

JOM THE MAGAZINE

APRIL 2025
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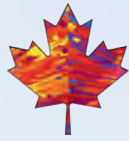
News and insights about TMS, its members, and the professions it serves

**2025
INCOMING
PRESIDENT:
DAN MIRACLE**



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ABOUT THE COVER



Dan Miracle was installed as 2025 TMS President during March's TMS 2025 Annual Meeting & Exhibition in Las Vegas, Nevada. This month's cover features Miracle on a backdrop representing some of his technical interests, which include high temperature materials and high entropy alloys. The blue and yellow accent colors are inspired by Miracle's work at the Air Force Research Laboratory. Cover designed by David Rasel, TMS 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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TABLE OF CONTENTS

// FEATURES

- 8:** Meet 2025 TMS President Dan Miracle:
Dan Miracle
- 11:** Dr. James Douglas: The Founder of
American Copper: Phillip Mackey
and William Culver
- 15:** Donors Build on TMS Foundation Success
in 2024: Kaitlin Calva
- 20:** Artificial Intelligence, ICME, and 3D
Materials Science Meet at TMS Specialty
Congress 2025: Megan Enright

// DEPARTMENTS

- 3:** In the Final Analysis: James J. Robinson
- 4:** JOM Technical Topics
- 6:** TMS Member News
- 24:** TMS Meeting Headlines



IN THE FINAL ANALYSIS

"Without reflection, we go blindly on our way, creating more unintended consequences, and failing to achieve anything useful. It's amazing to me how much we do, but how little time we spend reflecting on what we just did."

—Margaret J. Wheatley, *"It's an Interconnected World"*

I'm reflecting on reflecting as I recently completed the annual "Executive Director's Report" for the TMS Board of Directors. The focus? The Society's performance from 2Q2024 through 1Q2025. The Board uses the report in the development of my annual performance review. Does it consist of inflated good news, back-patting, and self-congratulations? No, no, no. I play it straight. Admittedly, after four years of pandemic and deficit talk, the latest report does feel like rainbows and unicorns by comparison.

The report reflects on 22 initiatives and projects. Here are some of my favorites:

- We finished 2024 solidly in the black with roughly \$8 million in revenue.
- We debuted the TMS Graduate Student Membership program. The program focuses its benefits on mentorship and network building. At the time of this writing, membership is approximately 1,000 grads. The program is particularly unique as one \$75 payment covers the grad student's dues for the entire span of eligibility as a graduate.
- We debuted the TMS Mentoring Program as a re-scoped and expanded version of a program piloted within the TMS diversity, equity, and inclusion sector. The one-year program pairs mentees seeking guidance and support with more experienced members of the Society who are willing to commit time and energy to the professional development of other members. Mentorships are meant to encourage participation in the mission of TMS by developing personalized professional goals to guide and expand the mentees' understanding of volunteer possibilities within the Society.
- We increased professional membership dues in 2024. It was our first dues increase in ten years. Historically, when the Society raises dues, professional membership declines. Contrary to expectations, our professional membership stayed flat. Not to say that flat membership is a victory, but I think that I am saying just that.
- We are engaged in several initiatives to reinforce industrial participation. For example, the Board of Directors conducted two retreats on the topic in 2024 and there has been considerable work by the Society's technical divisions. TMS is also working hard to support the multi-society, industry-heavy Extraction meeting partnership. The 2025 installment should attract 800+ global participants to Phoenix in November.
- We managed the departures of two distinguished long-time editors from three of our six journals: Charles Ward was Editor-in-Chief for *Integrating Materials and Manufacturing Innovation* and Tresa Pollock was Principal Editor for *Metallurgical and Materials Transactions A and B*. These esteemed members of the materials community set a high bar for any successors, but we believe that our newly appointed Editors-in-Chief will put their own distinguished marks on these journals. Specifically, we have engaged Taylor Sparks, University of Utah, for *Integrating Materials and Manufacturing Innovation*, Jonathan Cormier, ISAE-ENSMA (France), for *Metallurgical and Materials Transactions A*, and Il Sohn, Yonsei University (South Korea), for *Metallurgical and Materials Transactions B*.

You may have observed that I begin each entry with "we." I write "we" even though I am referencing the "Executive Director's Report" because I can't and shouldn't take personal responsibility for any of the Society's accomplishments, and there are many. This is a team sport. The skill, intellect, and talent of many volunteers and staff have tirelessly shaped where TMS stands today and will stand tomorrow. The Executive Director's main contribution is to put the right people in the right positions to make the right decisions and then get right out of their way. I think that's a fair reflection.



James J. Robinson
Executive Director



James Robinson

"I can't and shouldn't take personal responsibility for any of the Society's accomplishments, and there are many."

Find peer-reviewed technical articles covering the full range of minerals, metals, and materials science and engineering in the April 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 April 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.

// APRIL 2025

Advanced Manufacturing of Titanium-based Alloys

Editors: **Abhishek Sharma**, University of North Texas; **Matthew Dunstan**, United States Army Research Laboratory; **Stoichko Antonov**, National Energy Technology Laboratory

"Multiobjective Optimization of the Difficult-to-Machine Material TC18 Based on AVOA-SVR and MOAVOA," **Zhiheng Chen**, et al.

"Effects on Mechanical and Physical Properties of Ta Element Addition to Ti-6Al-7Nb Alloy," **Ugur Caligulu**, et al.

"Diffusion Interface Evolution of Low-Alloy Steel Q235 and Ti by Electro-Assisted Hot-Pressing Bond," **Cheng-Min Song**, et al.

"Ultrafast High-Temperature Sintering (UHS) of Ti and TiNb Alloys," **Izabeli Ferrari Libraga**, et al.

"Phenomenological Constitutive Model and Physical Constitutive Model of Hot Deformed Dual-Phase Ti-5Al-4Sn-2Zr-5Mo Alloy," **Yangyang Man**, et al.

"Fatigue Performance of Ti-6Al-4V Processed by Wire-Arc Directed Energy Deposition," **José L. Neves**, et al.

"In Situ Neutron Diffraction Study of Strain Evolution and Load Partitioning During Elevated Temperature Tensile Test in HIP-Treated Electron Beam Powder Bed Fusion Manufactured Ti-6Al-4V," **K. Pandian**, et al.

"Experimental and Numerical Simulation Study on Microstructural Defect Control at Ti/Al Explosive Welding Clad Plates Interface," **Jian Wang**, et al.

"Residual Stress Characterization in Additively Manufactured Titanium Alloy Rod-Type Specimens Prepared by Laser Powder Bed Fusion," **Jie Zhang**, et al.

"Evaluation on Tribological Performance of Ti-6Al-4V Alloy Modified Using Powder Composite Electrode-Assisted Electrical Discharge Coating," **U. Elaiyarsan**, et al.

"Study on Explosive Welding of A7075/A1060/Ti-6Al-4V and Its Mechanical Properties," **Guofeng Liang**, et al.

"Investigation of Tribology Performance of Laser-Cladding Titanium-Based Composite Coatings on TC4(Ti-6Al-4V) Surface," **Guo-ye Jiang**, et al.

"Preparation of TC4-TA15 Bimetallic Materials by Laser Melting Deposition: Microstructure and Mechanical Properties at the Interfacial Union," **Pengfei Li**, et al.

"Pin-Type Bearing Strength and Fracture Behaviour of Ductile LPBF Ti-6Al-4V ELI Produced with Extensively Reused Powder," **Duncan William Gibbons**, et al.

"On the Yield Anisotropy in Laser Powder Bed Fusion-Produced Beta Titanium Alloys," **Zachary van der Velden**, et al.

"Micro-texture and Stress Evolution under Monotonic Tension in an Additively Manufactured Near- α Titanium Alloy," **Sita Choudhary**, et al.

"A Review of Grain Evolution Effect on Accommodation Mechanism, Modeling, and Processing of Superplastic Titanium Alloys," **Junzhou Yang**, et al.

Advancements in Powder-based Functional Materials for Extreme Environments

Editors: **David Yan**, San Jose State University; **Xiaoming Wang**, Purdue University; **Timothy Prost**, Phased Elements Consulting LLC; **Dekui Mu**, Hua Qiao University

"Microstructure, Mechanical Properties and Oxidation Behavior of Reactive Hot-Pressed (Zr,Ti)B₂-SiC-ZrC Composites," **Mohsen Naderi**, et al.

"Impact of 316L Stainless Steel on Microstructural and Mechanical Properties of AA5083/316L Metal Matrix Composites," **Dursun Murat Sekban**

"Gradient Structure Evolution during Sintering of WC-TiC-Co Cemented Carbides," **Stella Sten**, et al.

"A Novel TiB₂-SiC Composite Doped with Diamond Nanoparticles: Densification, Microstructure, and Thermal Properties," **Seyed Mohammad Arab**, et al.

"Optimization of SPS Parameters and Graphene Content with the Aim of Improving Densification and Flexural Strength of ZrB₂-SiC Composites," **Meysam Mehdipour**, et al.

"WC-304 Powder/Screen Laser Composite Cladding Process and Simulation Research," **Jihong Liu**, et al.

"Electrochemical Study of Selective Laser Melted Inconel 718 Alloy Subjected to Varying Aging Durations," **Abdelgadir M. Abdelgadir**, et al.

"Flexural Strength Evolution of 3D-Printed PLA Structures: An Experimental Investigation," **Vijay Kumar**, et al.

"Effect of Titanium Carbonitride Addition on Mechanical and Tribological Behaviors of TiCN-M2 High-Speed Steel Matrix Composites," **Zhenyu Zhou**, et al.

"Surface Integrity and Manufacturability of Post-processed Ti-5Al-5Mo-5V-3Cr Parts Fabricated via Additive Manufacturing," **David P. Yan**, et al.

"Influence of Zirconium and Processing Modes on Microstructure and Properties of Mechanically Alloyed Al-10%Al₂O₃ Composite," **A.S. Prosviryakov**, et al.

"Investigation of Microstructure, Mechanical, and Tribological Behaviors of AA7075 Reinforced with B4C Composites Developed Through Floating Die," **Ameen Al Njjar**, et al.

Localized Materials Assessment of Fusion Relevant Materials

Editors: Peter Hosemann, UC Berkeley; Daniel Kiener, University of Leoben

"The Effects of Defect Cluster CaK-Si_p on the Structure and Laser Damage for KDP Crystals: A First-Principles Study," **Longfeng Zhao**, et al.

"Effects of Heat Treatment and Aging on Microstructural and Mechanical Properties of RAFM Steel," **Guo-xing Qiu**, et al.

"A Novel Machine Learning-Driven Approach to High Throughput Mechanical Testing," **Tongjun Niu**, et al.

"Comparative Mechanical Properties Analysis of Triple Ion-Beam Irradiated and Neutron Irradiated Potential Plasma Facing Components," **C. Howard**, et al.

Towards Zero Carbon and Zero Waste: Metals Extraction and Processing

Editors: Chukwunwike Iloeje, Argonne National Laboratory; Fiseha Tesfaye, Metso Metals Oy; Joseph Hamuyuni, Metso Research Center

"Advanced Modeling of Slag Foaming and Its Industrial Applications for Energy Conservation in Electric Arc Furnaces," **Bo Cui**, et al.

"Resource Utilization of Iron and Gold from Roasted Cyanide Tailings by the Sulfuric Acid Activation Decomposition Method," **Hongzhou Ma**, et al.

"Phase Change Mechanism of Spent LiFePO₄ Cathode Material in Regeneration Process," **Jiayi He**, et al.

"Recovery of Ni and Co from Nickel-based Superalloy Scraps Leaching Solution for the Synthesis of NiCo₂O₄," **Ning Yin**, et al.

"Enhancing Antimony Electrowinning from Copper Electrolyte Waste by Coupling Ion-Exchange Membrane and Mechanical Stirring," **Vicente Schaeffer Vielmo**, et al.

"Synthesis of Nickel-based Catalysts from Spent Lithium-ion Batteries for Hydrogen Generation with Hydrazine Hydrate," **Xihong He**, et al.

"Effect of Steel Slag Powder on the Hydration Characteristics of Lime-Sodium Sulfate Composite-Activated Cementitious System," **Xiaowei Gu**, et al.

"Life Cycle Assessment of Alumina Production by the Bayer Process," **Xuan Lian**, et al.

"Novel Recovery Process for Tb Metal Using Molten Salt Electrolysis and Volatile Separation," **Tetsuo Oishi**, et al.

"Effect of In-Situ Catalyst on Co Extraction from Lithium-ion Battery Scrap via Selective Sulfation Roasting," **Jayasree Biswas**, et al.

"Establishment of Recovery Distribution Model of Valuable Elements in Selenium-Rich Materials," **Qian Li**, et al.

"Clean Carbon Steelmaking: Evaluating the Replacement of Mineral Coal with Malt Biochar in Iron Ore Pelletization," **Lucio Rosso Neto**, et al.

"Association of Shape Memory Alloys with Sustainability: A Perspective," **Emre Acar**, et al.

"Efficiently Selective Removal of Tin from High Concentration Indium Leaching Solution of Waste Indium Tin Oxide Targets," **Qianyou Pu**, et al.

TMS MEMBER NEWS

Share the Good News!

Contact Kelly Zappas, *JOM: The Magazine* editor, at kzappas@tms.org to share your professional accomplishments. Please note that only news submitted by current TMS members will be considered.

Oropeza Receives LLNL Grant



Daniel Oropeza, assistant professor of materials at the University of California, Santa Barbara (UCSB), was named 2024 recipient of the Lawrence Livermore National Laboratory (LLNL) Early Career Faculty Initiative Grant. His proposal was titled, "Near-net shaping of high-density, complex, spatially tailored ceramics for extreme environments."

extreme environments."

Photo courtesy of Lawrence Livermore National Laboratory.

The program is an initiative of LLNL and UC National Laboratories at the UC Office of the President to foster long-term academic partnerships and provide UC early career faculty members with funding and lab support for their research. In 2024, the grant's second award cycle called for innovative research projects in advanced materials and manufacturing. With up to \$1 million in funding over five years, Oropeza and his team will focus their research efforts on combining near-net-shape fabrication and hot pressing to achieve uniform densities and unique geometries.

Oropeza has been a TMS member since 2021. Prior to this, he was a member of the Material Advantage student program.

Pathak Project Selected for APRA-E Program



TMS member **Siddhartha Pathak** and his team at Iowa State University have been selected to receive funding from the U.S. Department of Energy's Advanced Research Projects Agency (ARPA-E). Their project, Ferritic and Vanadium Alloys with Nanoparticle Strengthening for Fusion (FAVA-NSF), will be managed through ARPA-

E's Creating Hardened and Durable fusion first Wall Incorporating Centralized Knowledge program, or CHADWICK. Pathak, an assistant professor of materials science and engineering at Iowa State, has partnered

Photo courtesy of the College of Engineering, Iowa State University.

with Pacific Northwest National Laboratory, Ames National Laboratory, the University of Michigan, Baylor University, and Citrine Informatics on the FAVA-NSF CHADWICK project.

As a member of TMS since 2014, Pathak has been involved in several technical committees in the Structural Materials Division (SMD) and Materials Processing & Manufacturing Division (MPMD) as well as the Emerging Professionals Committee. In 2017 he received the MPMD Young Leaders Professional Development Award, and in 2019 he attended the Emerging Leaders Alliance Conference on behalf of TMS. Additionally, Pathak has earned several awards for his work, including a Young Faculty Award from the Defense Advanced Research Projects Agency (DARPA) and a National Science Foundation Early Career Development (CAREER) Award.

TMS Member Receives APS Award



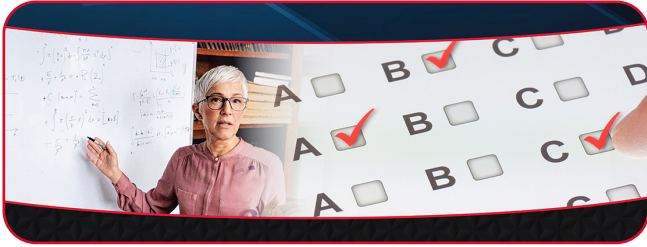
Robert Hickey, associate professor of materials science and engineering at The Pennsylvania State University (Penn State), was selected by the American Physical Society (APS) as the 2025 recipient of its John H. Dillon Medal. The

Photo Credit: Penn State/Penn State.

award was conferred during the APS Global Physics Summit in March 2025.

The Dillon Medal recognizes outstanding research accomplishments and exceptional research promise from early career polymer physicists. Hickey was awarded for his "pioneering work in creating nonequilibrium structured soft materials." His research in this area also earned him the National Science Foundation Early Career Development (CAREER) Award in 2020. He has been a TMS member since 2024.

PE Review Course Scheduled for July



Studying to become a PE? Professional Engineer (PE) licensure is the preferred credential in the United States for engineers who bid on government contracts, seek leadership roles in firms, and perform consulting services. Perhaps most importantly, licensure helps protect public health, safety, and welfare.

This summer, TMS will hold the **Metallurgical and Materials Engineering Professional Engineer (PE) Licensing Exam Review Course** over the course of five

days: July 22, 24, and 29–31. This live, online course is designed for individuals preparing to take the exam, but is also open to those looking for a refresher course. The specialized course will review the essential knowledge areas for the exam but will also provide opportunities for hands-on practice through group work and sample problems.

A team of expert instructors will lead participants through key topics in materials engineering, including:

- Ferrous materials (e.g., stainless steel, cast iron, carbon steel)
- Nonferrous materials (e.g., titanium alloys, aluminum, copper)
- Ceramics, polymers, composites, and electronic materials

To learn more about the course, topics to be covered, instructors, and how to register, visit www.tms.org/PEReview2025.

In Memoriam

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

Daniel E. Groteke, a TMS member since 1982, passed away on July 13, 2024, at the age of 91. Groteke studied at the University of Missouri, Rolla, earning his B.S. in metallurgy in 1954 before joining Allis Chalmers as a metallurgist. Soon after, he was drafted to the U.S. Army where he served in an Ordnance Company for two years. After completing his military service, Groteke returned to his career in industry, working at several companies—notably, Reliable Castings, Alreco Industries, and American Standard. In 1981 he began two companies of his own, QC Designs Inc. and Metcast. Over the course of his career, Groteke was awarded 12 patents related to metal casting and dross processing.

In addition to his professional membership with TMS, he was also active with the American Society of Metals and the American Foundry Society.

Harald A. Øye passed away on October 7, 2024, at the age of 89. He earned his M.Sc. Eng. (1958) and Dr.Tech. (1964) from the Norwegian Institute of Technology (NTH). After a brief postdoctoral position at Argonne National Laboratory, Øye joined NTH as an associate professor, advancing to professor in 1973. Øye remained with the university, which later became the Norwegian University of Science and Technology (NTNU), until his transition to professor emeritus in 2005. Throughout his time at NTNU,

Øye supervised 38 doctoral students and numerous master's students and published more than 400 international papers.

In addition to teaching and conducting research, Øye worked to advance the international aluminum industry through his continuing education efforts as founder and instructor of the International Course on Process Metallurgy in Aluminum, the Fundamentals and their Application in Aluminum Production Course, and the Silicon for the Chemical and Solar Industry conference series. He has also instructed several workshops held with TMS annual meetings over the years.

As a TMS member since 1977, Øye was actively involved with the Light Metals Division (LMD), particularly the Aluminum Committee and LMD Council. He received the Light Metals Subject Award in 1997 and 2004, the LMD JOM Best Paper Award in 1999, and the LMD Technology Award in 2009. At the TMS 2021 Virtual Annual Meeting & Exhibition, the Aluminum Reduction Technology Across the Decades Symposium was organized in his honor.

Among his many accolades and career achievements, Øye is a Knight First Class of the Royal Norwegian Order of St. Olav for Technological Research and is a Fellow of The Royal Norwegian Society of Sciences and Letters.

MEET 2025 TMS PRESIDENT DAN MIRACLE

Dan Miracle

Editor's Note: This article is based on a speech delivered at the TMS 2025 Annual Meeting & Exhibition in Las Vegas, Nevada, when Miracle was installed as the 2025 TMS President in March.

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. 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.

I have good news for all of you. After several years of financial turmoil and insecurity, TMS is once again in a position of financial stability. It's great to be back in black! COVID was a difficult time for professional societies. TMS has finally emerged on solid ground thanks to the innovative, flexible, proactive, and sometimes difficult actions taken by TMS leadership in the past several years—and also thanks to the unwavering efforts of TMS volunteers and the continued support of you, our dedicated TMS members. By nearly every measure—including attendance, technical presentations, and number of symposia—the TMS 2025 Annual Meeting & Exhibition was one of the biggest events in the history of TMS. We navigated the rocky COVID terrain while still achieving the TMS mission and providing core services. In the same way, the TMS Foundation also continued its support of numerous scholarships, travel grants, STEM outreach efforts, Family Care Grants, and career recognition. It's a record to be proud of. TMS is leaner and stronger than we were five years ago.

And we're anxious to get back to business.

The world continues to change. This gives us new challenges and opportunities that we must address to stay strong, and to best meet the needs of our members, our profession, and society. We will continue to innovate and adapt to meet these new challenges. To steady our course and to provide a clear focus, we have a solid foundation that was laid down by TMS leadership just before COVID. These are our aspirational strategic goals: to be a highly inclusive society; to be the place where global materials practitioners come together; to be the society that envisions, defines, and enables the future; and to be a society that empowers industry to be at the leading edge of science and engineering. We still have important, impactful work to do on these guidestar objectives. And we won't do this alone—strategic partnerships are an important component to achieving all of these goals.

Partnerships are essential for materials science and for our profession. As engineers and scientists, we naturally collaborate across technical disciplines. We also interact across all segments of the science and technology enterprise: universities, small businesses, medium- and large-sized industries, and

government organizations. It's natural, then, for TMS to form partnerships to accomplish our objectives as well. We partner with other professional societies, domestically and abroad, to best serve all of our members and, equally important, to better serve

our profession. Materials science is relatively small compared to many other professions, and we are fragmented across more than a dozen different professional societies.

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

Our members and our profession are best served by working together. The current TMS leadership has worked hard to strengthen existing partnerships and to forge new relationships.

Together, we are, all of us, using this opportunity to strengthen our relationships, to update and refine our current collaborative programs, and to seek new opportunities that are mutually beneficial to our respective

members and our profession as a whole. Current collaborative programs include jointly organized conferences, international scholar exchanges, and the Material Advantage program. Through opportunities such as our face-to-face engagements at the Annual Meeting, we continue to seek new ways to work together.

TMS also forms essential partnerships with industry. The industrial sector has always been an essential component of the TMS tapestry. Short courses, professional development workshops for continuing education credits, and the annual exhibition are some of the offerings tailored for our industrial members. However, studies conducted within TMS over the past several years show that the industrial component remains significantly underserved, and new pressures on our industrial colleagues motivate a rethinking of the value proposition that TMS can offer.

As TMS President, I intend to make this a special focus in the coming year. I inherit an important head start on this initiative. The Industrial Advisory Committee was formed several years ago, in 2018, to help guide TMS in our industrial interactions. There continues to be a growing interest in industry-centric

programming that is sponsored through the normal Division structure of TMS. This includes conferences such as the upcoming Extraction 2025 Meeting & Exhibition, the Offshore Technology Conference, and last year's Superalloys 2024 conference. The Supplier Technology Forum is an innovative, new offering that debuted at this meeting. Together, these examples of commercially oriented programming give TMS a good foundation, but we can do more.

The need for an accelerated connection with industry was acknowledged in previous TMS strategic plans. The fourth strategic goal mentioned earlier, *to be a society that empowers industry to be at the leading edge of science and engineering*, was recently added to the TMS strategic goals in 2023, to strengthen this commitment. New initiatives have already been proposed by TMS volunteer leaders to support this goal. But there is much more to do. We need to find underserved and impactful industrial needs that can be provided by TMS. We need to establish a fresh and compelling value proposition, from an industrial perspective, to engage with TMS on the topics identified. And we need to define metrics to gauge progress toward a more successful engagement with our industrial members and their home organizations.

I am asking our Industrial Advisory Committee to address these challenging questions. The results will be used to inform a Board of Directors retreat later this year to discuss the most promising and impactful ideas and opportunities. We will also continue to seek win-win partnerships with other professional societies to advance the objective of broadly serving the profession as a whole by adding value to all of our constituents. Finally, I invite each of you to share your ideas, your time and energy, and your leadership to help address this important issue. You each have a unique blend of knowledge, insight, and experience. When energized through the robust, grass-roots, volunteer base of TMS, your contributions really can

help to strengthen and advance our profession.

Once again, I'm honored and humbled to serve as your President in the coming year. I look forward to meeting and working with many of you.

YOU EACH HAVE A UNIQUE BLEND OF KNOWLEDGE, INSIGHT, AND EXPERIENCE. WHEN ENERGIZED THROUGH THE ROBUST, GRASS-ROOTS, VOLUNTEER BASE OF TMS, YOUR CONTRIBUTIONS REALLY CAN HELP TO STRENGTHEN AND ADVANCE OUR PROFESSION.

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and
William Culver**



The period 1880 to 1980 was the Golden Age of American copper—largely in the Southwest and Arizona—where the 12th International Copper Conference (Copper 2025) will be held in November this year. Dr. James Douglas was an important leader of USA copper for the first 40 years of the Golden Age and helped shape the industry that we see today. As the world of copper prepares for Copper 2025, it is interesting to learn and perhaps understand one of the most important pioneers who built the foundations of the present great industry it is today.

The dedication in Edward Dyer Peters's 1887 *Modern Copper Smelting* reads: "To James Douglas, Jr., whose ability as a metallurgist is only exceeded by his value as a friend, this volume is affectionately inscribed by the author."¹ Over the next two decades, as this classic text—which would have been found in smelter offices throughout the USA and the world—evolved along with the industry, the dedication continued through the final 10th 1910 edition: "The Author takes great pleasure in renewing the Dedication of this Book to James Douglas of New York, President of the Copper Queen Mining Company."² Of interest, Peters's work played an

important role in setting up the original smelter built at Copper Cliff, Ontario, Canada.

Honoring James Douglas continued after his 1918 passing with the establishment of the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME) James Douglas Gold Medal. The award citation read: "The award recognizes distinguished achievement in non-ferrous metallurgy, including both the beneficiation of ores and the alloying and utilization of non-ferrous metals. The James Douglas Gold Medal was established in 1922. Dr. James Douglas, founder of Phelps Dodge Corporation and twice President of AIME, was also an AIME Honorary Member. He was an industrialist, a mining engineer, a metallurgical engineer and a noted inventor of metallurgical equipment."³

The most recent gesture to remember Douglas appeared in George D. Van Arsdale's 1953 *Hydrometallurgy of Base Metals*. "This book is dedicated to the memory of Dr. James Douglas, Pioneer U.S. Hydrometallurgist, and to Dr. J.V.N. Dorr without whose inventions modern leaching would not be possible."⁴ Van Arsdale was among the last of the metallurgists to work alongside Douglas. There is no one left who knew James Douglas personally.

WHO WAS JAMES DOUGLAS?

Born in Quebec City, Canada, in 1837 into a non-mining family (his father was a surgeon) and educated in Europe and Canada in the classics, Douglas later pursued a medical degree, which included a chemistry course, but set this aside to rescue his surgeon father's investments in an ailing copper mine in Canada. Two successive plant fires and an absconding accountant cut short the work with low-grade ores. The family subsequently moved to Phoenixville, Pennsylvania, where Douglas became superintendent of the Chemical Copper Company; he was 38 years of age. At Phoenixville, among other innovations, he installed the first electrolytic copper refinery in the USA and was able to refine copper shipped from Arizona on a custom basis. During this time, he became acquainted with William Dodge, a meeting that soon would lead to completely transforming his life and lift sagging family fortunes. He could see, however, that the new mines in Arizona would need their own smelters and refineries and so advised Dodge.

After two disastrous plant fires in 1879 and 1880, Chemical Copper's success in processing low-grade ores or refining blister was not enough to prevent its commercial collapse.

Through William Dodge, who via the new partnership of Phelps, Dodge and Co. had optioned copper properties in Arizona, Douglas was first involved with the Atlanta Mine, which later merged with the Copper Queen. Blast furnace smelting started at the Copper Queen in 1880 before Douglas arrived. By 1885 Douglas was put in charge of the partnership's fledgling copper plant in Bisbee. Soon with his knowledge and managerial skill, the rudimentary blast furnaces were improved and copper output and profits increased. He was the first to install the newly developed horizontal converters (first developed in Europe) in the USA.

The rest is the hugely successful Phelps Dodge story, a company now part of Freeport McMoran. Douglas was president of Phelps Dodge from 1890 to 1915 when he was succeeded by Walter Douglas, his son. Of interest, Lewis W. Douglas, a grandson of Dr. James Douglas, was the U.S. Ambassador to the U.K. after the second world war.

James Douglas was a gifted, prolific writer throughout his long career. A talented business leader, Douglas brought early success to Copper Queen. Like Andrew Carnegie in iron and steel, Douglas believed that periodically introducing new equipment and methods to a plant was essential to keeping it up to date, maintaining profitability, reaching higher production levels, lowering costs, and improving working conditions.

WHAT IS HIS LEGACY?

At this centennial time of his passing, Douglas's legacy includes the idea to "do copper smelting and refining right" and appears clearly as his cultivation of a copper industry culture of collaboration and development. A culture where open processing plants welcome visits by colleagues, where secrecy is denigrated, and where the belief that working together benefits everyone is welcome. Where did this thinking come from?

We identify four circumstances that led James Douglas in this direction:

First, Douglas was a humanist and public intellectual. From his earliest years, he was a student of life and wrote articles and books on a wide array of non-copper topics. His university theological education prepared him for a life in the Presbyterian Church. Declining this career, he began medical studies to take over the management of the Quebec provincial insane asylum owned by his father, a surgeon (Douglas's father and mother were Scottish born). Instead of these other careers, in 1866, he joined the management of The English and Canadian Mining Company, Limited, a Canadian corporation. His father was the majority stockholder. The company faced heavy losses due to poor ore and high copper extraction costs.

Second, to turn the company around, Douglas tried a "revolutionary" hydrometallurgical process touted by T. Sterry Hunt, The Whelpley and Storer Copper Process. Following a disastrous plant fire, Douglas, guided by Hunt, experimented with the engineering of acid solutions, leading to the 1869 Hunt and Douglas Copper Process patent.

Third, a Chilean copper mining company, La Compañía de Minas de la Invernada, was the first to adopt the process. Douglas spent most of 1871 in Chile. While overseeing the plant construction, he visited Chile's copper mines and smelters—a time when South America, mainly Chile—led the world in copper output. Douglas considered his time in Chile his graduate seminar in copper mining and ore processing. His time in Chile's mature copper mining culture left him with two lessons. Copper mining could be a business, not a speculation, as he knew it in Canada. He also learned that successful copper mining depended more on the quantity of ore than the quality. The open doors at the mines allowed him to write several definitive reports on Chile's copper industry of the period. Figure 1 shows the growth of copper production in the United States during the period James Douglas was developing the industry. The steep rise in copper production during his career is evident. By about 1900, the USA was the world's largest producer of copper.

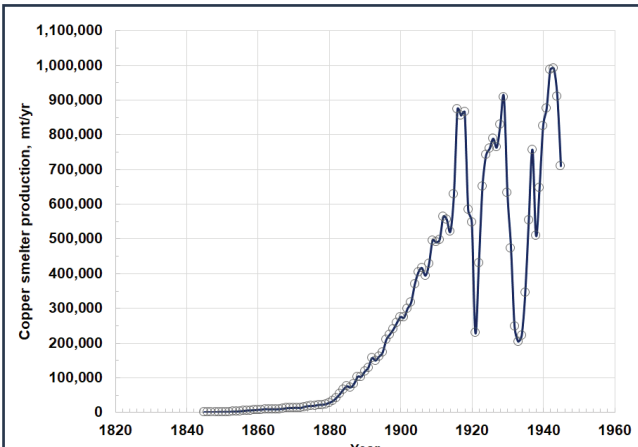


Figure 1. The growth of copper smelter production in the United States from 1845 (when copper smelter production began) to 1945. The steep rise in copper output during the career of James Douglas can be seen.⁷

Fourth, between 1881 and 1883, Douglas consulted and toured the West and Mexico, visiting many mines and smelters. He published what he learned in some 20 engineering and mining journal articles. Eleven were part of a named series—*Letters from the West*. Four were letters from Mexico. Four reported on smelters. Only a few smelters had closed doors; most allowed him to see what they were doing. He often passed on what he had seen elsewhere. Douglas frequently contrasted American metallurgical progress with Swansea (which dominated world copper as custom smelters for decades), where know-how was considered a secret and where new methods were rejected as putting at risk investments in existing plants. Douglas described the situation at Swansea as follows: “At Swansea, every gate to the smelting-works is guarded, and as a result it has been as difficult for thought to escape out as for suggestions to find their way in. Swansea should still enjoy the leadership which her skilled labor, splendid coal and commanding maritime situation put within her reach; but she has preferred to gloat over her secrets behind closed doors rather than go out into the world in search of new business as well as technical methods, while also inviting the world to enter and exchange ideas with her.”⁵

Worth noting is that by about the time of Douglas’s passing in 1918, most of the Swansea smelters had closed.

In his dedication to James Douglas, “Career and Achievements of James Douglas,” in the 1933 AIME volume,⁶ Arther L. Walker (inventor of the circular

COPPER 2025

Learn More about the Current State of the Copper Industry

TMS is one of the organizing societies for the **12th International Copper Conference (Copper 2025)**, which will be held **November 16–22, 2025** at the Sheraton Grand at Wild Horse Pass in Phoenix, Arizona, USA, as part of the Extraction 2025 Meeting & Exhibition. The largest copper technical conference with a tradition of more than 30 years, Copper 2025 will once again feature sessions on mining, mineral processing, pyrometallurgy, hydrometallurgy, electrometallurgy, process control, and instrumentation.

Visit www.extractionmeeting.org/Copper2025 for more details on programming plans and to register for the event.

The Copper Conferences Series is a global effort involving the collaboration of:

anode casting wheel, used at every copper smelter around the world today) discussed the tremendous role of technical papers in progress as follows: "The motives influencing the great body of writers who, without any pay, use the technical journals and such media of communication as our TRANSACTIONS, in order to give to the brethren of their craft the results of their dearly earned experience are various and complicated, but in the majority of cases the impulse originates in the desire for reciprocity and in the hope that others will tell what they know in return for what we ourselves communicate and that, therefore, we shall learn at least as much as we can teach."

NOMINATIONS DUE JUNE 1 FOR 2026 JAMES DOUGLAS AWARD



Nominate a colleague with a distinguished record of achievement in non-ferrous metallurgy for the **2026 TMS/SME/AIME James Douglas Gold Medal**.

Submissions are due **June 1, 2025**; nomination guidelines can be accessed at **awards.tms.org**. Search under Division Awards.

By the time James Douglas became the man we know today, he understood how his own education as a "practical" metallurgist was founded on what others shared with him. Copper 2025 will continue a long tradition of technical exchange and cooperation for the betterment of the global industry. We hope the culture of collaboration continues long after.

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Phillip J. Mackey is president, P.J. Mackey Technology, Inc., and William Culver is distinguished professor emeritus, The State University of New York.

DONORS BUILD ON TMS FOUNDATION SUCCESS IN 2024

Kaitlin Calva



Building on the successes of the past several years, the TMS Foundation continued to tell a good story in 2024. With the help of generous gifts from many TMS members and friends, the TMS Foundation upheld its commitment to investing in the next generation of science and engineering leaders over the last year.

One major undertaking for the TMS Foundation in 2024 included an update of its business plan, as the previous plan was set to run through 2023. During this transition year, the Foundation Board of Trustees worked on reviewing past programs, policies, and aspirations and developing new goals, strategies, and recommendations. In July 2024, the Trustees met with the TMS Board of Directors at a joint retreat to present and endorse a plan that will guide the TMS Foundation from 2025 through 2027.

By retaining its signature program, *to support students and early career professionals with meaningful financial assistance and impactful career-building experiences*, the Board of Trustees seeks to both enhance the Foundation's current initiatives and expand its impact on the materials science and engineering community. In support of this plan, two goals of the signature program remained the same: to add five more Young Leaders Professional Development Awards and to add ten more Family Care Grants.

On top of the retained programs, two new elements were incorporated into the signature program. First, the Foundation will expand its support of the existing TMS Bladesmithing Competition for students. Second,

it will establish a new program, International Student Travel Grants for the Americas. (**Editor's Note: see the December 2024 JOM article, "Invest in People with the TMS Foundation," or visit www.TMSFoundation.org to learn more about this fundraising effort.**)

Also of note, the TMS Foundation once again conducted its year-end appeal, beginning on October 1, and running through December 31, 2024. This final call for support of 2024 successfully raised \$165,707 for Foundation-funded programs. A highlight of the campaign was a matching gift fund created to encourage donations on Giving Tuesday in December by three of the Foundation's dedicated trustees. Current chair Carl Cady, past chair Garry Warren, and 2024 TMS vice president Dan Miracle came together to double donations with a matching pool of \$22,000.

In total, 215 donors raised \$240,664 over the course of the year. Of those donors, 21 made their first gift to the Foundation. The TMS Foundation offers its sincere thanks to the following TMS members and friends for their generous support in 2024. Their gifts are crucial to the success of current and future TMS Foundation programs.

You can also view the Honor Roll online at www.TMSFoundation.org/HonorRolls. To earn a spot on the 2025 Honor Roll, make a donation today at www.TMSFoundation.org/Contribute. For additional donation options or to discuss your donation personally, contact Adrienne Carolla, TMS Deputy Executive Director, at 724-814-3180 or acarolla@tms.org.



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

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ARTIFICIAL INTELLIGENCE, ICME, AND 3D MATERIALS SCIENCE MEET AT TMS SPECIALTY CONGRESS 2025

Megan Enright

**TMS SPECIALTY
CONGRESS 2025**

Enter an atmosphere of collaboration and cross-disciplinary learning at the upcoming TMS Specialty Congress 2025, scheduled for June 15–19, 2025, in Anaheim, California. This enticing addition to the annual suite of TMS meetings is in its second iteration and convenes the Society's recurring specialty meetings under one roof with a single registration fee that includes all programming. In 2025, this meeting will feature the following co-located events: the 3rd World Congress on Artificial Intelligence in Materials and Manufacturing (AIM 2025), the 8th World Congress on Integrated Computational Materials Engineering (ICME 2025), and the 7th International Congress on 3D Materials Science (3DMS 2025). Read on to explore program highlights, multidisciplinary opportunities, and much more at this unique event.

ALL-CONGRESS PLENARY SPEAKERS



Jörg Neugebauer, Max-Planck-Institut für Eisenforschung;
Zi-Kui Liu, Pennsylvania State University; and
David Rowenhorst, U.S. Naval Research Laboratory

To set the tone of the congress, the following distinguished speakers will deliver plenary talks. **Jörg Neugebauer**, Max-Planck-Institut für Eisenforschung, will present his talk, "Harnessing Interoperable Digital Workflows for Materials Design." **Zi-Kui Liu**, The Pennsylvania State University, will give his presentation entitled, "Zentropy and Zentropy-Enhanced Neural Networks (ZENN) for Materials." **David Rowenhorst**, U.S. Naval Research Laboratory, will also give a plenary presentation. Learn more at www.tms.org/SpecialtyCongress2025.

BOOK YOUR ROOM BY MAY 23



Photo courtesy of the Anaheim Marriott.

The TMS Specialty Congress 2025 will take place at the Anaheim Marriott in Anaheim, California. A block of rooms has been reserved at a special rate for your convenience. Book your room today to take advantage of the discounted rates and exclusive benefits for TMS guests who book at the congress venue. Your stay at the Anaheim Marriott also helps TMS fulfill its financial commitments, which helps keep registration fees as low as possible and secures the promise of future conferences. Accommodations must be secured by **5:00 p.m., Pacific Standard Time, on May 23, 2025**. Book your room today at www.tms.org/SpecialtyCongress2025.

FEATURED CO-LOCATED MEETINGS

The 3rd World Congress on Artificial Intelligence in Materials and Manufacturing (AIM 2025)



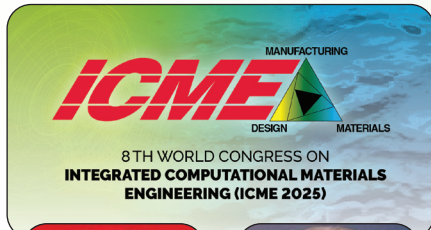
AIM 2025 is the premier event exploring the transformative role of artificial intelligence (AI) in materials science and manufacturing. Bringing together experts from academia, industry, and government, this meeting will delve into cutting-edge topics like AI-driven workforce development, innovative machine learning applications, autonomous laboratories, the future of manufacturing optimization, and more.

AIM 2025 will feature a host of invited speakers, including **Saad A. Khairallah**, Lawrence Livermore National Laboratory; **Joseph Montoya**, Toyota Research Institute; **David Ryckelynck**, Mines Paris-PSL University; **Christopher Spadaccini**, Lawrence Livermore National Laboratory; and **Shijing Sun**, University of Washington, Seattle.

Additionally, AIM 2025 will present the AIM Awards Luncheon on Wednesday, June 18, during which the AIM 2025 Poster Contest Award winner will be announced.*

Learn more about AIM 2025, including the full list of technical topics to be discussed, at www.tms.org/AIM2025.

The 8th World Congress on Integrated Computational Materials Engineering (ICME 2025)



KEYNOTE SPEAKER:
Bryce Wilcox,
Milwaukee Tool



MPMD ICME INDUSTRY IMPLEMENTATION AWARD:
Randy Beals,
Magna International
Accepting on Behalf of Magna International

The professional hub of integrated computational materials engineering (ICME) has found its home at TMS Specialty Congress 2025. In its eighth iteration, this highly successful event returns, bringing together leading experts to share advancements in ICME, focusing on integration, innovation, and addressing gaps in the field. With key technical topics like AI in ICME, digital twins, advanced manufacturing, materials design, and workforce development, ICME 2025 offers a unique platform for collaboration, discussion, and networking among stakeholders from diverse disciplines.

ICME 2025 will kick off with the “Shaping the Future Workforce: Navigating Digital Transformation in Engineering” keynote presentation from **Bryce Wilcox**, Milwaukee Tool. Throughout the meeting, the following invited speakers will also give notable talks: **Carelyn Campbell**, National Institute of Standards and Technology; **Jeff Grabowski**, QuesTek Innovations; **Adam Pilchak**, Pratt & Whitney; **Gregory S. Rohrer**, Carnegie Mellon University; **Amarendra K. Singh**, Indian Institute of Technology Kanpur; **Katsuyo Thornton**, University of Michigan; **Wei Xiong**, University of Pittsburgh; and **Qiaofu Zhang**, University of Alabama.

The ICME Awards Luncheon, planned for Monday, June 16, will feature the presentations of the ICME 2025 Poster Contest Award winner and the Materials Processing & Manufacturing Division (MPMD) ICME Industry Implementation Award.* **Randy Beals**, Magna International, will accept the MPMD ICME Industry Implementation Award on behalf of Magna International and give a talk during this luncheon.

Dive deeper into the exciting plans for ICME 2025 at www.tms.org/ICME2025.

The 7th International Congress on 3D Materials Science (3DMS 2025)



KEYNOTE SPEAKER:
Vikram Deshpande,
University of Cambridge

Another longstanding TMS event has found its new place at the TMS Specialty Congress 2025. In its seventh iteration, 3DMS 2025 serves as a key platform for showcasing the latest advancements in 3D characterization, modeling, and the development of structure-property relationships, with a focus on big data and machine learning. It will also foster rich discussions among global researchers to assess current trends and identify future research directions in 3D materials science, covering topics like advanced manufacturing, sustainable materials, and AI-driven data analysis.

3DMS 2025 will open with “3D X-Ray Observations Provide Striking Findings in Rubber Elasticity,” a keynote presentation from **Vikram Deshpande**, University of Cambridge. Additional invited speakers include **Nikhilesh Chawla**, Purdue University; **Donal Finegan**, National Renewable Energy Laboratory; **Yujiro Hayashi**, RIKEN Spring-8 Center; **Axel Henningsson**, Lund University; **Amanda R. Krause**, Carnegie Mellon University; **Aldo Marano**, ONERA; **Andrew Polonsky**, Sandia National Laboratories; **Ashwin J. Shahani**, University of Michigan; and **Jonathan Wright**, European Synchrotron Radiation Facility.

Scheduled for Tuesday, June 17, the 3DMS Awards Luncheon will include the presentation of the 3DMS 2025 Poster Award winner.*

Explore further details about 3DMS 2025 at www.tms.org/3DMS2025.

**All full-conference registrants receive one ticket to the luncheon of their choice included in their registration fee. If you would like to attend more than one luncheon, additional tickets can be purchased during registration.*

JOINT SESSIONS

In addition to each co-located meeting’s individual programming, several joint sessions are planned to capitalize on the unique format of this event. Make sure to attend the following cross-disciplinary sessions:

- Joint Session on FAIR Data (AIM and ICME)
- Joint Session on Autonomous Processes (AIM, ICME, and 3DMS)
- Joint Session on Digital Twins (AIM and ICME)

Furthermore, dedicated rooms will be allocated to specific themes that span the breadth of all three co-located events. Attend the following sessions to explore these connected topics:

- Optimization of Manufacturing Processes
- Applied Machine Learning in Manufacturing Methods
- Processing, Microstructure, Property Relationships
- Application and Characterization Methods in Advanced Manufacturing

PUBLICATION OPPORTUNITIES



In lieu of traditional conference proceedings, each co-located meeting will be publishing a topical collection dedicated to their event in the TMS journal, *Integrating Materials and Manufacturing Innovation*. Only submissions from participants will be considered for each of these collections. Submissions will

go through the journal’s standard peer review process and there is no guarantee of acceptance. Submissions are due by **August 31, 2025**, for all three collections. For more information, visit www.tms.org/SpecialtyCongress2025 and navigate to the “Publishing Plan” menu item for the meeting of interest.

PROFESSIONAL DEVELOPMENT

To complement the robust technical program, the TMS Professional Development Committee will present the **Improve Your Networking Skills** workshop for undergraduate and graduate students at TMS Specialty Congress 2025 on **Sunday, June 15**. This event will provide valuable insights and practical tips on how to effectively network, build professional relationships, and expand your career opportunities. Don't miss this chance to enhance your networking abilities in a supportive, interactive environment. This workshop is available at no cost to student attendees.

To secure your place for this workshop, be sure to select it when registering for the congress.

NETWORKING AND SOCIAL EVENTS

The TMS Specialty Congress 2025 will have several networking opportunities and social events that will provide attendees with a chance to informally discuss the latest developments in the field, while also making valuable professional connections. Get to know potential collaborators, mentors, and colleagues by attending these events.

President's Welcome Reception: Connect with fellow attendees and exhibitors who you will encounter throughout the week on Sunday evening. Enjoy light refreshments.

Poster Session and Reception: Discover the most recent research featured at the poster session and enjoy refreshments while engaging with presenters.

Congress Luncheon(s): Join the congress luncheon(s) for the chance to further connect and network with fellow attendees. All full-congress registrants receive one ticket to the luncheon of their choice in their registration fee. If you would like to attend additional luncheons, tickets may be purchased during registration.

REGISTER BY APRIL 30 AND SAVE

Now is the time to take advantage of the early registration discount. When you register by April 30, you will save on your registration fee. Don't miss the chance to be part of this synergistic event. Register today at www.tms.org/SpecialtyCongress2025.

MEET WITH EXHIBITORS AND SPONSORS

TMS Specialty Congress 2025 will host a table-top exhibit, targeted to attendee interests, on Monday, June 16, through Wednesday, June 18. During this time, attendees can connect with the following sponsoring organizations:

- Zeiss
- Xnovo Technology
- RX Solutions
- TESCAN
- Math2Market
- And More!

Visit the TMS Specialty Congress website to view a current list of exhibitors and sponsors.

American Elements will also support the event as the conference guide sponsor.

BECOME A SPONSOR OR EXHIBITOR

Interested in sponsorship or exhibitor opportunities at TMS Specialty Congress 2025?

Explore the Congress Prospectus on www.tms.org/SpecialtyCongress2025 or contact the TMS Sales Team at sales@tms.org.

SAVE THE DATE FOR 2026



TMS Specialty Congress 2026
June 21–25, 2026 | Anaheim Marriott
Anaheim, California, USA
www.tms.org/SpecialtyCongress2026

TMS MEETING HEADLINES

Meeting information is current as of January 30, 2025. For the most recent updates on TMS-sponsored events, visit www.tms.org/Meetings.

TMS Specialty Congress 2025



June 15–19, 2025
 Anaheim, California,
 USA

Discount Registration Deadline: April 30, 2025

The All-Congress Plenary Sessions at TMS Specialty Congress 2025 will feature several invited speakers, including Jörg Neugebauer, Max-Planck-Institut für Eisenforschung, and David Rowenhorst, U.S. Naval Research Laboratory.

www.tms.org/SpecialtyCongress2025

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



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

Abstract Submission Deadline: May 1, 2025

Learn from those who are on the cutting edge of their disciplines, share your work with the leading minds in your field, and build the valuable cross-disciplinary collaborations unique to this conference series at the TMS Fall Meeting.

www.tms.org/TMSFall2025

Materials in Nuclear Energy Systems 2025 (MiNES 2025)



December 7–11, 2025
 Cleveland, Ohio,
 USA

Abstract Submission Deadline: May 1, 2025

MiNES 2025 serves as the professional destination for the fission reactor materials community where attendees will share the latest research and developments specific to the field. It is the fourth installment of this highly successful conference series.

www.tms.org/MiNES2025

OTHER MEETINGS OF NOTE



Extraction 2025 Meeting & Exhibition (Extraction 2025)

November 16–22, 2025
 Phoenix, Arizona, USA

www.extractionmeeting.org/Extraction2025



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

CO-SPONSORED MEETINGS

Offshore Technology Conference (OTC) 2025

May 5–8, 2025
 Houston, Texas, USA
Co-sponsored by TMS

OTC Brasil 2025

October 28–30, 2025
 Rio de Janeiro, Brazil
Co-sponsored by TMS

PRICM 12

August 9–13, 2026
 Gold Coast, Australia
Co-sponsored by TMS

TMS SPECIALTY CONGRESS 2025

VISIT SPONSORS AT THEIR EXHIBIT TABLES
AT TMS SPECIALTY CONGRESS 2025.

EXHIBIT DATES: JUNE 16–18, 2025

EXHIBITORS/SPONSORS



CONFERENCE GUIDE SPONSOR



EXHIBIT OPPORTUNITIES AT SPECIALTY CONGRESS 2025

It's Not Too Late to Join! Exhibit and Sponsorship Opportunities Still Available

The TMS Specialty Congress series convenes multiple specialty meetings under one roof, giving you three shows for the price of one!

For attendees and exhibitors alike, that means more opportunities and less travel.

This event offers your company an exceptional platform to:

- Introduce your products and services to a specialized and engaged audience
- Offer new product demonstrations and training
- Forge collaborations in new and established areas
- Recruit the best and brightest in the field

Interested in Exhibiting? Take the Next Step

Talk to a member of the TMS Sales Team to learn how Specialty Congress can be an efficient and effective way to meet new customers and collaboration partners.

Contact the TMS Sales Team at sales@tms.org or by calling 1-724-814-3140.

LEARN MORE AT WWW.TMS.ORG/SPECIALTYCONGRESS2025

SUBMIT AN ABSTRACT

Abstracts Due May 1, 2025

TMS FALL 2025

@MS&T
MATERIALS SCIENCE & TECHNOLOGY

September 28–October 1, 2025 | Columbus, Ohio | #TMSFallMeeting

Join your TMS colleagues for the
TMS Fall Meeting 2025 at
Materials Science & Technology.

Submit your work to one of 35 TMS-sponsored symposia
planned in the following subject areas:

- Additive Manufacturing
- Artificial Intelligence
- Biomaterials
- Ceramic and Glass Materials
- Fundamentals and Characterization
- Iron and Steel (Ferrous Alloys)
- Lightweight Alloys
- Materials-Environment Interactions
- Nuclear Energy
- Processing and Modeling
- Sustainability, Energy, and the Environment
- Special Topics



SHARE YOUR WORK TODAY!

Scan the QR code or visit:

www.tms.org/TMSFall2025