corresponding automation solutions, we are the process specialist that is valued for its German engineering: Classic mechanical engineering, driven by modern digitalized industry 4.0 production standards. For the users of high-quality steels - automotive manufacturers, aerospace, tool and machine manufacturers - KOCKS rolled® steel stands internationally for excellent quality and consistent reliability.

Fritsch Milling and Sizing, Inc
Stand: 1128 International German manufacturer of lab instruments. Mills, grinders, & analyzers for particle size reduction, sample prep, materials science, product development, & particle analysis for process monitoring & critical applications in QA, QC, R&D. Particle size from nano up. Core competence is innovative development & production of premium instruments

General Graphene Corporation
Stand: 1017 General Graphene Corporation is a world leading industrial-scale manufacturer of single and multilayer CVD graphene films with its headquarters located in Knoxville, TN. Our team is equipped to support a wide variety of industries in the development of products and technology - enhanced and enabled by our graphene films.

Goodfellow
Stand: 627 Goodfellow is a leading global supplier of metals, alloys, ceramics, glasses, polymers, compounds, composites and other materials to meet the research, development and specialist production requirements of science and industry. The company has an extensive range of 70,000 catalogue products in multiple forms with no minimum order quantities.

Graphene Layers
Stand: 729 Graphene Layers, a leading manufacturer of graphene, graphene oxide and composites. With the use of cutting edge technology and our industry expertise, we aim to deliver you with the finest quality graphene-made products that are both sustainable and efficient!

COMPANY DESCRIPTIONS (As of 9/24/22)

Harper International
Stand: 609 Harper International is a global leader in complete thermal processing solutions and technical services essential for the production of advanced materials. From concept to commercialization, from research scale to full production line operations, Harper is perpetually on the cutting edge. For decades, we have pioneered some of the world's most innovative, customized furnace, kiln and oven systems.

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Stand: 1038 Since 1974 German Hauschild Engineering designs, builds, and sells worldwide the dual asymmetric centrifuge mixers known as the Hauschild SpeedMixer®, possibly the most powerful and efficient laboratory and production mixers. The Hauschild SpeedMixer® is a bladeless equipment capable of mixing any kind of material from few grams up to 10kg in a matter of seconds. The result is an air-bubble free perfectly homogeneous mixture.

HORIBA Scientific
Stand: 912 HORIBA Scientific, world leader in Spectroscopy solutions for industrial applications, manufactures analyzers for elemental analysis, fluorescence, GD, ICP, particle characterization, Raman, and XRF. Multi-faceted data solutions, with over 500 types of scientific analyzers for cutting-edge scientific research and technologies, are provided to manufacturing industries, governments, universities and research institutions worldwide.

HydroGraph Clean Power
Stand: 840 HydroGraph Clean Power Inc, previously known as Carbon-2D Graphene Inc, is a Vancouver based company that was formed in 2017 to fund and commercialize a green, cost-effective process to manufacture quality graphene in bulk and to create customized graphene solutions for specific applications.

I.W. Tremont Co., Inc
Stand: 514 I.W. Tremont Co., Inc founded in 1979 serves laboratory distributors, analytical instrument manufacturers, IVD, medical device manufacturers and technical markets as a private label and OEM supplier of filter media. Product focus is glass microfiber, extraction thimbles, syringe filters, cellulose papers, membranes and technical specialty materials.

ICSPI
Stand: 835 ICSPI develops and produces easy to use, affordable benchtop AFM instruments designed for the individual scientist and individual lab to capture 3D images at the nanoscale. Incorporating our AFM-on-a-Chip technology, our flagship instrument, the nGauge AFM provides researchers and scientists 3D scans at the nanoscale in about a minute in their own lab and on their own bench.

Independent Particle Labs
Stand: 1126 Independent Particle Labs provides the most accurate independent particle analysis service in the industry. With over 25 years of experience in particle analysis, we provide contract testing for particle counting, sizing and shape analysis.

JEOL USA
Stand: 928 JEOL offers a wide range of microscopy solutions for SEM, TEM, and sample preparation. JEOL SEMs, from benchtop to large chamber and ultrahigh resolution FESEMs, feature live EDS, particle analysis, and more. JEOL TEMS, from multipurpose LaB6 to advanced atomic resolution, are renowned for advanced research in materials science.

Keyence
Stand: 522 KEYENCE's microscope and measurement systems ensure that users are able to meet quality requirements. High-resolution imaging, ISO-certified roughness, and 2D/3D measurement combined with easy-to-use interfaces for an elevated inspection experience. KEYENCE offers demonstrations, sample testing, training, and short lead times so our customers' processes can improve as quickly as possible.

Kleindiek Inc
Stand: 516 Kleindiek Inc is the U.S. subsidiary of Germany-based Kleindiek GmbH located in the San Francisco Bay Area. It was founded in May 2019 to help Kleindiek customers in the U.S. We provide sales, support, and application development for nanoprobing & nanomanipulation to customers in the United States.

Laufer Group International
Stand: 930 Laufer is a different type of logistics company. We challenge conventional ways of doing business. We ask the right "why" questions and link those "why" answers to our customers' needs. Through this process of discovery and collaboration, we develop innovative and customized supply chain solutions. We always strive to make our customers better and our industry more progressive.

COMPANY DESCRIPTIONS (As of 9/24/22)

Leco Corporation
Stand: 622 LECO has been providing technologically advanced products and solutions for inorganic, organic, and metallographic analysis for 85 years, including determinators for carbon, sulfur, hydrogen, nitrogen, and oxygen, and glow discharge spectrometers. Our metallographic product line features a variety of sectioning machines, grinders/polishers, mounting equipment and supplies, microscopes, and hardness testers.

Leica Microsystems
Stand: 1031 Leica Microsystems develops and manufactures microscopes and scientific instruments for the analysis of microstructures and nanostructures. Its instruments have been widely recognized for their optical precision and innovative technology. It is one of the market leaders in compound and stereo microscopy, digital microscopy, confocal laser scanning microscopy with related imaging systems, electron microscopy sample preparation, and surgical microscopes.

Linkam Scientific Instruments Ltd
Stand: 1130 Linkam Scientific Instruments Ltd. develop and manufacture a range of heating and freezing microscope stages for both OEM and end users to visualize and explore materials properties. Used in conjunction with light microscopes, raman, IR and other forms of spectroscopy, Linkam stages are found in thousands of laboratories worldwide with the most successful heating/freezing stage, the THMS600, selling over 3000 units alone.

Linseis Inc
Stand: 834 More than 60 years ago LINSEIS started the production of thermal analysis recorders and instruments. We have taken up the challenge with pleasure to produce the required equipment for you. The development and manufacture of thermoanalytical instruments requires dedicated research and a high degree of precision work, for us this is a matter of course for the benefit of our customers.

Lithoz
Stand: 934 Lithoz specializes in materials and additive manufacturing systems for high-performance ceramics. Lithoz CeraFab 3D printers deliver the quality, reliability, and repeatability needed for serial production of smooth, precise, finely-detailed ceramic parts. Lithoz America, LLC offers machine sales, application support, and custom material development from our Troy, NY location.

Lyten, Inc
Stand: 820 Lyten is an advanced materials company that developed Lyten 3D Graphene™, a patented platform of tunable materials that has enabled breakthroughs in energy storage, composite systems, and chemical & passive sensors. When formulated into our advanced battery chemistry, Lyten's pristine three-dimensional graphene unlocks the true potential of Li-S energy storage.

Malvern Panalytical Inc
Stand: 614 Malvern Panalytical is a leading provider of scientific instrumentation for the measurement of elemental concentrations, crystallographic structure, molecular structure, remote sensing, rheology, particle size, particle shape, particle concentration and more. Our technologies are used by scientists and engineers in a wide range of industries and organizations to solve the challenges associated with maximizing productivity, developing better quality products and getting them to market faster.

Materials Data Inc
Stand: 634 Materials Data, Inc, (MDI), builds PC tools to make your X-ray powder diffraction analysis as powerful as possible. For more than 20 years, we've been working hard to find the best ways to analyze diffraction patterns as quickly and as professionally as possible. This has made it possible for our users to present results that go way beyond their prior analysis.

Materic Group
Stand: 833 At Materic, we custom manufacture the materials of the future. Based in Baltimore, MD, Materic custom designs and manufactures advanced materials. We apply our expertise in electrospinning, nanoparticle separation, textile treatments, 3D printing materials, specialty inks and microencapsulation to our own product lines as well as taking on custom manufacturing projects for our customers.

McCrone Group
Stand: 1134 Combining the talents and skills of its staff in the areas of materials analysis, instrument sales, and education, The McCrone Group is internationally regarded as "The Premier Microscopy Resource" and recognized as a world leader in microscopy, microanalysis, materials characterization, and the solving of tough materials problems.

COMPANY DESCRIPTIONS (As of 9/24/22)

Metcut Research Inc
Stand: 1026 Our mission at Metcut is to provide our worldwide customers with accurate, reliable, and ingenious materials evaluation and specimen preparation services. We are a full-service firm with significant, world-leading experience in testing materials – metals, intermetallics, composites, ceramics, and coatings – and in evaluating structural behavior.

Mettler Toledo
Stand: 629 METTLER TOLEDO is a leading global manufacturer of precision instruments and the world's largest manufacturer and marketer of weighing instruments for use in laboratory, industrial and food retailing applications. The Company also holds top-three market positions in several related analytical instruments markets and is a leading provider of automated chemistry systems used in drug and chemical compound discovery and development.

Mo-Sci Corporation
Stand: 515 MO-SCI Corporation is a world leader in high quality precision glass technology working with many fortune 500 companies as their priority or sole provider of specialty glasses. MO-SCI's glass microspheres, fibers and frit have many uses including (internationally recognized) healthcare applications. Engineers at MO-SCI are recognized world-wide for revolutionary research, development and manufacturing of glass for specialty applications.

Molecular Rebar Design
Stand: 1115 Molecular Rebar Design, LLC (MRD), based in Austin, Texas, was established to develop and commercialize a breakthrough form of modified carbon nanotubes (CNTs), called MOLECULAR REBAR®. These are the world's first CNTs that are disentangled from the usual clumping and individualized through a patent-protected process which enables significantly enhanced performance for a myriad of high-value materials.

NeoGraf Solutions, LLC
Stand: 528 We specialize in development and manufacture of high quality natural and synthetic graphite sheets and powders used in the latest consumer electronic devices, building & construction materials, transportation, and sealing & gasketing. With internal research, development, and manufacturing capabilities, NeoGraf provides high quality products, environmentally sustainable solutions, and new opportunities for our customers.

NETZSCH Instruments North America LLC
Stand: 816 NETZSCH Instruments North America, LLC offers a complete high-precision instrument line for thermal analysis, calorimeter and thermophysical properties measurement, rheology and fire testing as well as offering world class commercial testing services in our laboratory. Our instrumentation is employed for research and quality control in the polymer sector, the chemical industry, the areas of inorganic and building materials, and environmental analysis.

NSL Analytical Services, Inc
Stand: 613 A worldwide leader in analytical testing, NSL Analytical Services, Inc is an Independent Commercial Testing Laboratory specializing in Inorganic Elemental Chemical Analysis, Metallurgical and Microscopy Evaluations, Polymer Materials Testing and Metal Powder Evaluations.

Object Research Systems
Stand: 1024 Now a member of the Comet Group, Object Research Systems develops advanced 3D visualization and analysis software for today's most demanding 2D/3D/4D imaging studies, including data from correlative and hyperspectral imaging systems, X-ray, EM, confocal microscopy, and other advanced applications.

Oxford Instruments
Stand: 809 Oxford Instruments NanoAnalysis provides leading-edge tools that enable materials characterization and sample manipulation at the nanometer scale. Used on electron microscopes (SEM and TEM) and ion-beam systems (FIB), our tools are used for R&D across a wide range of academic and industrial applications including semiconductors, renewable energy, mining, metallurgy, and forensics.

Park Systems
Stand: 615 Park Systems is a world-leading manufacturer of atomic force microscopes (AFM) with a complete range of products for the materials, physics, life sciences, chemistry, and semiconductor industries. Park provides the highest data accuracy at nanoscale resolution, superior productivity, and the lowest operating cost, thanks to its unique technology and innovative engineering.

COMPANY DESCRIPTIONS (As of 9/24/22)

Photron Inc
Stand: 612 Photron is a global leader in high-speed imaging technology and slow-motion analysis. The company has helped revolutionize the industry by providing extraordinary light sensitivity in its high-speed camera products. They also offer the world's fastest 4K camera. Markets include the scientific, R&D, manufacturing, automotive, military/defense, aerospace, and medical industries.

Plasmaterials Inc
Stand: 1033 Plasmaterials, Inc, since 1987, has been supplying the Thin Film Industry with high quality sputtering targets and evaporation materials for use in PVD equipment and related applications. These materials are well suited for industrial applications, laboratory processing, research and development applications, pilot production applications as well as full scale production. In addition, we offer backing plates, e-beam starter sources, crucible liners and bonding services.

Princeton Scientific Corp
Stand: 814 Princeton Scientific Corporation is the leading global supplier of high-purity materials, Sputtering targets, semiconductor single crystals, laser crystals, non-linear optical (NLO) crystals.

We also supply Wire Saws (Wet & Dry cut), Kelvin Probe for SPV and SPS Measurements, Particle Beam and Line Diagnostics, and Plasma Systems for cleaning, surface activation, etching and coating.

Proto Manufacturing Inc
Stand: 630 Proto Mfg. has been developing cutting-edge instrumentation for the characterization of materials. Proto is a manufacturer of x-ray diffraction systems for powder diffraction, residual stress measurement, and single-crystal Laue orientation systems.

Protochips
Stand: 1127 We empower scientists, engineers, and researchers to discover and analyze new phenomenon by visualizing biological, chemical and physical processes in completely new ways. Our field-proven products offer an unparalleled view into sample behavior by combining in situ experiment control with the analysis and resolution capabilities of the modern electron microscope.

Psylotech Inc
Stand: 910 For over 15 years, Evanston, Illinois based Psylotech has been designing and building precision multi-scale micromechanical testing systems for the global stage. We provide the research community with tools to help better test new materials in static and fatigue that ultimately provide backbone for modeling data that supports product development. Precision multi-scale micromechanical testing systems like µTS and xTS platforms allow researchers to test materials and small structures under and inside third party microscopes, Digital Image Correlation, Raman, SEM, CT scanners and beamlines. We help provide the research community with tools to help them better analyze new materials and provide modelling data for supporting new product development. See how Psylotech "sets the stage for multi-scale.

Quantum Design International
Stand: 813 Quantum Design, a leading manufacturer of automated material characterization systems, offers innovative solutions for correlative microscopy. The solution combines scanning electron microscopy (SEM) and atomic force microscopy (AFM) to provide completely new insights into the nano-world. QD also distributes additive micro-manufacturing (µAM) of metals systems and maskless lithography systems.

Rhineland Specialties
Stand: 623 RSI supports critical supply chains for advanced materials and solution-based processes for nanotechnology, ceramics, energy, speciality coatings, and high-performance end applications. We offer metal precursors and functional chemicals, customisation, sourcing, and local stocking and service, supporting scale up development and commercialisation pathways.

Rigaku Americas
Stand: 507 Founded in 1951, this year Rigaku proudly celebrates its 70th year as one of the foremost manufacturers of X-ray analysis, thermal analysis and non-destructive testing instruments. Since the company's inception, we have continued to develop and grow alongside our customers, always mindful of our mission: to contribute to the enhancement of humanity through scientific and technological development.

COMPANY DESCRIPTIONS (As of 9/24/22)

Sente Software

Stand: 510 Sente Software Ltd. was created in 2001 to take responsibility for the long term commercial development of JMatPro®. It now leads the development of the new scientific capabilities in JMatPro® alongside the development of its powerful graphical user interface.

All of our products combine industrial relevance with realistic physical models and user-friendly interfaces.

Stat Peel

Stand: 1030 Stat Peel's material-selective aerosol detection system protects people and facilities from potential contamination by monitoring airborne particles. Employees wear badges throughout the workday, and analysis is done automatically on-site so data remains in-house.

The Identifier systems can detect carbon nanotubes, graphene, titanium dioxide, polymer particles and other materials of interest.

Sugino Corp

Stand: 1043 Sugino Machine Limited manufactures innovative, precision equipment for high-pressure cleaning, deburring, machining, drilling and tapping, burnishing, waterjet cutting, and more. With 80 years of experience, we help customers solve their most demanding production challenges. From our patented Super Technology engineering to our belief in listening to our customer's feedback; our goal is reliability, flexibility, accuracy, and superior results.

TA Instruments

Stand: 533 TA Instruments is the world leader in manufacturing industry-leading systems for thermal analysis, rheology, microcalorimetry and mechanical analysis. We offer innovative and reliable instruments that help scientists in top laboratories test the physical properties of their materials. Our instruments contribute to leading discoveries in medicine, materials science, electronics and other areas of science devoted to improving our world.

TESCAN USA

Stand: 810 TESCAN USA is a leading supplier in North America of Scanning Electron Microscopes and Focused Ion Beam workstations. The quality, performance and reliability of our products are the foundation of our business, serving customers in academia, industry and the government sector. With most of our staff being electron microscopists, and analysts, we understand the diverse needs of our customers, offering custom solutions to meet specific application requirements.

The Graphene Council

Stand: 1022 The Graphene Council is a global community of more than 30,000 graphene researchers, producers, developers and end-users and is the best source of up-to-date intelligence and networking on graphene commercialization and applications, including:

Composites – Sensors – Electronics – Energy Storage – Plastics - Textiles - Concrete - Water Filtration – Lubricants – Coatings – Thermal Management and many, many more.

Thermcraft

Stand: 1116 Thermcraft is an international leading manufacturer of thermal processing equipment including industrial and laboratory furnaces, industrial ovens, high temperature ceramic heating elements, high temperature ceramic insulation, temperature control systems, thermocouples and thermal processing accessories.

Thermo Fisher Scientific

Stand: 940 Thermo Scientific instruments, equipment, software, services and consumables empower scientists to solve for complex analytical challenges in pharmaceutical, biotechnology, academic, government, environmental and industrial research, as well as the clinical laboratory. Our products address a range of needs from sample, material characterization and chemical analysis to clinical diagnoses and biological-based therapeutics manufacturing.

Thermo-Calc Software Inc

Stand: 621 If you've ever wished that your phone were lighter, a battery lasted longer, or your plane flight required less fuel for the environment, then you've wished for a better material. At Thermo-Calc Software, we make software and databases that are used by materials scientists and engineers to generate data that helps them design better materials and improve materials processing conditions.

COMPANY DESCRIPTIONS (As of 9/24/22)

Thinky USA, Inc
Stand: 1028 Thinky Corporation have consistently developed new technologies and solutions that had not existed up until then, and delivered them to the world on our own based on our motto "Stirring and Inspiring Manufacturing" ever since we were founded in 1970. Starting with the development of electronic units in the 1970s, we made a foray into various business fields, such as digital panel meters and magnetic head testers, while coming up with Japan's and the world's first unique products as well.

Torr International Services LLC
Stand: 1135 Torr International Services LLC was founded in 1989 as a vacuum technology company. Since then, it has become a specialist in the field of thin film equipment and nanotechnology. Torr's product range includes low-priced standard table-top CRC Magnetron Sputtering systems. These systems are for appications as diverse as specimen preparation for scanning electron microscopes or research and development with metal, dielectric and polymer films.

Total Materia
Stand: 1007 Total Materia delivers the most comprehensive materials information platform, providing engineering businesses with the know how to make optimized materials decisions to provide safer, higher quality, compliant products to their customers. Combined management of internal materials IP, integrations to CAE, PLM and ERP systems deliver approved materials information to all corners of the business.

Touchstone
Stand 727 Touchstone Research Laboratory, Ltd. takes technologies from ideation, commercialization, to businesses. Spinouts include: CFOAM, Touchstone Advanced Composites, and Touchstone Testing Laboratory. MetPreg, Faraday Thermal Protection Systems, and a graphite produced from coal waste are in development. Veloxint utilizes a technology, under a license from MIT, based on nanocrystalline metal alloys.

UES, Inc
Stand: 633 For more than 45 years, we have been involved in scientific research and technology development, and created and successfully commercialized innovative products and services.

United Mineral & Chemical Corp
Stand: 624 United Mineral and Chemical Corp. has been a leading supplier of high purity source materials to the compound semiconductor industry and complimentary technologies for more than 35 years. World-wide sourcing and supply chain management enables manufacturers and researchers to efficiently purchase, with most products available for immediate shipment from local stock. Custom forms and shapes are also available for many items.

Westmoreland Mechanical Testing & Research, Inc
Stand: 608 Westmoreland Mechanical Testing & Research has established a worldwide reputation for high-volume, quick turnaround testing in one fully integrated facility. Over 50,000 square feet of production and testing capacity is designed to ensure minimum turnaround times. An acknowledged global leader, no one can compare with the versatility and testing capacity available at WMT&R.

William Blythe Limited
Stand: 1015 A global supplier of high-performance speciality inorganic chemicals that serve a diverse set of markets including catalysis, polymers additives and renewable energy. William Blythe is now commercialising advanced materials, including graphene oxide and nano-tungsten oxides, supported by 175+ years of expertise in chemical manufacturing and it's parent company, Synthomer plc.

XEI Scientific
Stand: 836 XEI Scientific, Inc is the recognized leader in downstream plasma cleaning. The Evactron® Plasma De-Contaminator™ is an RF plasma cleaner that reduces hydrocarbon contamination in vacuum chambers. This significantly improves electron microscope imaging and analytical performance.

Electron Microscopy Sciences is XEI Scientific's distributor for North and South America and will be representing Evactron at the conference.

SAVE THE DATE

OCT. 1 – 5, 2023

Technical Meeting and Exhibition

MS&T23

MATERIALS SCIENCE & TECHNOLOGY

WHERE MATERIALS INNOVATION HAPPENS

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MS&T ANTI-HARASSMENT POLICIES

The Material Science and Technology Conference (MS&T) is organized by a partnership of three leading materials science-related societies: ACerS, AIST, and TMS.

All three partner societies are committed to ensuring that all MS&T activities are free from discrimination, harassment, and/or retaliation of any form. The MS&T partnership does not tolerate harassment in any form of anyone attending an MS&T event.

EACH SOCIETY HAS ITS ANTI-HARASSMENT/CODE OF CONDUCT POLICIES POSTED ON ITS WEBSITE:

The American Ceramic Society Anti-Harassment Policy (PDF)
ceramics.org/wp-content/uploads/2020/01/Appendix-8-Code-of-Conduct.pdf

Association For Iron and Steel Technology
https://www.aist.org/about-aist/leadership-governance/governance-policies

The Minerals, Metals, and Materials Society (TMS)
https://www.tms.org/portal/ABOUT/About_TMS/Code_of_Conduct/portal/About/About_TMS/TMS_Code_of_Conduct.aspx?hkey=904518e7-67a7-4871-9347-044fc5255599

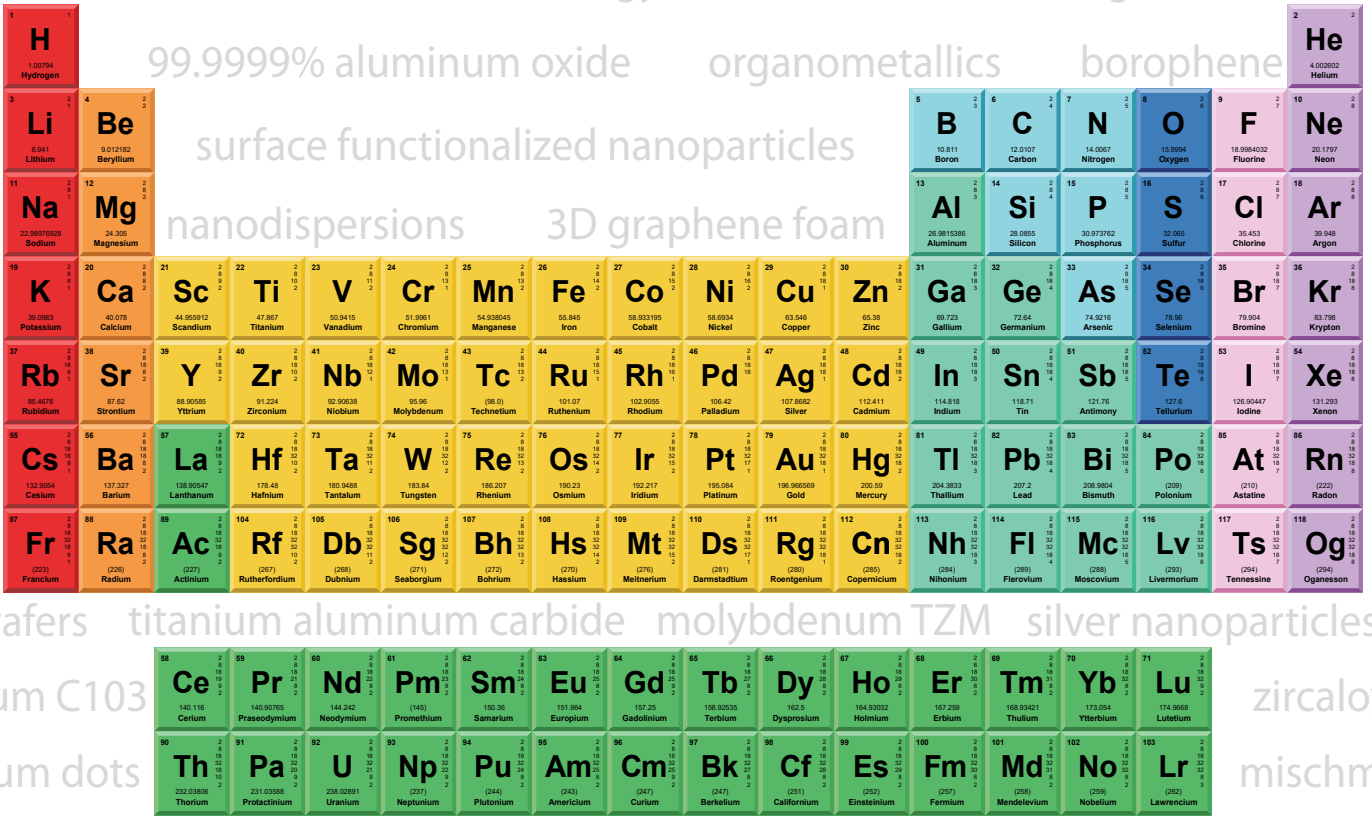
WHAT TO DO:

Anyone who witnesses or is subject to any form of harassment has two options:

1. Immediately notify any MS&T staff members located at the MS&T registration area, information booths, or at one of the Society lounges. These MS&T staff members will immediately contact the MS&T leadership who will respond to you as soon as possible.

2. If you are a member of ACerS, AIST, or TMS, please consult the above-referenced policies to determine to whom and how best to report an incident.

The MS&T partnership respects the organizational sovereignty and decision-making practices employed by each partner. Therefore, each partner, based on employment of its own internal due process, has the right to deny or revoke participation in the MS&T event and/or any of its activities by any individual or business.



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