

ALREADY A RECORD SETTER: Previewing the TMS 2020 Annual Meeting & Exhibition

Kelly Zappas

TMS 2020

149th Annual Meeting & Exhibition

POP QUIZ:

What was the location of the best-attended TMS Annual Meeting in the Society's history?

ANSWER:

San Diego, California. The year was 2017, and the city welcomed 4,642 scientists, engineers, and students from around the world for the TMS 2017 Annual Meeting & Exhibition.



The TMS 2020 Annual Meeting & Exhibition (TMS2020) will be returning to San Diego, February 23–27, and already this meeting is setting its own records. With 4,950 abstracts submitted at last count—compared to 4,913 in 2017—TMS2020 officially holds the record for most abstracts submitted to a TMS Annual Meeting.

While this isn't the final number of presentations that will be held at the meeting in February (this number doesn't account for presentations that are not accepted or are cancelled)—it does indicate a growing conference that is attracting minerals, metals, and materials scientists, engineers, and students from around the world.

At TMS2020, papers will be presented at more than 85 symposia in 15 topic areas: Additive Technologies, Materials Processing, Mechanics & Structural Reliability, Corrosion, Nuclear Materials, Physical Metallurgy, Light Metals, Characterization, Nanostructured and Heterostructured Materials, Advanced Materials, Electronic Materials, Energy & Environment, Biomaterials, Materials Design, and Special Topics.

In addition to this core technical program, the meeting will include keynote sessions featuring invited speakers, special lectures from award recipients, invited luncheon lecturers, and an all-conference plenary speaker, as well as social and networking events.

While this article offers a glimpse of what's planned for TMS2020, please visit the conference website, www.tms.org/TMS2020, for the most up-to-date information on featured presentations, special events, and preliminary technical program information.

MEET THE ALL-CONFERENCE PLENARY SPEAKER:



John Mason, Director of Gas Turbine Products Engineering at Solar Turbines Incorporated, will deliver the TMS2020 All-Conference Plenary presentation on

Monday, February 24. Mason's talk, "Leveraging Materials Innovation to Drive Industrial Gas Turbine Performance and Secure a Sustainable Future," will look at the increasing importance of industrial gas turbine engines in today's energy landscape. He will discuss improvements in gas turbine engine performance that have been enhanced by an array of materials and processing advances. His talk will also look at how materials engineering innovations, such as Integrated Computational Materials Engineering, high-entropy alloys, and additive manufacturing, are driving progress in gas turbine technology development, application, and time-to-market.

"These advancements, championed by a new generation of materials scientists and engineers, will further enhance and expand the performance and application of industrial gas turbine technology," Mason writes in his abstract.

PbZn 2020 COMES TO TMS2020



The 9th International Symposium on Lead and Zinc Processing (PbZn 2020) will be co-located with TMS2020, giving attendees access to the technical programs of both events for a single registration fee. Established in 1970, the PbZn symposium series is considered the leading international technical forum for the lead and zinc processing industries.

In addition to more than 100 planned technical presentations over the course of the week, PbZn 2020 will feature two special events.



On Monday evening, February 24, the PbZn 2020 networking event, **PuBZoNe**, will offer attendees the opportunity to connect in a relaxed, causal setting at a local San Diego restaurant. Drink tickets and light appetizers will be provided; attendees can purchase

tickets for this event through the TMS2020 registration form.

On Tuesday afternoon, Markus Reuter, Helmholtz Institute Freiberg for Resource Technology, will deliver the **Extraction & Processing Division/Materials Processing & Manufacturing Division/PbZn2020 Luncheon Lecture**. (See "Luncheon Lectures" in this article for details.)

PbZn 2020 is organized by TMS, with sponsorship from the Hydrometallurgy and Electrometallurgy Committee and the Pyrometallurgy Committee. The Metallurgy & Materials Society of the Canadian Institute of Mining, Metallurgy and Petroleum; Gesellschaft der Metallurgen und Bergleute; and The Mining and Materials Processing Institute of Japan are co-organizers of the event, and the Nonferrous Metals Society of China is a co-sponsor.

ELECTROMETALLURGY 2020 JOINS TMS2020

The 3rd International Symposium on Electrometallurgy will also be held at TMS2020, bringing together industry, consulting engineers, and researchers to discuss fundamental research, development, and application of innovative aqueous or molten salt electrometallurgical processing technologies for the extraction of metals. The previous two symposia were held in Orlando in 2012 and Quebec City in 2016.

A highlight of this year's event will be **Sadoway 70**, an honorary symposium dedicated to the innovative contributions of Donald Sadoway, Massachusetts Institute of Technology (MIT). Formally titled **Process Metallurgy and Electrochemistry of Molten Salts, Liquid Metal Batteries, and Extra-terrestrial Materials Processing: An EPD Symposium in Honor of Don Sadoway**, this

symposium will feature a line-up of invited speakers, and topics will encompass process metallurgy and electrochemistry of molten salts, liquid metal batteries, and extra-terrestrial materials processing.

Electrometallurgy 2020 is organized by TMS and the Metallurgy and Materials Society (MetSoc) of the Canadian Institute of Mining, Metallurgy, and Petroleum (CIM), with leadership from the TMS Extraction & Processing Division and support from the Hydrometallurgy and Electrometallurgy, Process Modeling and Technology, and Pyrometallurgy committees of TMS.

INTRODUCING THE DIFFUSION ZONE AND SILENT SESSIONS

Attendees can experience a new way of networking and sharing ideas at the TMS Annual Meeting, using digital technologies and innovative presentation approaches that will be piloted at TMS2020.

First up is the **Diffusion Zone**, which is the new name for the poster session held at TMS Annual Meetings. The concept is to create diffuse networking and engagement opportunities for poster session presenters and other meeting attendees through the addition of new elements that blend traditional, digital, and other approaches. In addition to traditional posters, the Diffusion Zone will feature digital posters displayed on monitors, embedded demos, and the use of a streamlined poster template. Attendees will even be able to provide feedback on posters through an app-based rating system.

Attendees will also be able to sample multiple sessions in a single location using "**silent session**" headset technology. Here's how it will work: several speakers will be set up in one large presentation space. Each speaker will stand behind a podium and deliver a slide presentation as usual, but attendees will listen to the presentation through a set of headphones. This approach allows several related sessions to be held concurrently in the same room, making it easier for attendees to sample different presentations and session hop without leaving the room.

TMS is piloting this approach with select symposia at the 2020 meeting, but all are welcome to attend and provide feedback on how we can use silent sessions to make your Annual Meeting experience more productive and easier to navigate in the future.

HONORARY SYMPOSIA AT TMS2020



In addition to the Sadoway 70 symposium at Electrometallurgy 2020, TMS will honor several prominent members at three additional honorary symposia during TMS2020.

Innovations in High Entropy Alloys and Bulk Metallic Glasses: A Structural Materials Division & Functional Materials Division Symposium in Honor of Peter K. Liaw will honor Liaw, professor at the University of Tennessee, Knoxville, for his significant contributions to materials science and engineering and TMS. Sessions will emphasize processing, microstructures, and mechanical behavior of bulk metallic glasses, high-entropy alloys, and other areas in which Liaw has made contributions.

Progress towards Understanding the Synthesis and Behavior of Metals Far from Equilibrium: A Structural Materials Division Symposium Honoring Enrique Lavernia on the Occasion of His 60th Birthday will honor Lavernia, provost and executive vice chancellor for the University of California, Irvine, for his outstanding contributions to materials science for more than 30 years. Lavernia has made seminal contributions to the synthesis and behavior of nanostructured and multi-scale materials with particular emphasis on processing fundamentals and physical behavior, thermal spray processing of nanostructured materials, spray atomization and deposition of structural materials, high temperature-high pressure atomization processes, and additive manufacturing of metals.

Purveyors of Processing Science and Integrated Computational Materials Engineering: A Structural Materials Division Symposium to Honor the Many Contributions of Taylan Altan, Wei Tsu Wu, Soo-Ik Oh, and Lee Semiatin will recognize the contributions of a small group of scientists and engineers who came together at Battelle Memorial Institute in the late 1970s to work on a wide range of metals processing techniques. The symposium's central themes will be processing, process simulation, and modeling the evolution of microstructure/texture/defects during processing. Invited speakers from academia and government labs will highlight the honorees' technical breadth and depth while those from industry will highlight the impact of their work in a production environment.

NEW SPOTLIGHT LUNCHEON PLANNED



Glenn Daehn

The new **Materials and Manufacturing Innovation Spotlight Luncheon**, planned for Thursday afternoon, February 27, will feature presentations by three speakers, including Glenn Daehn of The Ohio State University. Daehn was the team lead for the March 2019 study, *Metamorphic Manufacturing: Shaping the Future of On-Demand Components*,

organized by TMS on behalf of the Office of Naval Research and the Lightweight Innovations for Tomorrow Manufacturing Institute. Registrants can purchase a boxed lunch through the registration form, but anyone can attend the lectures at no cost.

LIGHT METALS KEYNOTE SESSION PLANNED



Attracting and Growing the Next Generation of Technical Talent for the Light Metals Industry will be the topic of the Light Metals Keynote session at TMS2020. This annual event, which kicks off Light Metals programming at the annual meeting, will feature global perspectives on the topic from **Margaret Hyland**, Vice Provost Research, Victoria University of Wellington, New Zealand; **Alan A. Luo**, The Ohio State University, USA; **Robert B. Wagstaff**, Chief Scientist and Senior Fellow, Novelis Inc., USA; **Nina Dahl**, Research Director, Metal Production and Processing, SINTEF Industry, Norway; and **Joe Lombard**, Global Managing Director: Metals, Mining & Minerals, Hatch, Canada. The session will conclude with a panel discussion.

For the most up-to-date information on keynote plans, visit the Featured Sessions section of the TMS2020 website.

LUNCHEON LECTURES AT TMS2020

Throughout the week at TMS2020, the Society's technical divisions will hold luncheon events that offer division members an opportunity to network, honor outstanding members, and hear from an invited speaker selected by the division leadership. Anyone can listen to the lecture portions of these events, but tickets are required to receive a lunch. Tickets can be purchased for \$40 each through the TMS2020 registration form.



Ricardo Lebensohn of Los Alamos National Laboratory will headline the Structural Materials Division Luncheon on Monday, February 24, with the presentation, "How Modelers Are Keeping up with Emerging Materials Characterization and Data Analytics Techniques." In this talk, Lebensohn will introduce recent advances coming out of the

mechanics of materials community for the analysis of the micromechanical response and microstructure evolution of polycrystalline materials in three dimensions.



Markus Reuter of the Helmholtz Institute Freiberg for Resource Technology will deliver the talk "Process Metallurgy as a Key Enabler of the Circular Economy: Digital Twinning of the Resource and Processing System" at the Extraction & Processing Division/Materials Processing & Manufacturing Division/PbZn2020 Luncheon on

Tuesday, February 25. Reuter's research and industrial interests include process metallurgy, system engineering, process design, optimization and simulation, recycling and design for recycling—all in the context of sustainability and the circular economy paradigm.

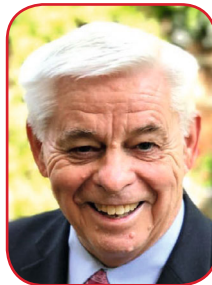


Mark Easton of RMIT University will be the featured speaker at the Light Metals Division Luncheon on Wednesday, February 26, discussing "Near Net Manufacturing of Light Metal Alloys." Easton has more than 20 years of experience in solidification processing of light alloys, initially focusing on casting. This talk will

highlight the development of near net shape manufacturing of light metal alloys.

AWARD LECTURES

The following award recipients will be honored with featured lectures at TMS2020:



Phillip Mackey, P.J. Mackey Technologies Inc., will deliver the Extraction & Processing Division Distinguished Lecture, "Around the Lead and Zinc Metallurgical World in Eighty Days: A Virtual Tour of World Lead and Zinc Operations and Technologies."



Ursula R. Kattner, National Institute of Standards and Technology, will deliver the William Hume-Rothery Award Lecture, "Phase Diagrams, Computational Thermodynamics and CALPHAD."



Yuntian Zhu, North Carolina State University, will deliver the Institute of Metals/Robert Franklin Mehl Award Lecture, "Heterostructured Materials: A New Paradigm for Designing Metals with Superior Mechanical Properties."



Robert O. Ritchie, H.T. & Jessie Chua Distinguished Professor of Engineering in the Departments of Materials Science & Engineering and Mechanical Engineering at the University of California in Berkeley, will be the inaugural William D. Nix Award Lecturer at TMS2020.



Douglas Hofmann, principal at NASA's Jet Propulsion Laboratory, will deliver the first Young Innovator in the Materials Science of Additive Manufacturing Award Lecture, "Innovation in Additive Manufacturing: A Perspective on an Early Career in Metal Alloy Development." His presentation will be part of the TMS2020 Additive Manufacturing keynote session.

For information about dates and locations for these award lectures, visit the Events section of www.tms.org/TMS2020.

MAKE YOUR TRAVEL PLANS TODAY

Registration is now open for TMS2020. When you register for the conference, you can reserve your place at workshops, courses, luncheons, and networking events. (If you've already registered, you can log back in to the registration website at any time to add an event.) To receive the discounted advance registration rate, you must register by **January 17, 2020**. Through www.tms.org/TMS2020, you can also:

BOOK HOUSING: A limited number of rooms have been reserved for TMS2020 attendees at discounted rates at the Marriott Marquis San Diego Marina, which will act as the TMS headquarters hotel and will be the site of many of the event's social activities and committee meetings. Secure a convenient and affordable room by booking through TMS's official housing provider OnPeak at the TMS2020 Housing web page.

APPLY FOR FAMILY CARE GRANTS: If you will incur additional childcare or other family care costs as a result of attending TMS2020, you can apply for a TMS Family Care Grant, which provides a limited number of grants to help offset these expenses. Available on a first-come, first-served basis.

Information on short courses and workshops, keynote sessions, networking events, and other activities are regularly being added to www.tms.org/TMS2020, so check the website frequently for updates. We look forward to seeing you in San Diego in February!

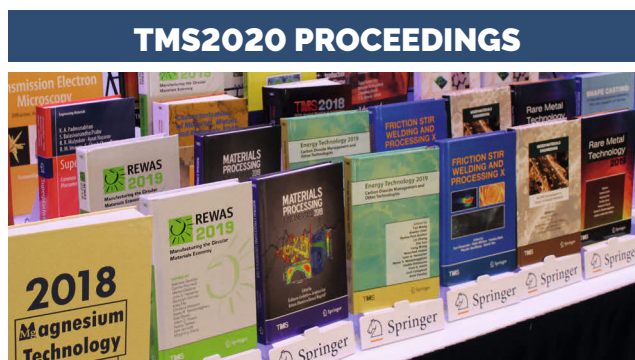
IN THE EXHIBIT HALL



The TMS2020 Exhibit Hall, open Monday, February 24, through Wednesday, February 26, will be the setting for several major social and networking events at the conference, giving attendees ample opportunity to explore exhibitors' products and services while connecting with fellow attendees.

The exhibit hall will host two receptions: the Exhibit Opening Reception and Poster Session on Monday evening and the Exhibit Hall Happy Hour and Poster Session on Tuesday evening. Both events will feature appetizers, beverages, and networking opportunities. Also, on Monday, Tuesday, and Wednesday afternoon, lunch will be served in the exhibit hall for all full-conference attendees.

Find out which companies will be featured at the exhibit and view an interactive floor plan at www.tms.org/TMS2020Exhibit. Spaces are still available for exhibiting companies. Contact Gavin McAuliffe, TMS2020 Exhibit Manager at Corcoran Expositions, at gavin@corcexpo.com. Sponsorship opportunities are also available. Contact Mary Michalik, TMS2020 Sponsorship Manager at Corcoran Expositions, at mary@corcexpo.com or visit www.tms.org/TMS2020Sponsor to learn more.



TMS2020 attendees in most registration classes will receive free online access to the complete collection of proceedings publications. The following volumes will be included in this online proceedings content, and hard copies will be available for purchase at TMS2020:

- *11th International Symposium on High-Temperature Metallurgical Processing*
- *Advances in Powder and Ceramic Materials Science*
- *Characterization of Minerals, Metals, and Materials 2020*
- *Energy Technology 2020: Recycling, Carbon Dioxide Management, and Other Technologies*
- *Light Metals 2020*
- *Magnesium Technology 2020*
- *Materials Processing Fundamentals 2020*
- *Nanocomposites VI: Nanoscience and Nanotechnology in Advanced Composites*
- *Rare Metal Technology 2020*
- *PbZn 2020: The 9th International Symposium on Lead and Zinc Processing*
- *TMS2020 Supplemental Proceedings*

Approximately one week prior to the meeting, preregistered attendees will receive information on how to access proceedings content.

