

JOM THE MAGAZINE

JUNE 2025

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News and insights about TMS, its members, and the professions it serves

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154th Annual Meeting & Exhibition

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// ABOUT THE COVER



This month's cover features a collection of photos taken over the course of the week at the TMS 2025 Annual Meeting & Exhibition (TMS2025), held March 23–27 in Las Vegas, Nevada. Pictured are presenters, exhibitors, poster sessions, networking events, award recipients, and other highlights from this record-setting conference. You can read more about the events of TMS2025 starting on page 8. Cover designed by David Rasel, Senior Manager, Brand and Digital Assets.



Access Technical Journal Articles

TMS members receive free electronic access to the full library of TMS journals, including *JOM*. Technical articles published in *JOM: The Journal* are available on the Springer website. TMS members should log in at www.tms.org/Journals to ensure free access.

About JOM: The Magazine:

This print publication is excerpted from the publication of record, *JOM*, which includes both The Magazine and The Journal sections. *JOM: The Magazine* includes news and insights about TMS, its members, and the professions it serves. To access the publication of record, visit www.tms.org/JOM.

About TMS:

The Minerals, Metals & Materials Society (TMS) is a professional organization that encompasses the entire range of materials science and engineering, from minerals processing and primary metals production to basic research and the advanced applications of materials. Learn more at www.tms.org.

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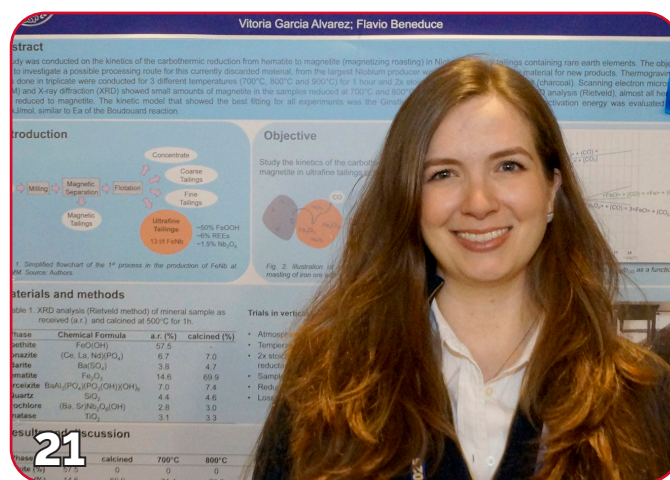
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IN THE FINAL ANALYSIS

"WELCOME"

—The biggest word on several very big signs at TMS2025

I write after returning from a successful TMS2025, where the Society set an attendance record with 4,711 attendees, exceeding by 30 the previous record from TMS2020. The dazzling MGM Grand complex features a marvelous and flexible convention center, and the TMS community brought energy and enthusiasm to every bit of it.

While good vibes abounded in our Las Vegas venue, I do concede that the event was not without several expressions of anxiety. Indeed, attendance at TMS2025 would have exceeded 4,800 except for many would-be participants from the U.S. government sector having to withdraw because of constraints on travel, cuts to funding, and do-I-still-have-a-job concerns. Inescapably, a throughline in many formal and informal discussions focused on bewildering changes in the government's support of the U.S. science and engineering enterprise. Many TMS members work for the U.S. government, work for government contractors, or perform research funded by the government. So, sensitivities ran high.

Perhaps the area that received the greatest amount of hallway and committee discussion concerned diversity, equity, and inclusion. This is a topic of great importance to TMS as it is the top goal in the Society's strategic plan: "TMS aspires to be a highly inclusive society where all materials students and professionals feel welcome, and diversity is celebrated." Just a single example of the effort: TMS2025 hosted the Fifth Summit on Diversity in the Minerals, Metals, and Materials Professions, which built on a decade of TMS work to cultivate an inclusive and diverse materials community and STEM pipeline. Since 2014, this event series has examined gender, race, LGBTQ+, and neurodivergence in science and engineering. TMS created this event to help the materials sector of the STEM community become more accessible, more inclusive, more diverse, more engaging, and more (here's the critical word) "welcoming."

As the Society celebrates a welcoming culture, many in the membership and leadership were concerned about orders from the U.S. President that view DEI initiatives as discriminatory and that mandate DEI's effective expungement from government offices and in organizations that receive government funding. That's a lot of organizations, TMS included. Federal dollars not only help TMS conduct science and technology accelerator studies and sponsor student participation in meetings, but they often enable members and volunteers to participate in TMS activities, from conference attendance to volunteer service. In one view, this effectively creates a sizeable crack in the Society, separating what it seeks to be as an advocate of DEI and what it pragmatically can do based on the reach of the Executive Orders.

For myself, I don't see a crack; I see a solid organization formed of a collegial, welcoming, and engaging culture. It is one where members of the materials community find a professional home that is free of discrimination and where no one is excluded because of who they are or who they are not. TMS does not have to invent this culture because the work of many volunteers and staff have empowered the Society to vividly manifest this culture daily.

No matter what orders may be issued, they can't unwind the significant progress that imbues TMS. Even if we adjust some terminology and program specifics, there is no stopping us from saying, "You are welcome here."



James J. Robinson
Executive Director



"Perhaps the area that received the greatest amount of hallway and committee discussion concerned diversity, equity, and inclusion."

JOM TECHNICAL TOPICS

JOM
THE MAGAZINE

Find peer-reviewed technical articles covering the full range of minerals, metals, and materials science and engineering in the June issue of *JOM: The Journal*. Each issue features several technical topics presenting a series of related articles compiled by guest editors. Below is a sample of articles that will appear in the June issue, based on information available at press time. TMS members can log in to www.tms.org/Journals for full access to technical articles from *JOM: The Journal* and additional TMS journals. For the most up-to-date article listing, visit www.tms.org/JOM.

// JUNE 2025

Accelerating Discovery for Mechanical Behavior of Materials

Editor: Daniel Gianola, University of California, Santa Barbara; Pania Newell, University of Utah

"Adaptive Fatigue-Based Process Windows for Ti-6Al-4V Laser Powder Bed Fusion Using Fused Data and Meta-Analysis," **Alexander R. Gonzalez**, et al.

"Accelerated Correlation of Microstructure–Mechanical Property Relationships in Laser Clad Steels," **Kevin M. Schmalbach**, et al.

"Effects of Solution Temperature on the Microstructural Evolution and Mechanical Properties of the GH4706 Alloy," **Chong Wang**, et al.

"Experimental Study of the Hydrogen Fracture Behavior of 30CrMo Steel and Simulation of Hydrogen Diffusion," **Yunrong Luo**, et al.

"High-Throughput Design of Micro-Alloyed Al-Mg-Si Alloys," **Junfeng Ye**, et al.

"Mechanical Properties and Constitutive Relation of Waste Fiber Geopolymer Recycled Aggregate Concrete," **Xingyi Chen**, et al.

Advanced Interconnect and Packaging Technologies

Editor: Fan-Yi Ouyang, National Tsing Hua University

Sponsor: Electronic Packaging and Interconnection Materials Committee

"Precise Morphology Tailoring of Through Glass Vias Perforated by Selective Laser-Induced Etching on Fused Silica," **Jingli Liu**, et al.

"Microstructural Investigation of Sn-Based Solder Reactions with FeCoNiCrMn High-Entropy Alloy at Various Temperatures," **Chao-hong Wang**, et al.

"The Rate-Dependent Shear Performance of Ni-Stabilized SAC/Cu Joints Under Isothermal Aging," **Quanzhen Li**, et al.

"Interfacial Characteristics and Wear Performance of Brazed Diamond Using Ni-Cr Amorphous Filler Alloy Reinforced with Gd," **Dong Xu**, et al.

"Dissolution Behavior of the Cu-2.0 wt% Be Alloy (Alloy 25) in Molten Sn, Sn-3.0 wt% Ag-0.5 wt% Cu, and Sn-58 wt% Bi Lead-free Solders," **Yee-wen Yen**, et al.

"Effect of Bi Addition on Melting Behavior, Solder Joint Strength, and Thermal Aging Resistance of Sn-3.5Ag/Cu Joints," **Yu-An Shen**, et al.

"Enhancing Reliability and Durability of Solder Joints Using a Novel Sn-Ag-Bi-Ni Alloy," **Wei-Ting Lin**, et al.

"A Review: Effect of Nanoparticle Additions on the Physical, Microstructural, Interfacial and Mechanical Properties of Low Temperature SnBi Solder Alloys," **Amare Singh**, et al.

Contribute Your Work

View the *JOM* Editorial Calendar to see upcoming topics and learn how to submit your own article for *JOM: The Journal*. Visit www.tms.org/EditorialCalendar

View More Technical Articles

JOM regularly publishes additional articles that fit within the scope of the journal, but not within the scope of a particular technical topic. Read these in the "Technical Articles" section of *JOM* on Springer.



Advancements in Thin Films and Tailored Surfaces: Breaking Barriers in Sensing and Biomaterials

Editors: Adele Carradò, Université de Strasbourg; Gérald Ferblantier, Université de Strasbourg; Karine Mouglin, IS2M, Mulhouse Materials Science Institute; Heinz Palkowski, TU Clausthal; Ravindra Nuggehalli, New Jersey Institute of Technology

Sponsor: Thin Films and Interfaces Committee

"AlO₂- Effects on Plasma Electrolytic Oxidation Coating of AZ61 Mg Alloy in KF-KOH Electrolyte," **Mengjiao Jin**, et al.

"Rheological Behavior of Fluid Within the Pore Space of Trabecular Bone," **Saida Benhmida**, et al.

"Exploring the Potential of ATUM-SEM for Enhanced Characterization of Human Trabecular Bone in Biomaterials Research," **Valeria Vistoso**, et al.

"Recent Advances in Titanium Nitride (TiN) Nanostructures and Thin Films for Bio-sensing Applications," **Ken William Ssenyimba**, et al.

"Numerical Modeling of Healthcare Materials," **Hervé Bulou**

"Polydopamine-based Surface Modifications for Tissue Engineering and Biosensing: from Understanding Chemistry to Diverse Applications," **Joya Nath**, et al.

Degradation Behavior of Biodegradable Metals for Medical Applications

Editors: Diego Mantovani, Laval University; Berit Zeller-Plumhoff, Helmholtz-Zentrum Hereon; Hyung-Seop (Chris) Han, Korea Institute of Science and Technology Center for Biomaterials

Sponsor: Thin Films and Interfaces Committee

"Modification of Pure Zinc Surface for Biomedical Applications: The Effect of Oxygen Plasma Immersion Ion Implantation on Tuning the Degradation Rate," **S. Gambaro**, et al.

"A Comparative Study of As-Cast Alloys of ZW21 with Varied Element Additions, Investigating Dry and Corrosive Wear in Body Fluid," **Kenza Djebbari**, et al.

"Corrosion Properties and Cytotoxicity of Hot-Extruded Mg-Zn-Y-Mn Biodegradable Alloys," **V.E. Bazhenov**, et al.

"Evaluating In-Vitro Corrosion Testing of ECAP-Processed Lean Magnesium Alloys: The Critical Role of Degradation Media Composition, Buffering, and Volume," **Sreenivas Raguraman**, et al.

"Development of Biodegradable Mg-Zn Alloys by Grain Refinement Through Extrusion," **GuangZhe Li**, et al.

"Effect of Extrusion Ratio on Mechanical and In Vitro Degradation Properties of Mg-Zn-Ca Microtubes for Biodegradable Vascular Stents," **Jaeseong Kim**, et al.

"Synergistic Effects of Magnesium and Zinc Ions on Neural Stem Cell Proliferation and Differentiation," **Hyewon Kim**, et al.

"Two-Month In Vitro Degradation of 3D-Printed Biodegradable FeMnC Alloys for Biomedical Applications," **Abdelhakim Cherqaoui**, et al.

"Innovative Stent Test Specimen by Additive Manufacturing for Reliable Mechanical Testing and Simulation," **Daniel Valdés**, et al.

"The Effect of Ca Addition on the Behavior of Bioresorbable Duplex Phase Mg-Li-Zn-Ca Alloys," **Sochima S. Ezenwajaku**, et al.

"Past, Present, and Future of Fe-Mg Bioresorbable Alloys for Medical Applications," **Rafael G. Estrada**, et al.

"Plasma Electrolytic Oxidation: A Versatile Tool to Modulate the Degradation of Biodegradable Metals in Medical Applications," **Matteo Pavarini**, et al.

"Bone Response to Biodegradable Metals and In Vitro Evaluation of the Cytocompatibility," **Edgar B. Montufar**

Mechanical Behavior of Structural Materials for Nuclear Applications

Editor: Ramprashad Prabhakaran, Pacific Northwest National Laboratory

Sponsor: Mechanical Behavior of Materials Committee

"New Characteristics and Bonding Mechanisms of the Directly Bonded W/Cu Plates," **Pengfei Zhang**, et al.

"The Effects of Severe Torsion on Microstructure, Texture, and Mechanical Properties of a Pure Nickel Rod," **Shijun Tan**, et al.

"Mechanical Characteristics of Additively Manufactured ODS 316L and 316H Alloys with and without Post-Build Processing," **Thak Sang Byun**, et al.

TMS MEMBER NEWS

Florian Kongoli Elected to European Academy of Sciences



Longtime TMS member **Florian Kongoli** was elected as a 2025 Fellow of the European Academy of Sciences (EURASC). New members are elected annually based on their scientific merits and contributions to science. The EURASC considers itself "the

house of scientific excellence and cutting edge fundamental and interdisciplinary science," that is committed to "promoting science and technology and their essential roles in fostering social and economic development."

Currently the chief executive officer at FLOGEN Technologies Inc. and chair of FLOGEN Star Outreach, Kongoli is also president of the organizing committee for the Sustainable Industrial Processing Summits (SIPS) and chief technology officer and board president of Atlantica Green Tech Corporation. In his nearly 25

years of scientific and applied technology experience, Kongoli has participated in about 200 projects across 45 countries, published 129 books and more than 200 scientific articles, and delivered more than 200 presentations. He is an honorary member of the Lorraine Academy of Sciences and a member of the Euro Mediterranean Academy of Arts and Sciences, and in 2022 was invited to present the Opening Sustainability Plenary Lecture at the United Nations International Year of Glass.

Kongoli joined TMS in 1997 and has been actively involved in several technical committees over the years. Notably, he served as chair of the Pyrometallurgy Committee and on the Extraction & Processing Division (EPD) Council. He is also a member of the Energy Committee, Hydrometallurgy and Electrometallurgy Committee, Materials Characterization Committee, Process Technology & Modeling Committee, and Recycling & Environmental Technologies Committee.

Taylor Sparks Takes on New Leadership Role



The University of Utah (The U) announced that TMS member **Taylor Sparks** has been appointed the Director of Graduate Affairs (DGA) in the John and Marcia Price College of Engineering. According to The U, the DGA role is intended to "enhance and strengthen graduate education and research

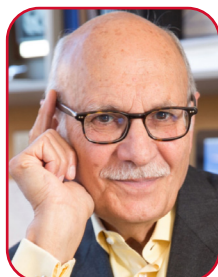
in the College, ensuring that graduate students and postdoctoral researchers have the resources, mentorship, and support needed to thrive." In addition to the new leadership position, Sparks will continue teaching materials science and engineering courses and working with his research group on the discovery, synthesis, and characterization of new energy materials.

As a TMS member since 2014, Sparks has been involved in the Phase Transformation Committee,

the Computational Materials Science & Engineering Committee, the Content Development and Dissemination Committee, and Public & Governmental Affairs Committee. He chaired the organizing committee for the inaugural World Congress on Artificial Intelligence in Materials and Manufacturing 2022, was a member of the Steering Committee for the TMS Specialty Congress 2024, and was an organizer and instructor for the TMS High Entropy Alloys 2024 online course. After several years on the Editorial Board for the TMS journal *Integrating Materials and Manufacturing Innovation (IMMI)*, Sparks stepped into the role of editor-in-chief in 2025.

On top of his professional and volunteer endeavors, Sparks shares his passion for materials science and engineering through his highly viewed YouTube channel, *TaylorSparks*, and as co-creator and co-host of the Materialism podcast.

Diran Apelian Named Director of Joint Materials Science Center of Excellence



TMS Fellow **Diran Apelian** has been appointed inaugural director of a new Center of Excellence for solidification science and materials science. The Center is a collaboration between the University of California, Irvine (UCI) and Pratt & Whitney, a leading aviation

propulsion systems company. It will be housed within

UCI's Henry Samueli School of Engineering and plans to offer hands-on experiences at Pratt & Whitney facilities for students and researchers alike. The goal of the new Center is to "focus on the metal and material processing challenges in the manufacturing of critical jet engine components, such as single-crystal turbine blades."

Apelian currently works as chief strategy officer for the Samueli School of Engineering and is a distinguished professor of materials science at

UCI. As a member of TMS since 1976, Apelian has served the Society at many levels in a variety of roles, from committee member and chair to journal editor to Public & Governmental Affairs Director and TMS President. In addition to Society Fellowship, Apelian has received the TMS Bruce Chalmers Award

and the TMS/ASM Joint Distinguished Lecturer in Materials and Society Award along with many other accolades. He is a member of the National Academy of Engineering, National Academy of Inventors, European Academy of Sciences, and Armenian Academy of Sciences.

In Memoriam

TMS offers its condolences to the colleagues, friends, and family of the following TMS members:

Christoph Beckermann passed away on April 9, 2025. A TMS Life Member, who joined the Society in 1989, Beckermann studied mechanical engineering at the University of Hannover before joining Purdue University in 1982 as a Fulbright scholar. After earning his MSME (1984) and PhD (1987) from Purdue University, he joined the University of Iowa as a faculty member in Mechanical Engineering, where he was named University of Iowa Foundation Distinguished Professor (2000). Over nearly four decades, he served as Director of the Solidification Laboratory. Beckermann contributed to TMS through membership on technical committees, as well as on TMS award committees. He was honored by TMS with the Nagy El-Kaddah Award for Best Paper in MHD in Material Processing in 2022 and the Bruce Chalmers Award in 2010.

Lee E. Hoffman passed away on October 12, 2024. A TMS member since 1979, Hoffman was active in the mining industry for more than 30 years. He earned a B.S. and M.S. in metallurgical engineering from the University of Nevada, Reno. After graduating, he joined the Bunker Hill Mining Company as a research metallurgist, working his way up to department superintendent and chief metallurgist. In 1981, he joined Carlin Gold (now Newmont Mining) and worked in a variety of roles until his retirement in 2013.

Frederick S. Pettit passed away on February 25, 2025. Pettit earned his B.S. at Yale University and began working at Westinghouse before spending time in the U.S. Marine Corp. He then returned to Yale to complete his Ph.D. before taking a postdoctoral position at the Max Planck Institute in Germany. Pettit spent some time in industry as a research scientist with Pratt & Whitney before beginning his career in academia with the University of Pittsburgh (Pitt). Pettit taught in the former Department of Metallurgical and Materials Engineering and served as the Harry S. Tack Chaired Professor of Materials Science from 1989 to 2006. After retiring from his post at Pitt, Pettit continued to teach at the University of Connecticut.

A TMS member since 1964, Pettit was involved in several committees and chaired the Program Committee and Publications Coordinating Committee. In 2004, the Tenth International Symposium on Superalloys recognized him by dedicating its proceedings volume to his work on high-performance, high-temperature materials as superalloys, intermetallics, composites, and coatings for use in advanced combustion systems. In 2007, Pettit received the TMS Application to Practice Award (now the Research to Industrial Practice Award).



Alan Ardell

Photo supplied by Mery Ponte.

"The TMS family has lost a great scientist, excellent teacher, father, grandfather, brother, and a true friend in **Alan Jay Ardell**, who passed away on August 2, 2024, at the age of 85. . . . Alan is widely recognized as a world leader in the field of microstructural evolution in alloys, known especially for his ability to bridge theory and experiment. Alan will also be remembered for his intellect, worldliness, and gentle sense of humor. His passion for classical and modern music on vinyl LP's, bridge, UCLA football and basketball, sweetbreads, fountain pens, and affogato will be remembered fondly by all who knew him."

Patrice Turchi, TMS member and past president, wrote these words in a May 2025 *JOM: The Magazine* tribute article, "Honoring Alan Ardell, a True TMS Member." Learn about Ardell's life and work, and read more touching memories shared by Turchi and other friends at www.tms.org/JOM/MagazineIssues or click on the QR code.



TMS2025: A RECORD- BREAKING MEETING

Kelly Zappas and
Megan Enright

THE WORLD COMES HERE.
TMS2025
 154th Annual Meeting & Exhibition



TMS2025 BY THE NUMBERS

ATTENDANCE



4,706

Total
Attendees



1,547

Student
Attendees*



57

Exhibiting
Companies



55

Countries
Represented

TECHNICAL PROGRAM



3,452

Oral
Presentations



674

Poster
Presentations



508

Sessions
Presented



127

Symposia
Presented

STUDENT EVENTS



136

TMS Technical Division
Student Poster Contest Entries



17

2025 TMS Materials Bowl
Student Teams

*Undergraduate and Graduate Students

With more than 4,700 attendees, the TMS 2025 Annual Meeting & Exhibition (TMS2025) was officially the best-attended installment in the conference's 154-year history. Held March 23–27 in the conference center of the MGM Grand Las Vegas Hotel & Casino, TMS2025 was also the first TMS annual meeting to be held in Las Vegas, Nevada, in 30 years.

A centerpiece of TMS2025 was its extensive technical program that consisted of more than 120 symposia—another TMS record—in ten technical tracks, complemented by a vibrant exhibit hall, interactive networking events, student activities, professional development workshops and courses, three co-located conferences, and more.

This June issue of *JOM: The Magazine* offers a closer look at some of the highlights of this year's meeting in a series of four articles that explore the overall conference, technical sessions, social and networking events, and poster competition winners. An extensive collection of photos from the meeting can be found at www.flickr.com/photos/tmsevents.

A VISIT TO THE TMS2025 EXHIBIT HALL



A total of 57 exhibiting companies displayed their products and services for three days at the TMS2025 Exhibit Hall, Monday, March 24, through Wednesday, March 26. The exhibit hall hosted two all-conference networking events—Monday evening's Exhibit Hall Opening Reception and Poster Session and Tuesday's Exhibit Hall Happy Hour and Poster Session. Both events brought attendees to the exhibit hall to talk with exhibitors, connect with other attendees, and view poster displays, while enjoying appetizers and drinks.

For information on how your company can participate as an exhibitor at the TMS 2026 Annual Meeting & Exhibition in San Diego, California, contact Gavin McAuliffe, TMS2026 Exhibit Manager, Corcoran Expositions, at gavin@corcexpo.com.

NEW FOR 2025: SUPPLIER TECHNOLOGY SESSIONS

To complement the displays in the exhibit hall, TMS introduced a new series of Supplier Technology sessions at TMS2025 that offered more commercially focused presentations on light metals topics.

Pictured below, left to right, are: **Jonathan Erman**, GHI Smart Furnaces, and **James Checkeye**, Bloom Engineering Co. Inc. These speakers opened the Aluminum Cast Shop Supplier Forum on Tuesday, March 25. Erman's talk, "Burners and Furnaces for Aluminum Recycling: Towards Zero Emissions," explored the technological evolution of aluminum recycling furnaces, from combustion furnaces to emerging technologies with a focus on advancing towards a sustainable, zero-emission future. Checkeye gave the presentation, "Decarbonization with Hydrogen Fuel Combustion," which investigated the viability of hydrogen as a carbon-free alternative fuel for industrial combustion.

Two additional sessions, Aluminum Alloys: Development and Manufacturing Supplier Forum and Electrode Technology for Aluminum Production Supplier Forum, were held concurrently with the Aluminum Cast Shop session. Attendees were invited to explore the exhibit hall after the sessions.



PROFESSIONAL DEVELOPMENT COURSES AND WORKSHOPS



Pictured left to right: Course participants at a TMS2025 professional development event; **Samuel Senanu**, SINTEF Industry, offers insights at the Cathode Lining for Aluminum Production course; **Joel Harley**, University of Florida, was one of three instructors at the Grain Growth Modeling in the Fast Lane course; and **Lawrence Cho**, Colorado School of Mines, instructs during the Materials for a Global Hydrogen Economy tutorial.

On Sunday, March 23, seven professional development workshops and courses were held in the morning and afternoon for TMS2025 attendees. This year, all professional development events were included in the cost of the TMS2025 registration fee, and courses filled up quickly. Workshops and courses included: Introduction to Carbon Capture in Primary

Aluminum Smelting; Cathode Lining for Aluminum Production; Standards in Additive Manufacturing; Grain Growth Modeling in the Fast Lane: Python, GPUs, and Machine Learning Approaches; Lead-Free Solders and Interconnect Workshop; Materials for a Global Hydrogen Economy; and Metal Additive Manufacturing Processes Workshop.

CO-LOCATED EVENTS AT TMS2025

Three conferences were co-located with TMS2025, allowing attendees full access to programming delivered at REWAS 2025; the Fifth Summit on Diversity in the Minerals, Metals, and Materials Professions (DMMM5); and the 5th Bauxite Residue Valorization and Best Practices Conference (BR2025).



REWAS 2025

"There is a need for an environmentally sustainable, cost effective, and efficient recycling process for LIBs (lithium-ion batteries)," said **Gisele Azimi**, University of Toronto, in a recorded version of her keynote presentation, "Recycling of Lithium-Ion Batteries Cathode Material Using Supercritical Fluid Extraction," to open the REWAS symposium on Sustainable End-of-Life Management and Recycling Solutions for Batteries, Wind Turbines, and Photovoltaics.

"Every year, over 11 million tons of copper go unrecovered . . . everyone in this field should work together to solve this problem," advised **Owais Waseem** (pictured, below), Aurubis Richmond, in his keynote presentation, "Advancing Circular Economy: Copper Recovery from E-Waste at Aurubis' New U.S. Facility."

The theme of REWAS 2025 was Circular Economy for the Energy Transition. Throughout the week, REWAS presented sessions on Automation and Digitalization in Recycling Processes and Sustainable Practices in Strategic and Critical Raw Materials, as well as joint sessions coordinated with TMS2025 symposia on Aluminum Primary Processing and Recycling and Sustainability in Cast Shop Technology.



DMMM5

Over the course of three days, DMMM5 built on ten years of work since the first iteration of the summit in 2014 with the symposium theme: A Decade of Creating Inclusion and Belonging for Diversity in the Minerals, Metals, and Materials Professions. DMMM5 featured four sessions on the following topics: A Decade of DMMM Impact, Physical & Cognitive Diversity, Taking Actions to Continue Progress, and Personal & Professional Development.

Keynote speaker **Frank Dobbin** (pictured, below), Harvard University, delivered the talk, "Which Faculty Diversity Programs Work? Evidence from 600 Colleges and Universities" during the first session. "The single best thing you can do to promote diversity is to implement a mentoring program," he advised. "They show you that there is someone who actually cares about your career."

Additionally, panel discussions were held on topics including shaping the future of STEM, perspectives on physical and cognitive disability needs in the workplace, inclusive professional environments, and career development and transitions.



BR2025

The Bauxite Residue Valorization and Best Practices conference, co-located for the first time with the TMS annual meeting, included sessions on Technologies for Valorization as Binder, Cement, and Geopolymer; Valorization from Policy, Zero-Emission, and Systemic Perspectives; and Recovery of Steel, Titania, and Rare Earths. **Glenn Beersaerts**, KU Leuven, opened BR2025 on Tuesday afternoon with his talk, "Processing Routes of Bauxite Residue and its Valorisation Potential: Various Case Studies Demonstrated at Pilot Scale."

On the following day, **Bengi Yagmurlu** (pictured, below), Technical University of Clausthal, gave the presentation, "Recovery of Titanium from Production Residues via Physical and Chemical Processing," where he discussed rising concerns about the availability and sustainability of titanium due to geopolitical conflict. He also covered how recycling has gained importance for securing the supply of this critical metal via the EURO-TITAN project. "We believe we will have a high impact on the titanium market at the end of our project," he concluded.



CLOSING THE LOOP ON CRITICAL MINERALS



Pictured left to right: **Emily Molstad**, CEO and co-founder of VALIS Insights, delivers the TMS2025 All-Conference Plenary talk, "From Finite to Infinite: Closing the Loop on Critical Minerals"; TMS President **Srin Chada** joins Molstad for a discussion following the presentation.

As demand for critical minerals increases, extraction of new materials won't be enough to meet demand, but a circular economy could help us get there. This was a central message of the TMS2025 plenary talk, "From Finite to Infinite: Closing the Loop on Critical Minerals," delivered by **Emily Molstad**, chief executive officer (CEO) and co-founder of VALIS Insights, on Tuesday, March 25. A circular economy maximizes the value of materials as they're moving through their life cycles and eliminates the loss of valuable materials by creating closed-loop strategies to recover them.

"I'm here talking to you today because a circular economy has not been achieved yet," she said, noting that advances in technology and innovation, establishment of key policies and partnerships, and a continued dedication to educating and empowering future generations are needed.

The first step, she said, is to reduce the pressure on supply by finding opportunities to reduce demand and to reuse existing products. Post-consumer material, which comes from products that are reaching their end of life, is expected to meet an increasingly higher percentage of demand. To capitalize on this, she said, we need to address core challenges that come with post-consumer recycling and develop novel processes to recover valuable materials.

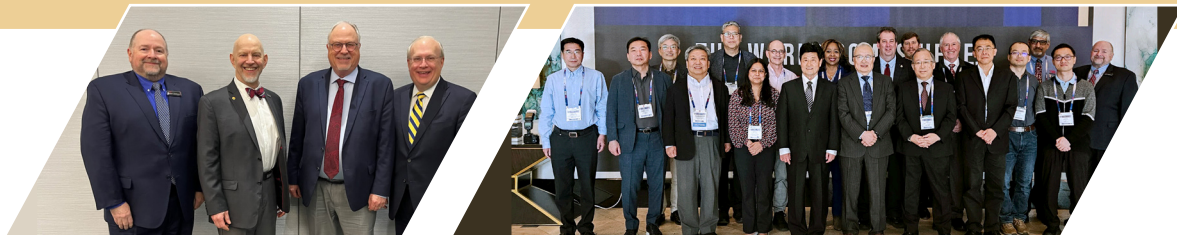
"Data and advanced data analytics have immense power to help recyclers optimize their process and extract the highest value that they can out of the equipment they've invested in," she said. "It also enables traceability of materials as they move through the end-of-life flow." This is where Valis comes in, Molstad said. The company develops software solutions and data tools specifically for recyclers.

Challenges persist when it comes to incentives for producers and consumers to fully engage in circularity, Molstad continued, but this can be addressed through policy and partnerships. "Partnerships facilitate important discussions between manufacturers and the ecosystem that is handling those materials at end of life," she said. "This not only facilitates how to handle post-consumer material and its inclusion in new products but also allows manufacturers to think more effectively about how they're designing for recyclability and how the alloys they're selecting are treated at end of life."

While technology, policy, and partnerships are important, they are only as effective as the workforce that drives them. "That is why education and empowering young leaders is essential," Molstad said.

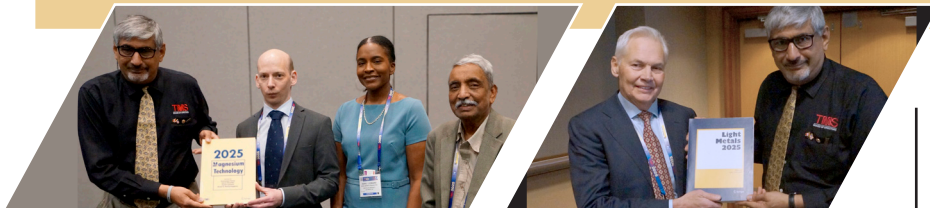
"Not only in critical materials but in all materials, it's imperative that we unlock that circularity in sustainable development because it will protect resources for generations to come," she concluded.

TMS LEADERS MEET WITH COLLABORATORS AT TMS2025



Leadership from TMS and the Society for Mining, Metallurgy & Exploration (SME) met to discuss future initiatives and cross-society collaboration. Pictured from left to right are TMS Executive Director, **James J. Robinson**; TMS Vice-President **Dan Miracle**; SME President, **Bill Hancock**; and SME Executive Director, **David L. Kanagy**. TMS leaders also met with representatives from the Chinese Society for Metals, the Japan Institute of Metals and Materials, the Korean Institute of Metals and Materials, and Materials Australia (shown in the group photo on the right) to discuss the 12th Pacific Rim International Conference on Advanced Materials and Processing (PRICM-12), which will be jointly sponsored by all five societies. PRICM-12 will be held August 9–13, 2026, in Gold Coast, Australia.

TMS2025 PROCEEDINGS



Pictured, from left to right: 2024 TMS President **Srini Chada** presents a copy of *Magnesium Technology 2025* to three of the volume's editors: **Domonkos Tolnai**, **Aeriel Leonard**, and **Neale R. Neelameggham**. Not pictured is **Aaron Palumbo**. Editor **Les Edwards** accepts a copy of *Light Metals 2025* from Chada at the Aluminum Committee meeting held during TMS2025.

Twelve TMS2025 conference proceedings volumes were published and made available for free online access to registrants. These volumes are also now available for purchase through the TMS Bookstore. TMS members receive a 40% discount on all TMS proceedings titles, as well as on all other TMS publications and products published by Springer. Log in to www.tms.org/Bookstore to access your discount code.

DAN MIRACLE TAKES OFFICE AS 2025 TMS PRESIDENT



Society leadership transfers from 2024 TMS President **Srini Chada** (right) to 2025 TMS President **Dan Miracle** during the TMS-AIME Awards Ceremony at TMS2025.



The 2025 TMS Board of Directors is pictured here. Front row from left to right are: **James J. Robinson**, **Alexis Lewis**, **Srini Chada**, **Viola L. Acoff**, and **Dan Miracle**. Middle row from left to right are: **Randy Beals**, **Clarissa Yablinsky**, **Carelyn Campbell**, **Elsa Olivetti**, **Saryu Fensin**, and **Jonathan Madison**. Back row from left to right are: **Jenifer Locke**, **Michael Titus**, **Robert Maass**, and **Kester Clarke**.

At each year's TMS Annual Meeting, leadership transitions take place on the TMS Board of Directors, and the Society's new president is installed. Both the incoming and outgoing presidents addressed the membership during the TMS-AIME Awards Ceremony on Wednesday evening, March 26.

"As I complete my term as President of my 'home society,' I feel satisfied and humbled, and yet somewhat unfulfilled as several new initiatives that started in the last couple of years take time to launch and need to be fostered while keeping sound cadence with our ethos," said 2024 TMS President **Srini Chada** of General Dynamics Mission Systems. "On the other hand," he continued, "I feel excited for what the future has to offer with Dr. Dan Miracle and Dr. Viola Acoff as the next President and Vice-President. I will support them and the future leaders of TMS as I continue volunteering to sustain TMS's success."

Chada then passed leadership of the Society to **Dan Miracle**, U.S. Air Force Research Laboratory, who will serve as 2025 TMS President.

"More than any other professional society that I've had the pleasure to work with, TMS exemplifies the ideal of a vibrant, empowered, grass-roots organization," Miracle said during his introductory speech. "I've drawn a great deal of knowledge, developed effective professional skills, and built many lasting friendships, since my first meeting 45 years ago. I move into my new position as president with a deep sense of honor, sincere humility, and a strong desire to do good things for TMS and our profession."

The change in leadership also included **Viola L. Acoff**, University of Mississippi, moving into the role of 2025 TMS Vice President. Acoff will serve as president in 2026 and will take office at the TMS 2026 Annual Meeting & Exhibition, to be held March 15–19 in San Diego, California.

INSIDE THE TMS2025 SESSION ROOMS

Kelly Zappas, Megan Enright,
and Jillian Schultz

THE WORLD COMES HERE.
TMS2025
154th Annual Meeting & Exhibition



More than 3,400 oral presentations were delivered at 127 symposia during the TMS 2025 Annual Meeting & Exhibition (TMS2025), March 23–27, in Las Vegas, Nevada. Included in these were keynote sessions on topics like additive manufacturing and light metals, symposia honoring distinguished members of the community, and award lectures delivered by leaders in the field. The following pages offer a look at a selection of these sessions.

LIGHT METALS KEYNOTE SESSION



Light Metals programming at TMS2025 opened with a keynote session centered on the topic, **Growing Pains: Advancing Aluminum Recycling, Decarbonization, and Circular Innovations**. The event, sponsored by Springer Nature, featured three invited speakers (from left to right): **Abdulaziz Sarhan**, Emirates Global Aluminium (EGA); **Christian Schmidt**, Hydro; and **Michael Hamm**, Constellium.

Sarhan discussed construction of a new recycling facility next to an existing EGA smelter, a project that is aligned with the United Arab Emirates 2050 net zero greenhouse gas emissions strategic initiative.

Schmidt described how Hydro is working to meet its commitment to a 30% reduction in carbon emissions by 2030, offering insight into the challenges and opportunities of scaling up recycled content while maintaining quality and performance.

Hamm talked specifically about beverage can recycling and the unique challenges of incentivizing Americans to recycle, particularly in areas where curbside recycling is not available. "We don't have enough scrap for what we're already doing today," he said. "By 2028 we're going to be short in meeting production demand."

Following the presentations, session organizer **Samuel Wagstaff** (pictured, below), Oculatus Consulting, led a panel discussion with the three speakers. Discussion topics included opportunities for aluminum recyclers and producers to work together to improve the recycling process, as well as potential recycling opportunities beyond extrusions and used beverage cans.



MAGNESIUM TECHNOLOGY KEYNOTE TALKS



Magnesium's biodegradability and biocompatibility make it a promising choice for implant materials. **Berit Zeller-Plumhoff**

(pictured), Helmholtz-Zentrum Hereon, explored methods to study and build computational models of magnesium alloys for these applications in her talk, "Computational Modelling of Mg Alloy Biodegradation and Bone Growth." Her presentation was the opening keynote for the **Magnesium Technology 2025** symposium, which consisted of eight sessions over the course of four days at TMS2025. The symposium was dedicated to the memory of **Bob Brown**, who symposium organizer **Neale R. Neelameggham**, IND LLC, described as "a great friend to the worldwide magnesium production industry" in his introductory remarks. "Bob was a true pioneer in his field," added **Randy Beals**, Magna Inc. "He mentored a lot of us along the way." The following keynote speakers also gave talks at the start of sessions: **Kristián Máthi**s, Nuclear Physics Institute of the CAS and Charles University; **Adam Griebel**, Fort Wayne Metals; and **Gerardo Garces**, CENIM-CSIC.

ADDITIVE MANUFACTURING KEYNOTE SESSION



Brandon Ribic (pictured, left), America Makes, opened the **Additive Manufacturing Keynote** session with a talk on the America Makes program, a U.S. Department of Defense (DoD)-sponsored manufacturing innovation institute that conducts collaborative research. "We maintain regular conversations with those in the value stream, and we come to events like this to disseminate that information into the supply chain," he said in his talk, "America Makes Accelerating AM Technology Maturation and Integration." Following Ribic were presenters **Tim Horn**, North Carolina State University; **Jian Cao**, Northwestern University; **Youping Gao**, Castheon Inc.; and **Atieh Moridi** (pictured, right), Cornell University. Moridi was presented with the TMS Young Innovator in the Materials Science of Additive Manufacturing Award before giving her talk, "Unlocking the Hidden Potential of Additive Manufacturing: Microstructure Control and Material Innovation."

HONORARY SYMPOSIA



The **Recent Advances in Titanium Science and Technology** symposium was organized to celebrate **Dipankar Banerjee's** 70th birthday, as well as his seminal contributions and profound impact on the field of titanium physical metallurgy. **James Williams** opened the symposium by reflecting on his long-standing relationship with Banerjee, starting from when he first mentored him at Carnegie Mellon University nearly fifty years ago. Williams discussed their collaboration on groundbreaking research in titanium metallurgy, highlighting their shared efforts to solve key challenges in understanding titanium's properties. Banerjee was one of six individuals honored with a symposium at TMS2025. Also honored at the conference were: **David Bourell** for a career in powder processing and additive manufacturing; **Diana Farkas** for her work in atomistic simulations linked to experiments to understand mechanical behavior; **Fiona Doyle** for her work in benign processing and remediation; **Rainer Schmid-Fetzer** for work in thermodynamics and phase diagrams applied to materials design and processing; and **Anthony Rollett** for contributions to microstructural evolution and material properties due to manufacturing processes. Pictured above, from left to right, are: Banerjee, Williams, Bourell, Doyle, and Rollett.

ACTA MATERIALIA SYMPOSIUM



The TMS2025 Acta Materialia Symposium honored three TMS members with prestigious Acta Materialia Awards. The following individuals delivered talks at the symposium (pictured, from left to right):

- Acta Materialia Gold Medal Lecturer: **Marc Meyers**, University of California, San Diego
- Acta Materialia Silver Medal Lecturer: **Corinne Packard**, University of Southern California
- Acta Materialia Hollomon Award for Materials and Society: **Richard Spontak**, North Carolina State University

NIX AWARD SYMPOSIUM



At the Nix Award and Lecture Symposium VI, **Terence Langdon** (pictured), University of Southampton, delivered the keynote presentation,

"Investigations of Flow Mechanisms in Crystalline Solids with an Emphasis on the Role of Grain Size." Langdon was the recipient of the 2025 William D. Nix Award from TMS for his classical contributions to deformation mechanisms at high temperatures including creep and superplasticity. The following featured presenters spoke after Langdon: **Yuntian Zhu**, City University of Hong Kong; **Megumi Kawasaki**, Oregon State University; **Praveen Kumar**, Indian Institute of Science; and **Jae-il Jang**, Hanyang University.

MORE AWARD LECTURES FROM TMS2025



Pictured, from left to right, are **Adam Powell**, Worcester Polytechnic Institute, presenting the Extraction & Processing Division Distinguished Lecture, "Energy-Intensive Metal Processing in the Age of Low-Cost Intermittent Renewables"; **Gary**

Was, University of Michigan, giving the Institute of Metals/Robert Franklin Mehl Award Lecture, "Answering the Challenge to Rapid Qualification of Core Materials for Advanced Reactor Designs"; and **Long Qing Chen**, The Pennsylvania State University, delivering the William Hume-Rothery Award Lecture, "Thermodynamic Basis for the Phase-Field Method of Microstructure Stability and Evolution."

FRONTIERS OF MATERIALS AWARDS SYMPOSIUM



The **Frontiers of Materials Award Symposium** is organized by individuals selected through TMS's Frontiers of Materials awards program. This competitive award is given to top-

performing early-career professionals. The honoree then organizes a symposium on a hot or emergent technical topic and delivers a keynote lecture during the symposium. This year's recipient, **Ling Li** (pictured), University of Pennsylvania, organized the

Manufacturing Structural and Functional Materials with Complexity: Lessons from Nature symposium. He delivered the keynote presentation entitled, "Biomaterialized Structures with Porosity: Structure, Mechanics, Multifunctionality, and Formation Mechanisms," to open the session. "It seems like cuttlefish know some mechanical engineering," he joked while discussing examples of how organisms design and synthesize structural materials for their survival and how researchers can utilize what they learn from these creatures and apply it in their work.

THE BLADESMITHING 2025 SYMPOSIUM



With no foundry and a condensed timeline, "we decided to make [our blade] as simple as possible, but also with a little bit of character to it," said **Brock**

Nowak (pictured), Queen's University, about his team's entry in the 2024 TMS Bladesmithing Competition. Nowak delivered his talk at the **Bladesmithing 2025 Symposium**, which offered current and former student teams a chance to share findings and experiences participating in the TMS Bladesmithing program.

Nowak's talk, "Hammering Together a Bladesmithing Team from Basics," provided an overview into the team's process and challenges in forging a blade for the competition and the lessons they learned along the way. "We finished 14th at the competition last year, which was a great result for us considering . . . [we had] zero experience going into this," he said. Nowak's was one of eight presentations at the symposium, which also looked at topics such as forging high entropy alloys and comparing wootz steel production methods. The next Bladesmithing Competition will be held at the TMS 2026 Annual Meeting & Exhibition in San Diego, California. You can register your team by November 3 at www.tms.org/Bladesmithing.

MAJOR FAULTS IN ALUMINUM SMELTING PROCESS PANEL



The Aluminum Reduction Technology and Electrode Technology symposia held a special joint session, **Major Faults in Aluminum Smelting Process: Causes, Consequences, and Solutions**, which featured five presentations from speakers working in industry and two panel discussion sessions, where speakers engaged with the audience on relevant topics. Pictured, from left to right, are: **Robert Higginson**, SCCR Group; moderator **Pascal Lavoie**, Alcoa; **Matthias Dechent**, Trimet Aluminium SE; and **Trond Eirik Jentoftsen**, Hydro Aluminium. Not pictured are panelists **Daniel Champagne**, Hatch Ltd., and **Brian Zukas**, Alcoa.

PRESENT YOUR WORK AT TMS2026 IN SAN DIEGO



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TMS2026
155th Annual Meeting & Exhibition

Plans are now underway for the TMS 2026 Annual Meeting & Exhibition (TMS2026), which will be held at the San Diego Convention Center and Hilton San Diego Bayfront hotel in San Diego, California, March 15–19.

Abstracts are now being accepted for the TMS2026 conference. Visit the Programming tab at www.tms.org/TMS2026 to view a complete listing of topic tracks and symposia plans, and submit your abstract by July 1, 2025.

NETWORKING EVENTS AT TMS2025

Megan Enright, Kelly Zappas,
and Jillian Schultz

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Opportunities to meet collaborators, build professional networks, and talk with people from different areas of technical expertise are among the many reasons attendees cite for coming back to the TMS Annual Meeting & Exhibition year after year. These pages provide a look at the networking events held at the TMS 2025 Annual Meeting & Exhibition (TMS2025), March 23–27, in Las Vegas, Nevada.

TMS-AIME AWARDS CEREMONY



Pictured, from left to right, are 2024 TMS President **Srini Chada** and 2025 TMS Fellows **Judy Schneider**, **Robert Hyers**, and **Ursula Kattner**.

"For over 20 years, TMS has been my professional home, shaping my academic journey and providing a platform to mentor the next generation," said **Judy Schneider**, University of Alabama, who was one of seven members inducted to the 2025 Class of TMS Fellows at the TMS-AIME Awards Ceremony on Wednesday, March 26. "Bringing students to these meetings has been my way of paying forward the profound impact TMS has had on my life," Schneider continued.

The TMS Fellow Award is the highest honor the Society bestows, and many awardees recognize the community support needed to achieve it.

Robert Hyers, Worcester Polytechnic Institute, another member of the 2025 class of TMS Fellows, accepted his award by thanking the people who helped him get to this stage in his career. "TMS Fellow is an individual recognition of group accomplishments," he said.

As she accepted her 2025 TMS Fellow award, **Ursula Kattner**, National Institute of Science and Technology, said, "Awards don't come without the people who appreciate your work and take the effort to nominate you."

Award recognition, like everything else at TMS, originates with the Society's volunteer members. As 2024 TMS President **Srini Chada** noted in his introductory remarks, "TMS is a bottom-up organization, and we thrive because of the people we have in our ranks." In total, more than 60 TMS members at all levels of their careers were recognized, from students and early-career professionals to mid-career standouts and long-term achievers. Awards were presented by TMS; the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME); and Acta Materialia. A recording of the full ceremony can be viewed at www.youtube.com/ChannelTMS.

2025 TMS MATERIALS BOWL



The University of Florida's Rudy-Mentary Elements team took first place in the TMS Materials Bowl on Sunday, March 23. North Carolina State University's Atomic Pack came in second in the materials-themed knowledge and trivia contest. A total of seventeen teams competed in the first round of this year's event, with five teams advancing to the final round, including The Ohio State University, Texas A&M University, and the University of Tennessee, Knoxville. Members of Florida's winning team (pictured, from left to right) were **Alexander Johnstone**, **Adriana LaVopa**, **Morgan Congdon**, and **Brooke Lastinger**. The Florida team attributed their success to "lots of practice," including weekly practice sessions in the months leading up to the competition.

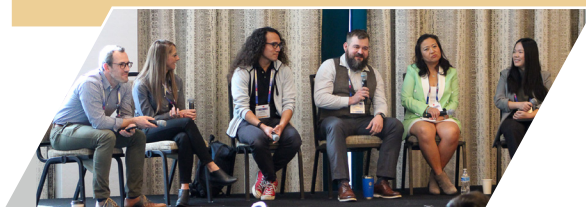
CELEBRATING A DECADE OF SUSTAINABLE METALLURGY ADVANCES



"I don't know where the time has gone," said **Diran Apelian** (pictured, left), University of California, Irvine, and moderator for the **Journal of Sustainable Metallurgy Luncheon and Lecture: Celebrating a Decade of Advances in Sustainable Metallurgy**, which was sponsored by Rio Tinto in honor of the 10th anniversary of the *Journal of Sustainable Metallurgy*. "At the beginning, the journal was much thinner than it is now," he said in his opening comments, reflecting on how the journal has expanded in the years since its introduction.

"I've worked in the steel sector for the past 35 years, and I've never seen the pace of change that we are seeing now. . . . It's very exciting," said featured speaker, **Claire Davis** (pictured, center), University of Warwick, who discussed "Sustainable Steel: Reuse, Remanufacturing, and Recycling." **David Dreisinger** (pictured, right), University of British Columbia, also gave a presentation entitled, "Sustainability in the Metals Sector," during which he noted that "the story of sustainability is one that's inevitable for our society. . . . Innovations towards sustainability are a journey well worth taking." Following their presentations, both speakers joined Apelian for a panel discussion and answered audience questions.

CHARTING BOLD FUTURES: A PANEL DISCUSSION



"I can't tell you how excited I am to go to work every day. I wouldn't change a thing about what I do," said **Brittany Luciew**, RHI Magnesita, at **Charting Bold Futures: A Panel Discussion About Careers in the Materials Science Industry**. This session, sponsored by the TMS Emerging Professionals Committee, was for early-career professionals and graduate students interested in careers in industry. Panelists shared their backgrounds and provided insights on navigating career paths, developing crucial skills, and addressing industry challenges.

"I've always been told that there's no research in industry, and that's just not the case," **Lu Huang**, General Motors, stated while discussing how, in industry positions, cutting-edge research is common, especially with collaborators at national laboratories or in academia. She also encouraged attendees to reach out and ask for assistance. "You'll be surprised how much people are willing to help."

While providing insight on how he steered his career path, **Gordon Alanko**, ATI, noted, "I feel fulfilled when I work on things that make a difference or things that no one has ever done before."

Pictured above, from left to right, are: **Ben Adam** (moderator), Oregon State University, and panelists **Luciew**; **Evander Ramos**, California Nanotechnologies; **Alanko**; **Eliana Fu**, TRUMPF, Inc.; and **Huang**.

EMERGING PROFESSIONALS TUTORIAL LUNCHEON



The **Emerging Professionals Tutorial Lecture and Luncheon** featured three speakers as recipients of the Early Career Faculty Fellow Award, who provided attendees with background on themselves and their career paths, while offering advice and words of wisdom. "A good mentor is someone who has the same values [as you], not necessarily the same pathway. . . . No one is like you," said 2025 recipient **Marie Charpagne** (pictured, left), University of Illinois, Urbana-Champaign, in her talk "Pathways to Finding Your Own Driving Force as a Materials Scientist." **Aerial Murphy-Leonard** (pictured, center), The Ohio State University, another 2025 recipient, delivered the presentation "Exploring the

Impact of Complex Metallic Alloys on Enhancing Fatigue Resistance and Education Opportunities in Marginalized Communities," where she encouraged attendees to "take advantage of every opportunity, especially those that speak to your purpose and passion." She also advised not to give up on things that you are passionate about easily: "If someone is telling you no, you are talking to the wrong person." In addition, 2024 Early Career Faculty Fellow Award recipient **Diletta Giuntini** (pictured, right), Eindhoven University of Technology, gave a talk entitled "Merging Fields and Perspectives: Multidisciplinary and Internationalization in Materials Science."

TMS MENTORING AND COMMITTEE OPPORTUNITIES



Participants in the new TMS Mentoring Program and other interested attendees gathered on Monday afternoon, March 24, to network and learn more about TMS and its volunteer opportunities at **Like Peanut Butter and Jelly: TMS Mentoring and Committee Opportunities**, a new event at TMS2025. "Volunteers are the ones that make up this organization," said 2024 TMS President **Srinivas Chada** in his opening remarks. "Get involved in any way you can." Attendees were given a brief overview of the structure of TMS and its committees and learned more about the **TMS Mentoring Program**, which pairs early-career professionals and graduate students with more experienced TMS members. (More information about the program can be found at www.tms.org/MentorProgram.) Following these presentations, participants gathered at tables with representatives from TMS technical and functional committees to learn more about how to get involved with their work. Among the attendees at this session were current mentors and mentees, who took the opportunity to meet in person and discuss future plans.

TMS DIVISION LUNCHEONS

Three technical division luncheons were held throughout the week at TMS2025, offering the opportunity for divisions to recognize award recipients and hear from invited speakers. Each of the five TMS technical divisions—Extraction & Processing Division (EPD), Functional Materials Division (FMD), Light Metals Division (LMD), Materials Processing & Manufacturing Division (MPMD), and Structural Materials Division (SMD)—were represented at these luncheons.

EPD/MPMD LUNCHEON



Pictured, from left to right are: **Zhigang Fang** of the University of Utah delivering his presentation, "Metallothermic Reduction of Reactive Metals—Seeking Alternative Reactive Pathways Toward Sustainable Metallurgy;" **Jocelyn Hess**, University of Tennessee, accepting the 2025 MPMD Scholarship; and **Sakiko Kawanishi**, Kyoto University, accepting the 2025 EPD/LMD *Journal of Sustainable Metallurgy* Best Paper Award.

LMD LUNCHEON



Pictured, from left to right, are **Catrina Rorke** of the Climate Leadership Council, delivering her presentation, "Emerging Pressures on Emissions Accounting: Consumer Preferences, Emergent Regulations, and Novel Trade Measure," and **Amilton Barbosa Botelho, Jr.** Massachusetts Institute of Technology, accepting the 2025 LMD/EPD Subject Award – Recycling.

SMD/FMD LUNCHEON



The 2024 FMD and SMD Young Leader Professional Development Award recipients gave short talks that covered their areas of research and expertise at the SMD/FMD Luncheon. From left to right are: FMD representatives **Ling Li**, University of Pennsylvania; **Steven Naleway**, University of Utah; and **Changhong Cao**, McGill University. **Anne Campbell**, Oak Ridge National Laboratory, and **Grace Gu**, University of California, Berkeley, represented SMD.

NETWORKING RECEPTIONS

WELCOME RECEPTION



Elvis stopped by to visit with attendees during the all-attendee Welcome Reception held on Sunday night to start the meeting.

EXHIBIT RECEPTIONS



All attendees were invited to the TMS2025 Exhibit Hall for socializing with exhibitors and poster presenters during the Exhibit Opening Reception and the Exhibit Hall Happy Hour.

TMS FOUNDATION DONOR DINNER

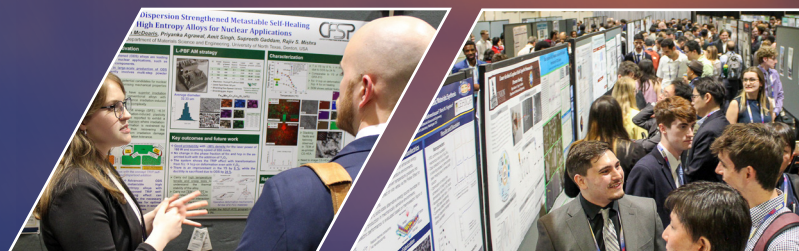
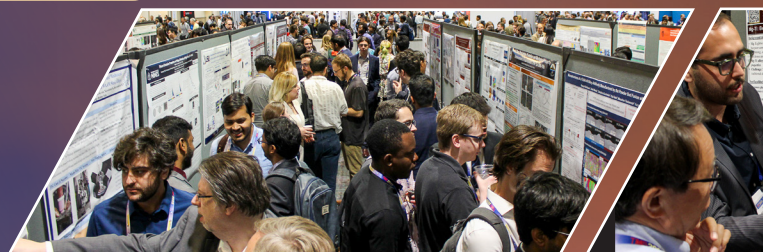
Members of the TMS Foundation's Honoric Giving Societies gathered for a special TMS Foundation Donor Appreciation Dinner at the Eiffel Tower Restaurant in the Paris hotel in Las Vegas.



PRESENTING BEST POSTER AWARDS FROM TMS2025

Kaitlin Calva

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 154th Annual Meeting & Exhibition



Undergraduate and graduate students were recognized at the TMS 2025 Annual Meeting & Exhibition (TMS2025), held March 23–27, in Las Vegas, Nevada, for their excellent work in the 2025 Technical Division Student Poster Competition. Additionally, several symposia recognized quality work for posters presented within specific sessions held during TMS2025, while the Materials Characterization Committee and Magnesium Committee gave out awards for posters presented during the preceding year's annual meeting.

Congratulations to all the award recipients, who are featured in the following pages.

TMS2025 POSTER SESSIONS

Two poster sessions were held at TMS2025 in conjunction with networking events in the TMS2025 Exhibit Hall: the **Exhibit Opening Reception and Poster Session** on Monday, March 24, and the **Exhibit Hall Happy Hour and Poster Session** on Tuesday, March 25. These events featured two different sets of poster displays, which corresponded to TMS2025 programming technical tracks. Monday's session included posters on electronic, magnetic, and energy materials; materials degradation and degradation by design; materials synthesis and processing; mechanics of materials; and nuclear materials. Tuesday's poster session featured work related to additive manufacturing, advanced characterization methods; biomaterials; data-driven and computational materials design; and light metals.

TECHNICAL DIVISION STUDENT POSTER CONTEST WINNERS

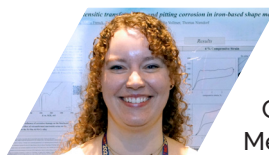
EXTRACTION & PROCESSING DIVISION (EPD)



Graduate: "Study on the Kinetics of Magnetizing Roasting of Niobium Mineral Tailings Containing Rare Earth Elements"

Vitoria Garcia Alvarez, CBMM, University of Sao Paulo

FUNCTIONAL MATERIALS DIVISION (FMD)



Graduate: "Interrelationship of Stress-Induced Martensitic Transformation and Pitting Corrosion in Iron-Based Shape Memory Alloys"

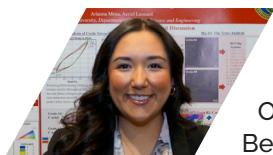
Johanna Frenck, University of Kassel



Undergraduate: "Investigation of Sintering Conditions for Optimization of High Entropy Garnet Ceramics"

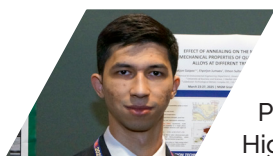
Marlena Alexander, University of Tennessee, Knoxville

LIGHT METALS DIVISION (LMD)



Graduate: "The Role of Interfaces and Crystallographic Grain Orientation on Cyclic Stress Strain Behavior of Magnesium Alloys"
Arianna Mena, The Ohio State University

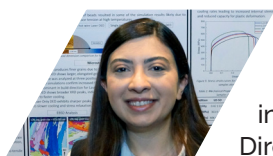
University



Undergraduate: "Effect of Annealing on the Microstructure and Mechanical Properties of Quaternary High-Entropy Alloys at Different Treatment Durations"

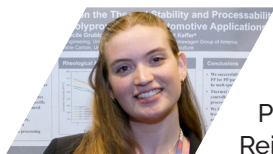
Rakhmatjon Gaipov, University of Cincinnati; University of Business and Science

MATERIALS PROCESSING & MANUFACTURING DIVISION (MPMD)



Graduate: "Comparative Analysis of Mechanical Properties and Microstructures in Hot and Cold Wire Laser-Directed Energy Deposition of Stainless Steel 316"

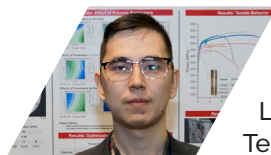
Nahal Ghanadi, Oregon State University



Undergraduate: "Exploring Effects of Additives on the Thermal Stability and Processability of Paper Fiber Reinforced Polypropylene for Automotive Applications"

Jocelyn Hess, University of Tennessee, Knoxville

STRUCTURAL MATERIALS DIVISION (SMD)



Graduate: "Exploration of Process-Microstructure-Property Relationships in Laser-DED Manufactured High-Temperature FeCrAl Alloy for Nuclear ATF"

Salikh Omarov, Iowa State University



Undergraduate: "High Entropy Lead-Free, Free Machining Brass with Calcium"
Julien Luu, Harvey Mudd College

OPPORTUNITIES FOR STUDENTS AT TMS2026

Each year, the TMS Annual Meeting & Exhibition hosts a number of events for graduate and undergraduate students to gather valuable career advice, engage in friendly competition, and network with peers and professionals. The 2026 meeting in San Diego, California, will feature the TMS Bladesmithing Competition, the TMS Technical Division Student Poster Contest, the TMS Materials Bowl, and more. In the coming months, more information on how to participate in these and other activities will be available through the TMS 2026 Annual Meeting & Exhibition website at www.tms.org/TMS2026.

SEE MORE OF TMS2025 ON FLICKR

Hundreds of photos from the TMS 2025 Annual Meeting & Exhibition events are now available to view on Flickr. Visit www.flickr.com/photos/tmsevents to browse photo albums and search for photos of yourself and your colleagues.

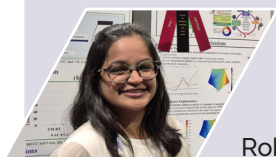
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SPECIAL SYMPOSIA AND SESSION POSTER AWARDS

The following individuals were recognized for their work presented as part of special symposia or a specific session at TMS2025.

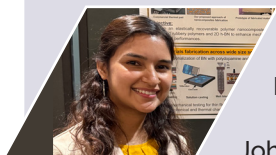
REWAS 2025: EPD/LMD RECYCLING AND ENVIRONMENTAL TECHNOLOGIES BEST POSTER



"Supply Risk Aware Alloy Discovery and Design – A Case Study on MoNbTiVW System"

Mrinalini Mulukutla (pictured), Robert Robinson, Brent Vela, Danial Khatamsaz, Nhu Vi, and Raymundo Arroyave, Texas A&M University

PHASE STABILITY, PHASE TRANSFORMATIONS, AND REACTIVE PHASE FORMATION SYMPOSIUM AND ELECTRONIC PACKAGING AND INTERCONNECTION MATERIALS II JOINT SYMPOSIUM STUDENT POSTER COMPETITION



First Place: "Designing Mechanically Resilient Thermal Interface Materials"

Geeta Pokhrel (pictured) and John Howarter, Purdue University; and Chelsea Davis, University of Delaware, Newark



Second Place: "Orientation Effects on the Electrically Induced Phase Transformation in Zirconia"

Muhammad Waseem Ashraf (pictured) and Eric Homer, Brigham Young University



Third Place: "Interconnect-Based Sensor Array for Characterizing Thermal Management of IC Chips"

Graham Werner (pictured), Oliver Trzcinski, and Ping-Chuan Wang, SUNY New Paltz; and Weili Cui, Binghamton University

Kaitlin Calva is an independent contributor and a former editor of *JOM: The Magazine*.

BIOLOGICAL MATERIALS SCIENCE SYMPOSIUM STUDENT POSTER COMPETITION

First Place: "Survive the Cold: On the Thermal Protective Roles of the Hairy Trichomes From the Common Mullein Leafs"

Yang Geng, University of Pennsylvania

Second Place: "Characterization of Microstructures in Metastatic Bone Lesions Using Atomic Force Microscopy Nanomechanical Testing"

Hanwen Fan, Texas A&M University

Third Place: "Understanding and Modifying the Microstructure of Fungi for Tunable Mechanical Properties"

Atul Agrawal, University of Utah

EPD MATERIALS CHARACTERIZATION BEST POSTER AWARD

This award recognizes the individual excellence of a poster within the Materials Characterization subject area presented in the preceding year in an EPD-sponsored session at the annual meeting. The 2024 award was presented at the Materials Characterization Committee meeting on Sunday, March 23, 2025, at TMS2025.

First Place: "Mapping Mechanical Properties to Composition for TiAlNb and TiNiNb Alloys"

Colton Basar, Shuhan Zhang, Salena Huang, Jan Schroers, Udo Schwarz, and Amit Datye, Yale University

LMD MAGNESIUM TECHNOLOGY AWARD – BEST POSTER

This award recognizes the best contributions to the poster session of the TMS Magnesium Technology Symposium for research/development work by an individual or research group. The 2024 award was presented during the Magnesium Technology 2025: Computational Methods Session held on Monday, March 24, 2025, at TMS2025.

First Place: "A Reduced Order Model of Magnesium Distillation"

Artem Iurkovskyi, Adam C. Powell, and Daniel McArthur Sehar, Worcester Polytechnic Institute; and Amy Telgerafchi, NextEra Energy Resources

TMS MEETING HEADLINES

Meeting information is current as of April 1, 2025. For the most recent updates on TMS-sponsored events, visit www.tms.org/Meetings.

TMS Fall Meeting 2025 at Materials Science & Technology (MS&T25)



September 28–
October 1, 2025
Columbus, Ohio, USA

Register Now

TMS presents robust programming, networking and social activities, and professional development events tailored to its members' interests within the broader structure of the MS&T conference series, giving members an opportunity to experience both their TMS community and the resources of all the MS&T partnering societies.

www.tms.org/TMSFall2025

Extraction 2025 Meeting & Exhibition (Extraction 2025)



November 16–20, 2025
Phoenix, Arizona, USA

Discount Registration Deadline: October 7, 2025

The 12th International Copper Conference, featured at Extraction 2025, will continue its long tradition of excellence by bringing together researchers and practitioners from around the world to share scientific innovations and technical developments on copper mining, production, and fabrication.

www.extractionmeeting.org/Extraction2025

Materials in Nuclear Energy Systems 2025 (MiNES 2025)



December 7–11, 2025
Cleveland, Ohio, USA

Discount Registration Deadline: October 27, 2025

MiNES 2025 serves as the premier destination for the fission reactor materials community, offering a platform for professionals to share the latest research and advancements in the field.

www.tms.org/MiNES2025

OTHER MEETINGS OF NOTE



TMS 2026 Annual Meeting & Exhibition (TMS2026)

March 15–19, 2026
San Diego, California, USA

www.tms.org/TMS2026



TMS Specialty Congress 2026

June 21–25, 2026
Anaheim, California, USA

www.tms.org/SpecialtyCongress2026



TMS Fall Meeting 2026 at Materials Science & Technology (MS&T26)

October 4–7, 2026
Pittsburgh, Pennsylvania, USA

www.tms.org/TMSFall2026

CO-SPONSORED MEETINGS

OTC Brasil 2025

October 28–30, 2025
Rio de Janeiro, Brazil

Co-sponsored by TMS

The 12th Pacific Rim International Conference on Advanced Materials & Processing (PRICM12)

August 9–13, 2026
Gold Coast, Australia

Co-sponsored by TMS

The 11th International Symposium on Lead and Zinc Processing 2026 (Pb-Zn 2026)

November 1–6, 2026
Sendai-city, Japan

Co-sponsored by TMS

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THE WORLD COMES HERE **TMS** 2026

155th Annual Meeting & Exhibition

#TMSAnnualMeeting



March 15–19, 2026

San Diego Convention Center
and Hilton San Diego Bayfront
San Diego, California, USA

www.tms.org/TMS2026

SUBMIT YOUR ABSTRACT BY JULY 1!

Present your work at the meeting that the
global minerals, metals, and materials
community calls home.

MARK YOUR CALENDAR

July 1, 2025: Abstract Submission Deadline

March 15–19, 2025: Conference Dates

March 16–18, 2025: Exhibit Dates