JOM

NOVEMBER 2023
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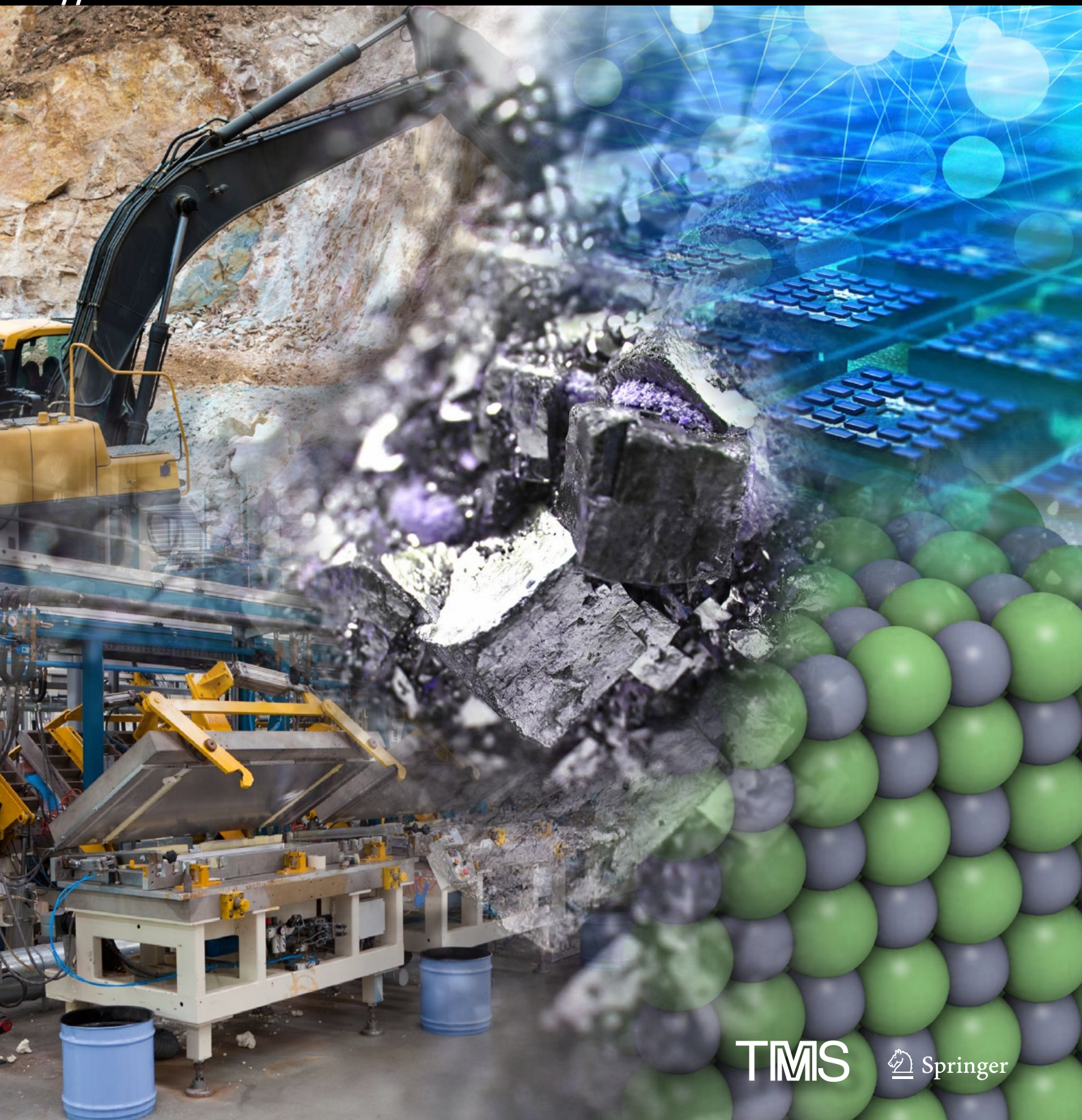
An official publication of The Minerals, Metals & Materials Society



TMS Springer

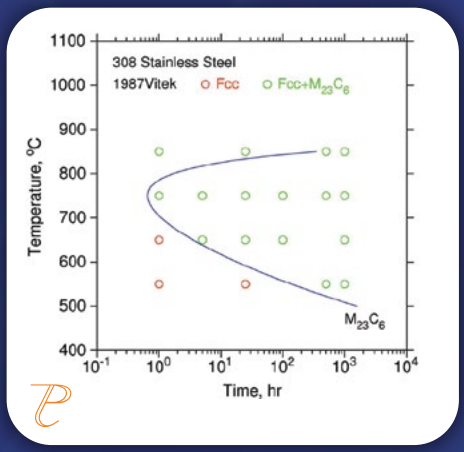
Thermo-Calc Software

Empowering Metallurgists, Process Engineers and Researchers

What if the materials data you need doesn't exist?

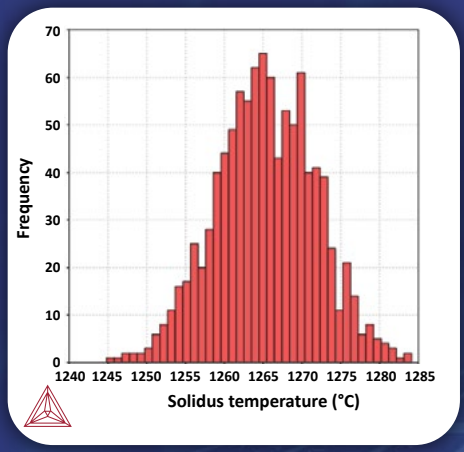
Gain insight into materials processing

Precipitation



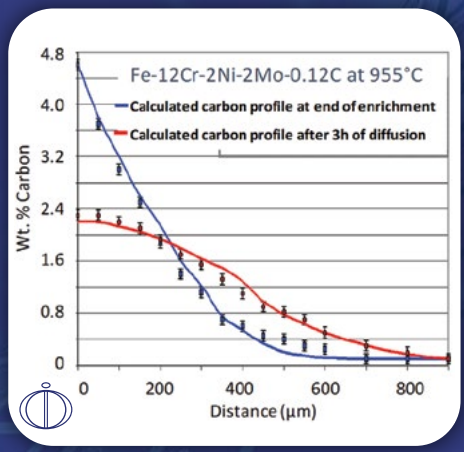
Time temperature precipitation of $M_{23}C_6$ in 308 stainless steel

Solidification



Solidus variation within Alloy 718 specification (Gaussian, n=1000)

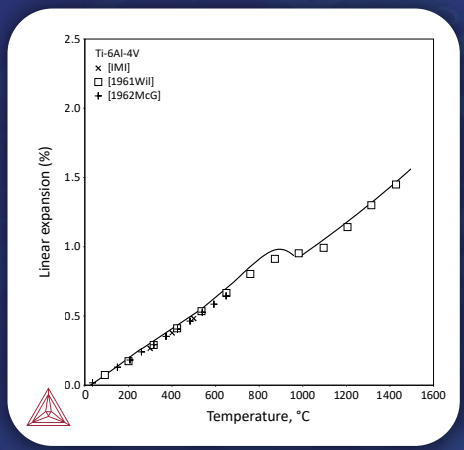
Diffusion



Carbon diffusion profile near surface during carburization of a martensitic stainless steel

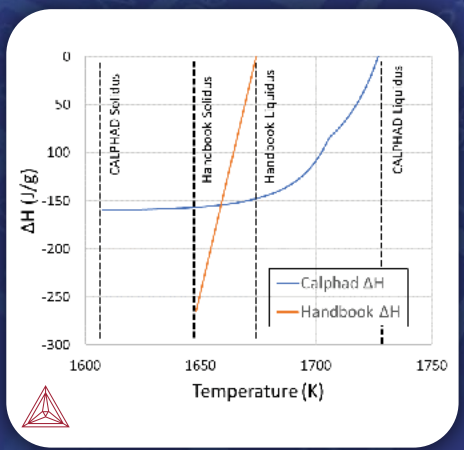
Predict a wide range of materials property data

Thermophysical Data



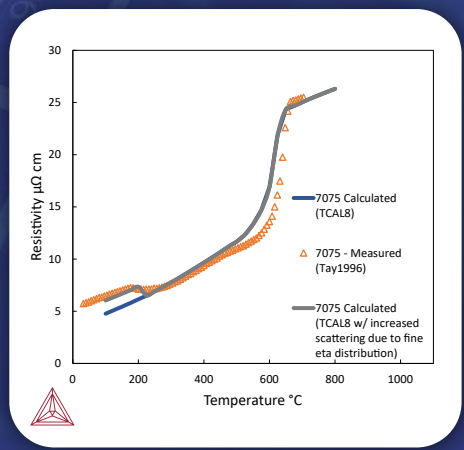
Linear expansion vs temperature for Ti-6Al-4V

Thermodynamic Properties



Calculated latent heat compared to handbook values for a specific 316L stainless steel chemistry

Electrical Resistivity



Calculated electrical resistivity of aluminum alloy 7075

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JOM Volume 75
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November 2023 Guest Editors

2D Materials – Preparation, Properties & Applications
Thin Films and Interfaces Committee
Ravindra Nuggehalli, New Jersey Institute of Technology; **Sufian Abedrabbo**, Khalifa University; **Hesam Askari**, University of Rochester; **Ramana Chintalapalle**, University of Texas-El Paso; and **Joshua Young**, New Jersey Institute of Technology

Applications of Machine Learning in Materials Development and Additive Manufacturing
Michael Groeber, The Ohio State University; and **Victoria Miller**, University of Florida

Machine Learning: Deformation Processes
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Phase Stability in Extreme Environments
Corrosion and Environmental Effects Committee and Alloy Phases Committee
XiaoXiang Yu, Novelis Global R&D; **Andrew Hoffman**, GE Global Research; **Bin Ouyang**, University of California Berkeley; **Wenjun Cai**, Virginia Tech; and **Wei Xiong**, University of Pittsburgh

Recycling End of Life Products Containing Aluminium
Aluminum Committee
Anne Kvithyld, SINTEF; and **Hong Peng**, The University of Queensland

The Role of Refractory Elements in Advanced Alloys and Ceramics for Extreme Environments
Refractory Metals & Materials Committee
Chai Ren, Xiamen Tungsten Co. Ltd.; and **Gaoyuan Ouyang**, Iowa State University

About the Cover
The five cover images represent the five technical divisions of The Minerals, Metals & Materials Society: Extraction & Processing, Functional Materials, Light Metals, Materials Processing & Manufacturing, and Structural Materials. In representing the five technical divisions, *JOM*: The Journal balances the interests of its members and authors in the monthly topics and articles it publishes.

About *JOM*:
The scope of *JOM* (ISSN 1047-4838) encompasses publicizing news about TMS and its members and stakeholder communities and publishing high-quality peer-reviewed materials science and engineering content. That content includes groundbreaking laboratory discoveries, the effective transition of science into technology, innovative industrial and manufacturing developments, resource and supply chain issues, improvement and innovation in processing and fabrication, and life cycle and sustainability practices. In fulfilling this scope, *JOM* strives to balance the interests of the laboratory and the marketplace by reporting academic, industrial, and government-sponsored work from around the world.

About TMS:
The Minerals, Metals & Materials Society (TMS) is a professional organization that encompasses the entire range of materials and engineering, from minerals processing and primary metals production to basic research and the advanced application of materials.

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TABLE OF CONTENTS

JOM
Volume 75
Number 11
November 2023

FEATURES

DEPARTMENTS

JOM
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IN THE FINAL ANALYSIS

JOM THE MAGAZINE

"For the first time in the survey's history, the challenge of generating non-dues revenue topped all other obstacles faced by associations. The value of traditional conferences, trade show and face-to-face events increased 10 percentage points from last year, ranking as the most valuable member engagement tool, while virtual events declined in popularity. Associations shifted away from social media when communicating with members, preferring to connect with members via direct email blasts and through the association's website."

—2023 Association Benchmarking Report

The numbers vary from source to source, but there are easily more than 100,000 individual professional associations in the United States. Some associations serve materials scientists and engineers (e.g., TMS). Others serve cardiologists, magicians, court reporters, and any other profession that you can think of, including the professionals employed by professional societies (e.g., the TMS staff). One thing at which association professionals excel is sharing best practices. An example of such collaboration is contributing to the report referenced above—an industry-wide survey conducted by Naylor Association Solutions.

I'm a keen reader of survey results, so here are a few of my takeaways from this year's Naylor report. (Percentages do not total as respondents could give multiple answers.)

- **Everyone has challenges.** The leading headwinds for associations are (1) "generating non-dues revenue" (58%); (2) "communicating member benefits effectively" (56%); and (3) "engaging young professionals" (54%), which leads to . . .
- **Engaging young professionals is the association grail.** Many tactics are employed in this regard with the three most popular being (1) "invite participation on volunteer committee" (59%); (2) "events geared toward young professional development and education" (49%); and (3) "providing mentoring programs" (47%). All of these and more are part of the TMS emerging professional engagement portfolio; indeed, they are points of pride within the Society.
- **How does one quantify member engagement?** Respondents identify the three most important criteria for assessing member engagement as (1) "attendance at events" (92%); (2) "participation on committees" (65%); and (3) "length of membership" (63%). My bias is toward length of membership, and the average length of membership for a TMS member is 14 years. Thank you!
- **Do I tweet? Like? Follow? Not bother?** Respondents report that association use of social media is on the wane. In fact, the use of 12 out of 13 platforms dropped, some significantly. Special "ouch" to X (née "Twitter"), which dropped 9 percentage points. The sole exception? LinkedIn, the use of which was up by 8 percentage points. An example in action: I switched my dominant social media participation from X to LinkedIn a few months ago.
- **Everyone's favorite song: "I've Got the Bandwidth Blues":** I was intrigued by the answers to a "what if" question: What would you do if you received an unplanned 50% increase in the annual budget? Of the respondents, 69% say that they would "hire more staff." A distant second (49%) say that they would "improve quality of existing member engagement vehicles." Good answers, but . . .

. . . what would I do? If I was awash in fresh revenue from *the current budget year only*, I would invest in improving the quality of existing member engagement vehicles. If the fresh revenue was *ongoing and sustainable year after year,* I would invest in more staff and then set them to work bolstering our member engagement vehicles. In either surplus scenario, however, I would find a way to reward existing staff for their dedication over the last few difficult years *and* invest significantly in our reserves for a rainy day. As the last four years have taught us—painfully—rainy days can come quickly, heavily, and unrelentingly.

James J. Robinson
Executive Director

James Robinson

"One thing at which association professionals excel is sharing best practices."

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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 November issue of *JOM:* The Journal. Each issue features several technical topics presenting a series of related articles compiled by guest editors. A preview of November technical topics and articles are listed below. TMS members can log in to www.tms.org/Journals for full access to technical articles from *JOM:* The Journal and additional TMS journals.

Article information is current as of September 6, 2023.
For the most up-to-date article listing, visit www.tms.org/JOM.

// NOVEMBER 2023

2D Materials – Preparation, Properties & Applications

Editors: **Ravindra Nuggehalli**, New Jersey Institute of Technology; **Sufian Abedrabbo**, Khalifa University; **Hesam Askari**, University of Rochester; **Ramana Chintalapalle**, University of Texas-El Paso; and **Joshua Young**, New Jersey Institute of Technology
Sponsor: Thin Films and Interfaces Committee

"A Comprehensive Review of Additively Manufactured H13 Tool Steel Applicable in the Injection Mold Industry: Applications, Designs, Microstructure, Mechanical Properties," **Narges Omidi,** et al.

"Effect of Sr^{+2} Substitution on the Structural and Optical Properties of $Ba_{1-x}Sr_xTiO_3$," **Hamed A. Gatea,** et al.

"Towards Stable Free Lead Mixed Halide Perovskite Thin Films on FTO-Coated Glass Substrate," **Youssouf Doumbia,** et al.

"Effective DC Conductivity of Polymer Composites Containing Graphene Nanosheets," **Yasser Zare,** et al.

"Novel *Solanum torvum* Fruit Biomass-Derived Hierarchical Porous Carbon Nanosphere as Excellent Electrode Material for Enhanced Symmetric Supercapacitor Performance," **Erman Taer,** et al.

"Facile Fabrication of Magnetic C-TiO_2NB_5/g-C_3N_4/Fe_3O_4 Composites and the Photocatalytic Performance Under Simulated Sunlight Irradiation," **Ping Zhang,** et al.

Applications of Machine Learning in Materials Development and Additive Manufacturing

Editors: **Michael Groeber**, The Ohio State University; and **Victoria Miller**, University of Florida

"Predicting Transformation Temperatures of Additively Manufactured NiTiHf Shape Memory Alloy Using Neural Network Modeling," **H. Abedi,** et al.

"Classification of T6 Tempered 6XXX Series Aluminum Alloys Based on Machine Learning Principles," **Tanu Tiwari,** et al.

"Prediction Model of Nickel Converter Based on Neural Network Algorithm," **Jiahao Xing,** et al.

"Machine Learning Models for Predicting and Controlling the Pressure Difference of Blast Furnace," **Dewen Jiang,** et al.

Machine Learning: Deformation Processes

Editors: **Michael Groeber**, The Ohio State University; and **Victoria Miller**, University of Florida

"Deep Neural Network Based Approach for Modeling, Predicting and Validating Weld Quality and Mechanical Properties of Friction Stir Welded Dissimilar Materials," **Shrushti Maheshwari,** et al.

"Grain Size Mismatch Dependent Crack Blunting in Bimodal Materials," **Junfeng Wang,** et al.

"Analysis of High-Cycle Fatigue Life Prediction of 304 Stainless Steel Based on Deep Learning," **Hongyan Duan,** et al.

Phase Stability in Extreme Environments

Editors: **XiaoXiang Yu**, Novelis Global R&D; **Andrew Hoffman**, GE Global Research; **Bin Ouyang**, University of California Berkeley; **Wenjun Cai**, Virginia Tech; and **Wei Xiong**, University of Pittsburgh
Sponsors: Corrosion and Environmental Effects Committee and Alloy Phases Committee

"Evaluation of Thermal Stability of ODS FeCrAl Alloy at Short-Term High Temperature," **Xi Wang,** et al.

"Structural Phase Stability Analysis on Shock Wave Recovered Single- and Polycrystalline Samples of $NiSO_4.6H_2O$," **A. Sivakumar,** et al.

"Influence of Cr Substitution on Structure, Magnetic Properties, and Magnetocaloric Effect of $MnCo_{1-x}Cr_xGe$ Alloys," **Xiaodong Sun,** et al.

"Phase Formation of a C6 Niobium Hemicarbide from Sub-stoichiometric NbC," **Ilias Bikmukhametov,** et al.

"Phase Stability During High-Temperature Oxidation," **R. Su,** et al.

"Cooling Rate Effect on Microstructures and Mechanical Properties of Ti-7Al-1Mo-0.5V-0.1C," **Jiayao Ying,** et al.

Recycling End of Life Products Containing Aluminium

Editors: **Anne Kvithyld**, SINTEF; and **Hong Peng**, The University of Queensland
Sponsor: Aluminum Committee

"Study of Aluminum–Iron Oxide Composites Obtained by Die Pressing of Industrial By-Products," **A. Esguerra-Arce,** et al.

"Effect of Additives on the Densification and Properties of Refractory Fabricated from Washed Residue of Secondary Aluminum Dross," **Ying Li,** et al.

"Characterization and Separation Behavior of Multi-layers in Aluminum-Rich Waste Pharmaceutical Blisters," **İrem Yaren Çapkın,** et al.

"Detoxification and Extraction of Solid and Hazardous Wastes for the Preparation of Molecular Sieves," **Mingzhuang Xie,** et al.

"Recovery of Valuable Metals from Spent Al_2O_3-Based Catalysts by Sodium Carbonate Roasting and Water Leaching," **Xin Liang,** et al.

"Preparation of Aluminum Dross Microporous Bricks and the Pore Formation Mechanisms," **Z.J. Zhang,** et al.

The Role of Refractory Elements in Advanced Alloys and Ceramics for Extreme Environments

Editors: **Chai Ren**, Xiamen Tungsten Co. Ltd.; and **Gaoyuan Ouyang**, Iowa State University
Sponsor: Refractory Metals & Materials Committee

"High-Temperature Rheological Behavior and Microstructure Evolution of Mo-12Si-8.5B Alloy Reinforced by Layered Mo_2TiAlC_2 Phase," **Xiaohui Lin,** et al.

"Synthesis and Sintering of Ultrafine $MoSi_2$-WSi_2 Composite Powders," **He-Qiang Chang,** et al.

"Flow Behavior and Processing Map for Hot Deformation of W-3Re-5HfC Alloy," **Yanchao Li,** et al.

"Vacuum Brazing of NIMONIC 105 Superalloy Using W-Rich BNi-10 and Conventional BNi-2 Fillers," **Mohammad Ammar Mofid,** et al.

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.

JOM
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TMS Welcomes New Members

Jillian Schultz

The TMS Board of Directors approved professional membership for the following individuals at its August 2023 meeting. Please join us in congratulating and welcoming them to all the privileges and benefits of TMS membership.

Approved August 2023

Abdul Hussain, Ahmed; Aluminium Bahrain Company, Bahrain

Abolhasani, Atekeh; Canada

Ahmed Al Jamri, Osama Abdul Husain; Aluminium Bahrain Company, Bahrain

Al Alawi, Hamdan; Sohar Aluminium, Oman

Al Shizawi, Roa; Sohar Aluminium, Oman

Al Siyabi, Nasr; Sohar Aluminium, Oman

Baker, Brian; Special Metals, United States

Birkholz, Henk; Leibniz-Institut für Werkstofforientierte Technologien - IWT, Germany

Bofah, Asebi; Rio Tinto, United States

Brice, Craig; Colorado School of Mines, United States

Carabell, Daniel; United States

Chapman, James; Boston University, United States

Choudhury, Fatima; United States

Cluff, Stephen; DEVCOM Army Research Laboratory, United States

Coley, Michael; University of the West Indies, Jamaica

Davis, Skyler; Exponent, Inc., United States

Deles-Stagner, DeeAnn; The Boeing Company, United States

Dietenhofer, Jaime; United States

D'Mello, Royan; University of Michigan, Ann Arbor, United States

Dorin, Thomas; Deakin University, Australia

Ebrahim Abdulla, Ali; Aluminium Bahrain Company, Bahrain

Escobar, Julian; Pacific Northwest National Laboratory, United States

Fakhimalizad, Amin; Colorado Department of Transportation, United States

Favre, Jeremy; Fives Solios Inc, France

Flowers, Richard; United States

Follett-Figueroa, Michael; United States

Galbraith, James; Oceaneering Space Systems, United States

Geathers, Jason; Exponent, Inc., United States

Glaessgen, Edward; NASA Langley Research Center, United States

Goetschius, Susan; Pratt & Whitney, United States

Gomes, Joseph; Gomes Consulting LLC, United States

Grabowski, Jeff; QuesTek Innovations LLC, United States

Grejtak, Tomas; Oak Ridge National Laboratory, United States

Grosbein, Hagay; Israel

Han, Fudong; Rensselaer Polytechnic Institute, United States

Hasan, Abdul Mohsin; Aluminium Bahrain Company, Bahrain

Hassani, Farid; US Steel, United States

Hearley, Brandon; NASA Glenn Research Center, United States

Hu, Jiamian; University of Wisconsin-Madison, United States

Hughes, Paul; Subsea7, United States

Idris, Zulkifli; Hydro Aluminium AS, Norway

Iyam, Solomon; University of Calabar, Nigeria

Jaffe, Adam; ARUP Laboratories, United States

Jain, Bhoopesh Kumar; Aluminium Bahrain Company, Bahrain

Jaramillo, Lucy; HDR, United States

Javed, Muhammad; North American Stainless, United States

Juhasz, Michael; Lawrence Livermore National Laboratory, United States

Lammatao, Joel; Aerojet Rocketdyne, United States

Lan, Yaozhong; Yunnan University, China

Lévesque, Jean-Benoit; Hydro-Quebec Research Institute, Canada

Lu, Dongping; Pacific Northwest National Laboratory, United States

Lutz, William; QuesTek Innovations LLC, United States

Mahapatro, Anil; Wichita State University, United States

Manganaris, Panayotis; United States

Martinez, Israel; United States

Matsuda, Asahiko; National Institute for Materials Science, Japan

McCoy, Stephen; Special Metals, United Kingdom

Mohamed, Sayed Mohamed; Aluminium Bahrain Company, Bahrain

Mokka, Akhil Kumar; India

Nguyen, Minh Hoang; University of Michigan, Ann Arbor, United States

Nikkhah-Moshaie, Roozbeh; TDK Headway Technologies, United States

Norkett, Justin; Naval Surface Warfare Center, Caderock Division, United States

Otte, Otho; Principia College, United States

Pepler, Daniel; Pratt & Whitney, Canada

Ren, Sicong; VTT Technical Research Centre of Finland, Finland

Richaud, Benjamin; Fives Solios Inc, France

Ritchie, Porter; United States

Roofian, Michael; Michael Roofian and Associates APC, United States

Roy, Indranil; Damorphe, United States

Rule, James; Ohio State University, United States

Sales Segarra, Elena; BP Energia Espana, Spain

Schaub, Erik; United States

Singh, Digvijay; National Institute for Materials Science, Japan

Stevens, Harrie; Alfred University, United States

Stewart, Calvin; Ohio State University, United States

Takekawa, Mitsuhiro; IHI Corporation, Japan

Tingler, Kevin; Helmerich & Payne, United States

Traore, Mohamed; Allied Gold Corp, Côte d'Ivoire

Tsukada, Masayuki; IHI Corporation, Japan

Valdant, Severine; QuesTek Innovations LLC, United States

Velazquez, Andrea; Scientific Control Laboratories, Inc., United States

Zhang, Boliang; United States

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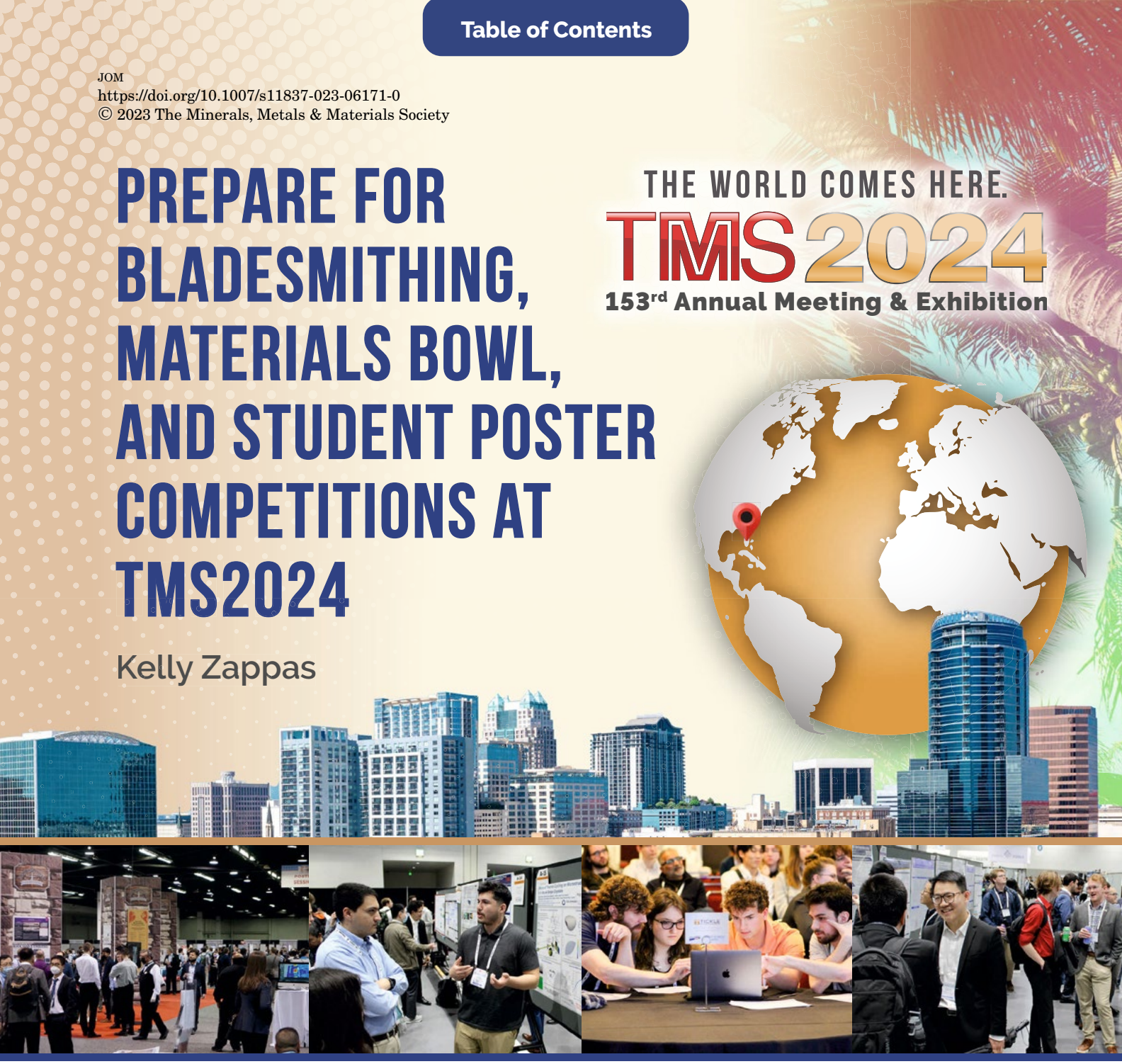
PREPARE FOR BLADESMITHING, MATERIALS BOWL, AND STUDENT POSTER COMPETITIONS AT TMS2024

Kelly Zappas



Competitions are a vital part of the student experience at the TMS Annual Meeting & Exhibition. Preparing for and participating in these events can help students to learn about new topics, practice public speaking and networking skills, and attract the attention of professional TMS members.

The TMS 2024 Annual Meeting & Exhibition (TMS2024) is currently accepting applications for three competitions: the 2024 TMS Bladesmithing Competition, the 2024 TMS Materials Bowl, and the 2024 TMS Technical Division Student Poster Contest. All three events will be held at TMS2024, March 3–7 in Orlando, Florida.

Both undergraduate and graduate students are encouraged to work with classmates on a Bladesmithing entry, form a team to enter the Materials Bowl, or submit an abstract for the poster contest. You can learn more about all three competitions—and how to enter them—in this article. Entry forms and submission forms can be accessed through the Student Events section of www.tms.org/TMS2024.

Students participating in these competitions should also register for the conference at the discounted student rate and plan to join us in Orlando for TMS2024.

TMS BLADESMITHING COMPETITION

Examples of winning blades from the last TMS Bladesmithing Competition, held at TMS2022.

The TMS Bladesmithing Competition, held once every two years, is consistently one of the most popular events (among both students and professionals) at the TMS Annual Meeting. The competition challenges student teams from around the world to produce a blade by hand hammering or trip hammer forging and to document the development of their blade in a video, technical report, and poster. All of the finished blades will be on display in the TMS2024 Exhibit Hall for all meeting attendees to view.

This competition is a unique experience for students because it provides hands-on practice with concepts such as heat transfer, coke combustion, forging, welding, and quenching. Past competitions have resulted in impressive displays of swords, machetes, and knives of various shapes and sizes.

All team entries will be evaluated, and the winning blade will be awarded the TMS Wadsworth-Sherby Bladesmithing Grand Prize Medal, a commemorative volume of *Wadsworth-Sherby Collected Works on Damascus Steels & Related Topics,* and a $2,000 cash prize. The second-place team will receive a $500 cash prize; third place will receive $250; and honorable mention will receive $100. Additional citations may also be awarded in the categories of beauty, historical accuracy, creative use of materials, hands-on process, and resourcefulness, as well as for an outstanding report, poster, or video.

Team members from the Missouri University of Science and Technology accept the TMS Wadsworth-Sherby Grand Prize at the 2022 TMS Bladesmithing Competition.

"The judging rubric has been adjusted slightly this year to take some of the pressure off of the blade's appearance and to emphasize creativity instead," said Courtney Hammer, TMS Membership Programs Manager. "Some of the previous years' entries were pretty elaborate, but if you're new to Bladesmithing, please don't let this intimidate you. This competition is less about complexity and appearance than it is about the science: why you choose particular materials, what temperatures you choose to heat them to, etc. The judges take all of these elements into account when they make their decisions."

You can learn more about blade specifications, judging rubrics, and entry requirements at the www.tms.org/Bladesmithing website.

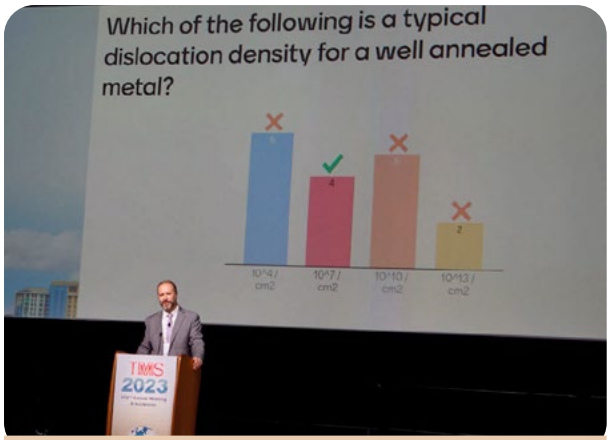
DEADLINE EXTENDED: ENTER THE TMS BLADESMITHING COMPETITION

The deadline to sign up for the 2024 TMS Bladesmithing Competition has been extended to **November 20**. To complete this step of the entry process, you will need the following items:

- **Acknowlegment Letter from Faculty Department Chair:** This signed, dated letter must include the faculty department chair's name and contact information, a statement acknowledging that the student(s) team(s) intend to compete in the Bladesmithing Competition at TMS2024, the name of the team captain, and the names of the team members.
- **Team Information:** You'll need to provide names and contact information for your team captain, faculty advisor, and team members.
- **Name for Your Blade:** Not sure yet what you want to title your entry? You can always enter a preliminary title for your blade now and update it later.

The entry form is available at www.tms.org/Bladesmithing.

2024 TMS MATERIALS BOWL



2023 TMS President Brad Boyce, host of the 2023 TMS Materials Bowl, reveals the results of a quiz question.

Each year, the TMS Materials Bowl brings students together for a fun event to kick off the first night of the TMS Annual Meeting. This fast-paced, materials-themed knowledge and trivia competition lets teams of students show off their knowledge of materials science and engineering—and of TMS—while competing for the title of Materials Bowl champion. In addition to gaining ownership of the Materials Bowl trophy, the winning team receives $500 for their student chapter, along with $250 for each member of the winning team. The second-place team receives $500 for their student chapter.

Applications are currently being accepted for the 2024 TMS Materials Bowl, which will be held on Sunday, March 3, at TMS2024 in Orlando. Each team should consist of four students, with no more than one graduate student per team. The deadline to apply is February 2, 2024.

PREPARING FOR THE MATERIALS BOWL: ONE TEAM'S EXPERIENCE

At the TMS 2023 Annual Meeting & Exhibition in San Diego, California, Carnegie Mellon University (CMU) participated in its first TMS Materials Bowl, taking second place in the overall competition. Their team, the Titanium Tartans, consisted of members Chase Guida, Lukas Glist, Phylicia Ma, and Nicholas Lamprinakos. Guida, the team's captain, spoke with *JOM: The Magazine* about how his school assembled their four-person team and prepared for the competition.

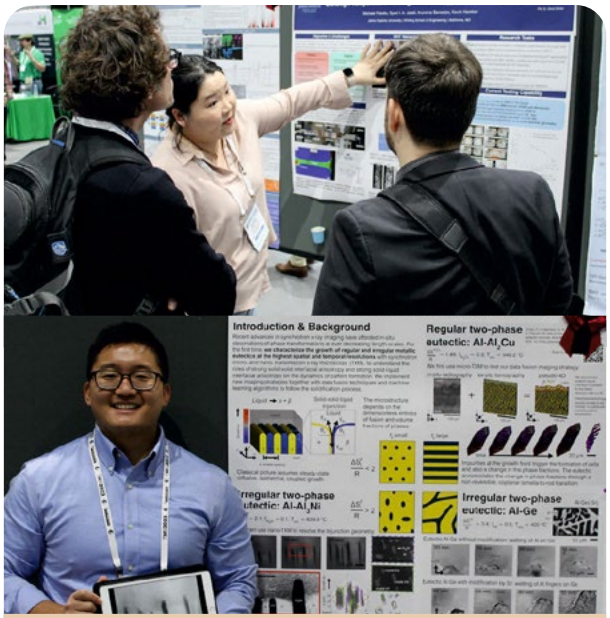
Carnegie Mellon University's Titanium Tartans team members, from left to right, Lukas Glist, Phylicia Ma, Chase Guida, and Nicholas Lamprinakos pose with 2023 TMS President Brad Boyce following the 2023 TMS Materials Bowl in San Diego.

"The secret to a great quiz bowl team is diversity, mainly in area of expertise," said Guida, who had prior experience leading a quiz-bowl team at his high school. Since all of the materials students at CMU were studying in the same program, however, their knowledge was all pretty similar. "Our professor made (in my opinion) a great call in separating our four attendees by year: one slot for a grad student, one for a junior or senior, one for a sophomore, and one to the best undergrad runner-up. I originally thought that limiting a whole slot to a sophomore would be detrimental, but I was wrong."

To fill these slots, they held a competition for anyone in the major who was interested. Professors posed questions on a number of different topics, and the top scorers from each category were invited to secondary rounds with their peers to determine who would represent the school in San Diego.

Once the team was assembled, Guida said they would have liked to hold practices, but the team members' busy schedules made it difficult. "We were relying on what we already learned, with the exception of the TMS trivia, which is a significant part of the competition," said Guida. "Our sophomore team member, Phylicia, learned all the TMS trivia, which helped us get every single TMS question correct. We undoubtedly would not have been on the podium without that."

2024 TECHNICAL DIVISION STUDENT POSTER CONTEST



2023 TMS Technical Division Poster Contest participants discuss their work during a poster session in the TMS2023 Exhibit Hall.

The 2024 Technical Division Student Poster Contest allows students to gain valuable recognition for their research. Posters are set up in a public display in the TMS2024 Exhibit Hall, where all attendees can view them, and presenters are invited to discuss their work with attendees during designated poster sessions that take place during exhibit receptions. It's a great way for students to gain visibility and recognition for their work.

When submitting poster entries, students will need to indicate which of the five TMS technical divisions most closely match their work: Extraction & Processing; Functional Materials; Light Metals; Materials Processing & Manufacturing; or Structural Materials. Up to ten awards will be given: one for an undergraduate poster and one for a graduate poster in each of the five divisions.

Please note that there are no cash prizes associated with the poster competition, but posters will be recognized publicly with a ribbon after the judging process is completed.

Poster abstracts can be submitted through the Student Events or Programming page at www.tms.org/TMS2024.

FUNDING YOUR TRIP TO TMS2024

Travel grants are available, both to student chapters and to individual students, to help offset the cost of travel to TMS2024. TMS offers each Material Advantage chapter an annual travel allowance of up to $500 to attend the TMS Annual Meeting & Exhibition. In addition, a limited number of individual travel grants of up to $500 each are available from the five TMS technical divisions. Individual grant applications are due November 15; chapter grant reimbursement requests must be submitted within two weeks following the meeting.

Learn more about applying for travel grants through the Student Events section of www.tms.org/TMS2024.

IMPORTANT DATES

November 20, 2023:
Bladesmithing Team Sign Up Deadline

January 10, 2024:
Technical Division Student Poster Contest Abstracts Due

January 14, 2024:
Bladesmithing Technical Report, Poster, Blade Photo, and Video Submission Deadline

February 2, 2024:
Materials Bowl Sign Ups Due

All competition entry/submission forms can be accessed through the Student Events page at www.tms.org/TMS2024.

JOM
https://doi.org/10.1007/s11837-023-06172-z

TMS MEETING HEADLINES

JOM THE MAGAZINE

Meeting dates and locations are current as of September 6, 2023.
For the most recent updates on TMS-sponsored events, visit **www.tms.org/Meetings**.

TMS 2024 Annual Meeting & Exhibition (TMS2024)

March 3–7, 2024

Orlando, Florida, USA

Housing Deadline: February 6, 2024

TMS2024 will feature five honorary symposia for distinguished TMS members who have contributed to all aspects of minerals, metals, and materials science and engineering. Those members are Wole Soboyejo, Victorino Franco, Uday B. Pal, Anil K. Sachdev, and Takashi Nakamura.

www.tms.org/TMS2024

TMS Specialty Congress 2024

June 16–20, 2024

Cleveland, Ohio, USA

Discount Registration Deadline: April 30, 2024

The World Congress on Artificial Intelligence in Materials and Manufacturing will be one of the co-located meetings featured at TMS Specialty Congress 2024. It is the second event of its kind to focus on the role of artificial intelligence (AI) in materials science and engineering and related manufacturing processes.

www.tms.org/SpecialtyCongress2024

15th International Symposium on Superalloys (Superalloys 2024)

September 8–12, 2024

Champion, Pennsylvania, USA

Manuscript Submission Deadline: January 31, 2024

Superalloys 2024 is being organized by the following individuals: Jonathan Cormier, Ian Edmonds, Stephane Forsik, Paraskevas Kontis, Corey O'Connell, Timothy Smith, Akane Suzuki, Sammy Tin, and Jian Zhang.

www.tms.org/Superalloys2024

TMS Fall Meeting 2024 at Materials Science & Technology (MS&T24)

October 6–9, 2024

Pittsburgh, Pennsylvania, USA

Abstract Submission Deadline: May 1, 2024

TMS Fall 2024 presents robust programming, networking and social activities, and professional development events tailored to TMS member interests within the broader structure of the MS&T conference series, giving attendees an opportunity to experience both their TMS community and the resources of all the MS&T partnering societies.

www.tms.org/TMSFall2024

Other Meetings of Note

TMS 2025 Annual Meeting & Exhibition (TMS2025)

March 23–27, 2025

Las Vegas, Nevada, USA

www.tms.org/TMS2025

TMS Specialty Congress 2025

June 15–19, 2025

Anaheim, California, USA

www.tms.org/SpecialtyCongress2025

Extraction 2025 Meeting & Exhibition (Extraction 2025)

November 16–20, 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

11th Pacific Rim International Conference on Advanced Materials and Processing

November 19–23, 2023

Jeju, South Korea

Co-sponsored by TMS

Materials in Nuclear Energy Systems (MiNES 2023)

December 10–14, 2023

New Orleans, Louisiana, USA

Co-sponsored by TMS

OTC Asia 2024

February 27–March 1, 2024

Kuala Lumpur, Malaysia

Co-sponsored by TMS

Offshore Technology Conference 2024

May 6–9, 2024

Houston, Texas, USA

Co-sponsored by TMS

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153rd Annual Meeting & Exhibition

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MARK YOUR CALENDAR WITH THESE KEY DATES

January 31, 2024: Discounted Registration Deadline

February 6, 2024: Housing Deadline

March 3–7, 2024: Conference Dates

www.tms.org/TMS2024

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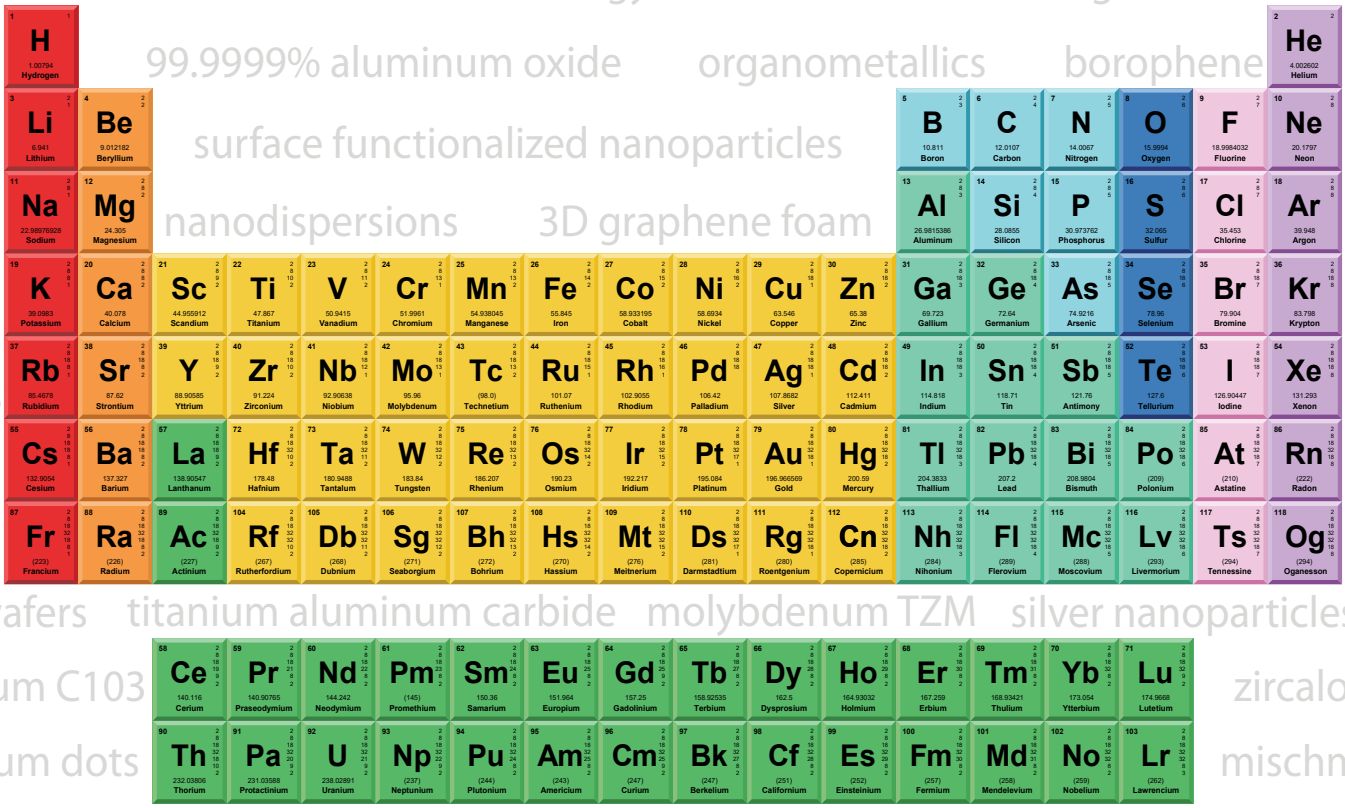

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