

THE WORLD COMES HERE

TMS 2019

148th Annual Meeting & Exhibition

33RD EXHIBITION

Located in the Henry B. González Convention Center, Hall 3

EXHIBIT HOURS AND EVENTS

Monday, March 11

Exhibit Hours: 11:00 a.m. to 7:00 p.m.
Lunch in the Exhibit Hall: 1:00 p.m. to 2:30 p.m.
Exhibit Opening Reception & Poster Session I
Presentations: 5:30 p.m. to 7:00 p.m.

Tuesday, March 12

Exhibit Hours: 11:00 a.m. to 7:00 p.m.
Lunch in the Exhibit Hall: 11:30 a.m. to 1:30 p.m.
Exhibit Hall Happy Hour & Poster Session II
Presentations: 5:30 p.m. to 7:00 p.m.
REWAS 2019 Reception: 5:30 p.m. to 7:00 p.m.

Wednesday, March 13

Exhibit Hours: 10:00 a.m. to 2:00 p.m.
Lunch in the Exhibit Hall: 11:30 a.m. to 1:30 p.m.



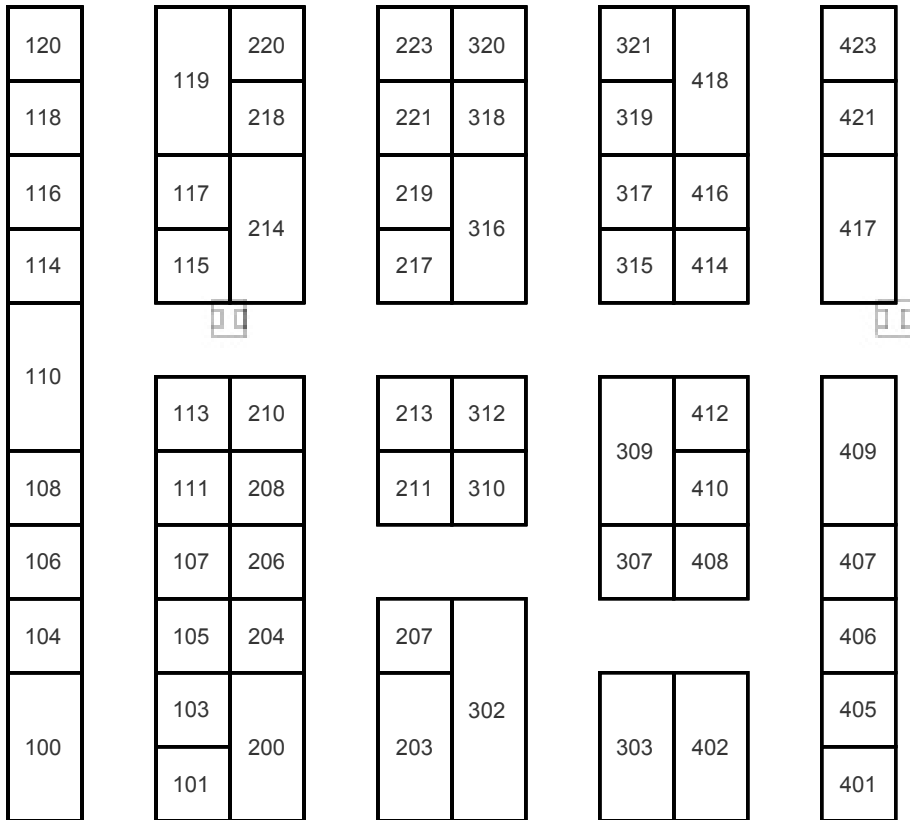
Visit the TMS
Bladesmithing
Competition
in the Exhibit
Hall!

ABB, Inc.	Booth # 315	MDPI AG	Booth # 137
AdValue Technology LLC	Booth # 206	Mechatherm International Ltd	Booth # 335
Advanced Dynamics Corporation Ltd.	Booth # 220	Micro Materials Ltd	Booth # 232
Allied High Tech Products	Booth # 132	Microtrac Inc.	Booth # 416
ALMEX USA, Inc.	Booth # 119	MTI Corporation	Booth # 101
ALTEK, LLC	Booth # 303	MTS Systems Corporation	Booth # 332
American Welding Society	Booth # 113	Nanovea	Booth # 120
Anton Paar USA	Booth # 133	Netzsch Instruments NA LLC	Booth # 401
Bloom Engineering Co. Inc.	Booth # 108	NKM Noell Special Cranes GmbH	Booth # 316
BlueQuartz Software	Booth # 221	Nuclear Science User Facilities	Booth # 407
Bruker Nano	Booth # 302	Outotec	Booth # 203
Claudius Peters Projects GmbH	Booth # 204	Pace Technologies	Booth # 213
CompuTherm, LLC	Booth # 207	PolarOnyx, Inc.	Booth # 410
EAG Laboratories	Booth # 103	Precimeter Inc.	Booth # 127
EBSD Analytical	Booth # 228	PROTO	Booth # 105
EDAX	Booth # 320	Pyrotek Inc	Booth # 124
Elsevier	Booth # 402	Robomet 3D / UES, Inc.	Booth # 211
FemtoTools AG	Booth # 418	Seco/Warwick Corp	Booth # 106
Filterfab	Booth # 224	Sente Software Ltd.	Booth # 223
Fives	Booth # 307	Shandong Hwapeng Precision Machinery Co., Ltd.	Booth # 110
Fritsch Milling & Sizing, Inc.	Booth # 208	Shanghai Jiao Tong University	Booth # 114
Gautschi Engineering GmbH	Booth # 129	Shenzhen Summit Levitation Metallurgical S&T Co., Ltd	Booth # 236
Gillespie & Powers	Booth # 200	Southwire SCR Technologies	Booth # 104
GLAMA	Booth # 309	STAS Inc.	Booth # 321
GNA alutech inc.	Booth # 218	Sunresin New Materials Co. Ltd. Xi'an	Booth # 111
Goodfellow Corp	Booth # 408	Synton Mdp AG	Booth # 219
Granta Design	Booth # 115	TA Instruments	Booth # 125
Haarslev Industries Press Technology GmbH + Co.Kg	Booth # 210	Techmo Car S.p.A	Booth # 333
Hencon	Booth # 409	Tenova Inc.	Booth # 107
Hitachi High Technologies America, Inc.	Booth # 310	The Metallurgy and Materials Society of CIM	Booth # 233
Hycast AS	Booth # 412	Thermo Fisher Scientific	Booth # 217
INL Nuclear Science & Technology	Booth # 405	Thermo-Calc Software	Booth # 312
International Aluminium Journal	Booth # 318	TMS Bladesmithing Competition	Booth #227
IRTC	Booth # 136	Wagstaff, Inc.	Booth # 423
Kinaltek Pty Ltd	Booth # 128	Zeiss Microscopy	Booth # 214
KLA Corporation	Booth # 327	Zhengzhou Jingwei Technology Industry Co.,Ltd	Booth # 417
Leica Microsystems	Booth # 406	Zircar Ceramics	Booth # 117
Light Metal Age	Booth # 319		
Maschinenfabrik Gustav Eirich GmbH & Co KG	Booth # 317		

Food & Beverage



Posters



Posters

ENTRANCE

Additive Technologies		Hitachi High Technologies America, Inc.	Booth # 310
American Welding Society	Booth # 113	INL Nuclear Science & Technology	Booth # 405
BlueQuartz Software	Booth # 221	Micro Materials Ltd	Booth # 232
Elsevier	Booth # 402	Microtrac Inc.	Booth # 416
Granta Design	Booth # 115	MTS Systems Corporation	Booth # 332
INL Nuclear Science & Technology	Booth # 405	Netzsch Instruments NA LLC	Booth # 401
Kinaltek Pty Ltd	Booth # 128	Nuclear Science User Facilities	Booth # 407
Robomet 3D / UES, Inc.	Booth # 211	Pace Technologies	Booth # 213
Zeiss Microscopy	Booth # 214	Robomet 3D / UES, Inc.	Booth # 211
Zircar Ceramics	Booth # 117	Synton Mdp AG	Booth # 219
Advanced Materials		TA Instruments	Booth # 125
AdValue Technology LLC	Booth # 206	Thermo Fisher Scientific	Booth # 217
CompuTherm, LLC	Booth # 207	Zeiss Microscopy	Booth # 214
EAG Laboratories	Booth # 103	Corrosion	
EBSD Analytical	Booth # 228	Bruker Nano	Booth # 302
Fritsch Milling & Sizing, Inc.	Booth # 208	Nanovea	Booth # 120
GLAMA	Booth # 309	Energy & Environment	
Goodfellow Corp	Booth # 408	Bloom Engineering Co. Inc.	Booth # 108
Granta Design	Booth # 115	Filterfab	Booth # 224
Maschinenfabrik Gustav Eirich GmbH & Co KG	Booth # 317	Fritsch Milling & Sizing, Inc.	Booth # 208
Micro Materials Ltd	Booth # 232	IRTC	Booth # 136
MTS Systems Corporation	Booth # 332	MTI Corporation	Booth # 101
Nanovea	Booth # 120	Sunresin New Materials Co. Ltd. Xi'an	Booth # 111
Nuclear Science User Facilities	Booth # 407	Light Metals	
Pyrotek Inc	Booth # 124	Advanced Dynamics Corporation Ltd.	Booth # 220
Shanghai Jiao Tong University	Booth # 114	ALMEX USA, Inc.	Booth # 119
Shenzhen Summit Levitation Metallurgical S&T Co., Ltd	Booth # 236	ALTEK, LLC	Booth # 303
TA Instruments	Booth # 125	Filterfab	Booth # 224
Thermo Fisher Scientific	Booth # 217	Fives	Booth #307
Zeiss Microscopy	Booth # 214	Gautschi Engineering GmbH	Booth # 129
Zircar Ceramics	Booth # 117	GNA alutech inc.	Booth # 218
Biomaterials		Goodfellow Corp	Booth # 408
Granta Design	Booth # 115	Hencon	Booth # 409
Shanghai Jiao Tong University	Booth # 114	Hycast AS	Booth #412
Characterization		International Aluminium Journal	Booth #318
ABB, Inc.	Booth # 315	Light Metal Age	Booth # 319
Anton Paar USA	Booth # 133	MDPI AG	Booth # 137
BlueQuartz Software	Booth # 221	MTI Corporation	Booth # 101
Bruker Nano	Booth # 302	Outotec	Booth # 203
EAG Laboratories	Booth # 103	Seco/Warwick Corp	Booth # 106
EBSD Analytical	Booth # 228	Shandong Hwapeng Precision Machinery Co., Ltd.	Booth # 110
EDAX	Booth # 320	Southwire SCR Technologies	Booth # 104
FemtoTools AG	Booth # 418	STAS Inc.	Booth # 321
		Techmo Car S.p.A	Booth # 333

Zhengzhou Jingwei Technology Industry Co.,Ltd	Booth #417
Zircar Ceramics	Booth # 117
Materials Design	
ALMEX USA, Inc.	Booth # 119
BlueQuartz Software	Booth # 221
CompuTherm, LLC	Booth # 207
EBSD Analytical	Booth # 228
Elsevier	Booth # 402
GLAMA	Booth # 309
GNA alutech inc.	Booth # 218
Haarslev Industries Press Technology GmbH + Co.Kg	Booth # 210
IRTC	Booth # 136
Mechatherm International Ltd	Booth # 335
Nanovea	Booth # 120
Pyrotek Inc	Booth # 124
Sente Software Ltd.	Booth # 223
TA Instruments	Booth # 125
Thermo Fisher Scientific	Booth # 217
Thermo-Calc Software	Booth # 312
Materials Processing	
Advanced Dynamics Corporation Ltd.	Booth # 220
Allied High Tech Products	Booth # 132
ALMEX USA, Inc.	Booth # 119
American Welding Society	Booth # 113
Claudius Peters Projects GmbH	Booth # 204
EAG Laboratories	Booth # 103
EDAX	Booth # 320
Filterfab	Booth # 224
Fritsch Milling & Sizing, Inc.	Booth # 208
Gillespie & Powers	Booth # 200
GLAMA	Booth # 309
Haarslev Industries Press Technology GmbH + Co.Kg	Booth # 210
IRTC	Booth # 136
Kinaltek Pty Ltd	Booth # 128
KLA Corporation	Booth # 327
Maschinenfabrik Gustav Eirich GmbH & Co KG	Booth # 317
MDPI AG	Booth # 137
Mechatherm International Ltd	Booth # 335
Netzsch Instruments NA LLC	Booth # 401
NKM Noell Special Cranes GmbH	Booth # 316
Outotec	Booth # 203
Pace Technologies	Booth # 213
Precimeter Inc.	Booth # 127
PROTO	Booth # 105

Pyrotek Inc	Booth # 124
Seco/Warwick Corp	Booth # 106
Sente Software Ltd.	Booth # 223
Shenzhen Summit Levitation Metallurgical S&T Co., Ltd	Booth # 236
Southwire SCR Technologies	Booth # 104
Sunresin New Materials Co. Ltd. Xi'an	Booth # 111
Techmo Car S.p.A	Booth # 333
Thermo-Calc Software	Booth # 312
Mechanics & Structural Reliability	
Allied High Tech Products	Booth # 132
Anton Paar USA	Booth # 133
FemtoTools AG	Booth # 418
GNA alutech inc.	Booth # 218
Hitachi High Technologies America, Inc.	Booth # 310
KLA Corporation	Booth # 327
Mechatherm International Ltd	Booth # 335
MTS Systems Corporation	Booth # 332
Sente Software Ltd.	Booth # 223
Southwire SCR Technologies	Booth # 104
Nanostructured and Heterostructured Materials	
EDAX	Booth # 320
KLA Corporation	Booth # 327
Shanghai Jiao Tong University	Booth # 114
Nuclear Materials	
FemtoTools AG	Booth # 418
INL Nuclear Science & Technology	Booth # 405
Nuclear Science User Facilities	Booth # 407
Shenzhen Summit Levitation Metallurgical S&T Co., Ltd	Booth # 236
Physical Metallurgy	
ABB, Inc.	Booth # 315
Allied High Tech Products	Booth # 132
American Welding Society	Booth # 113
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Kinaltek Pty Ltd	Booth # 128
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MTI Corporation	Booth # 101
Outotec	Booth # 203
Robomet 3D / UES, Inc.	Booth # 211
Sunresin New Materials Co. Ltd. Xi'an	Booth # 111
Thermo-Calc Software	Booth # 312

ABB, Inc.

Booth# 315

ABB offers a complete range of analytical solutions to the aluminum industry: ALSCAN™ hydrogen analyzer, LiMCA inclusion analyzer, Prefil®-Footprinter melt cleanliness analyzer, PoDFA inclusion identification and quantification analysis as well as metallographic analysis service for its customers.

AdValue Technology LLC

Booth# 206

AdValue Technology specializes in areas of Alumina, Fused Quartz, Sapphire and Zirconia. Products vary from Crucibles, Tubes & Rods, Plates & Discs, DTA&DSC Sample Pans, Ceramic Membranes to custom components. Laser machining and metallization are available. We also sell high purity powders including Alumina Powders, Quartz Sands, TeO2 Powders & CeO2 Polishing Powders.

Advanced Dynamics Corporation Ltd. Booth# 220

Advanced Dynamics (AD) has a global customer base with state-of-the-art material handling systems for carbon plants and cast houses. Our handling technology includes fully automated or semi-automated equipment for secondary and primary aluminum sectors. Our AD Hydromet can also provide your copper, nickel, zinc cell house & smelter operation with new handling equipment.

Allied High Tech Products

Booth# 132

For over 36 years, Allied High Tech Products has provided quality products for metallographic sample preparation and analysis. Allied manufactures state-of-the-art equipment including sectioning machines, mounting systems, grinders/polishers and a precision tabletop milling machine at its California headquarters.

ALMEX USA, Inc.

Booth# 119

Almex USA is the leading supplier of aerospace & commercial aluminum billet & slab casting technology & eqpt. The company specializes in complete turnkey "Furnace to Finish™" aluminum casthouse solutions. The well-rounded product line includes melting furnaces, degassing systems, DC casting machines, billet/slab casting systems, automation & homogenization systems.

ALTEK, LLC

Booth# 303

ALTEK is a technology-based company, specializing in the design, manufacture and installation of a range of equipment for aluminum casthouses. Our engineers have over 200 years of combined international experience, developing and refining solutions for aluminum processing, dross, and scrap recycling. Our unique skill sets are an invaluable resource for customers worldwide.

American Welding Society

Booth# 113

The American Welding Society (AWS) was founded in 1919, as a nonprofit organization with a global mission to advance the science, technology, and application of welding and allied joining and cutting processes, including brazing, soldering, and thermal spraying. Visit our booth to learn about our products or to engage in our Society.

Anton Paar USA

Booth# 133

Anton Paar offers a wide range of instruments and testing services for surface mechanical properties characterization, including: Hardness Testers, Scratch Testers & Tribometers. 3D-imaging options are available with the ConScan or AFM objective. CSM manufactures standalone instruments and testing modules that can be combined together on an automated platform.

Bloom Engineering Co. Inc.

Booth# 108

Bloom Engineering, is a combustion oriented company headquartered in Pittsburgh, Pennsylvania, serving basic industry with global energy and environmental solutions. The Bloom family of companies specializes in problem solving through custom engineering of industrial burners, combustion systems, controls and refractory products.

BlueQuartz Software

Booth# 221

BlueQuartz Software specializes in microstructure-oriented computational services. Our tools are distributed via the DREAM.3D platform. DREAM.3D is built around SIMPL, a general spatiotemporal information management and analysis library. BlueQuartz employs software engineers and MSE experts. Let us be the software development team for your materials analysis needs.

Bruker Nano**Booth# 302**

Bruker's industry-leading technologies include Micro-XRF, UMT mechanical testers and Hysitron nanomechanical test instruments. From investigating friction and wear to nanoscale materials characterization and elemental analysis, Bruker offers advanced solutions to help you appreciate and develop innovative materials at the macro- and nano-scale.

Claudius Peters Projects GmbH**Booth# 204**

Claudius Peters Projects GmbH is headquartered in Buxtehude, Hamburg with regional offices in the Americas, Europe, China and the Far East. Claudius Peters stockyards, pneumatic conveyors, silos, clinker coolers, grinding mills, and packing systems can be found in Cement, Coal, Alumina, and Gypsum plants across the globe.

CompuTherm, LLC**Booth# 207**

CompuTherm is a leading developer of CALPHAD-based simulation tools. Our products include Pandat software and thermodynamic/mobility/molar volume databases for a variety of alloys, which allow ICME practitioners to develop advanced materials by design. We also develop customized tools for customers' special applications. Please visit www.computherm.com for more info.

EAG Laboratories**Booth# 103**

EAG Laboratories, now part of Eurofins global network, is the global leader in materials characterization. We specialize in the determination of material identity, composition, purity, contaminant levels and crystal structure using advanced analytical techniques. We can manage highly complex analytical projects and help you meet your goals quickly and confidently.

EBSD Analytical**Booth# 228**

EBSD Analytical provides microstructural analysis services through EBSD and EDS coupled with the SEM. The owner, Ron Witt, has been involved with EBSD since 1996, having worked for both TSL and EDAX/Ametek before founding EBSD Analytical in 2003. With over 23 years experience, let us show you how materials characterization with EBSD can help improve your processes.

EDAX**Booth# 320**

EDAX is the global leader in Energy Dispersive Spectroscopy (EDS), Electron Backscatter Diffraction (EBSD), Wavelength Dispersive Spectrometry (WDS) and X-ray Fluorescence (XRF) systems. EDAX manufactures, markets, and services high-quality products and systems for leading companies in semiconductors, metals, and geological, biological, material and ceramics markets.

Elsevier**Booth# 402**

Elsevier is a global information analytics business that helps institutions and professionals advance healthcare, open science and improve performance for the benefit of humanity.

FemtoTools AG**Booth# 418**

FemtoTools is a manufacturer of high-resolution nanoindenters for applications in metallurgy and thin films.

Filterfab**Booth# 224**

Our facilities in Canada have been producing quality filtration products since 1967. Filterfab, a National Filter Media Company, is a leading provider of engineered dust collection specialty products, complete vacuum filtration systems, filtration fabrics, and replacement parts. Our team of technical experts will work with you to maximize efficiency in your application.

Fives**Booth# 307**

As an industrial engineering group, Fives designs and supplies process equipment and turnkey plants: • Reduction: Gas Treatment Centers, Pot Tending Assemblies, Pot Equipment • Carbon: Green Anode Plants, Firing & Control Systems and Fume Treatment Centers on ABF, Furnace Tending Assemblies, Anode Handling and storage, Bath Processing Units, Anode Rodding Shops.

Fritsch Milling & Sizing, Inc.**Booth# 208**

FRITSCH is an internationally respected German manufacturer of commercial quality, professional application-oriented laboratory instruments & production equipment Serving a range of industries – from agriculture to pharma to nano-technology.

Gautschi Engineering GmbH

Booth# 129

Gautschi Engineering GmbH, part of the EBNER Group, brings over 90 years of experience with melting, casting and heat treatment technology. The portfolio includes: - Melting & Holding furnaces - Pusher-type, Homogenizing, Multiple Chamber and Single Coil Furnaces - Ingot casting and stacking plants - Vertical Casting Machines - Customer Services.

Gillespie & Powers

Booth# 200

Gillespie & Powers, Inc. has over 80 years of experience in design, supply, and maintenance of high temperature furnaces. The knowledge we have derived from years of experience in the building and maintenance has given us insight to the modes of failure. This has allowed us to advance our product designs and work with customers to modify their equipment or design new equipment.

GLAMA

Booth# 309

GLAMA founded in 1961 is mainly building heavy-duty Equipment for Aluminium pot rooms, cast houses and anode rodding shops throughout the world. Extract of our range of products: - Anode Changing Vehicles - Anode Pallet Transporters - Butt Cleaning Manipulators - Furnace Charging Machines - Furnace Tending Machines - Ladle Charging Trucks - Molten Metal Carriers - Tapping Trucks

GNA alutech inc.

Booth# 218

GNA is a recognized world leader in the design of industrial furnaces, process control systems for the aluminum industry. Products include furnaces for melting, holding, heat treating, annealing and homogenizing processes of aluminum billet castings and equipment for cathode sealing systems. GNA has built high-performance and reliable equipment for clients worldwide.

Goodfellow Corp

Booth# 408

Goodfellow is a leading global supplier of metals, alloys, ceramics, glasses, polymers, compounds, composites and other materials to meet the requirements of science and industry. The company has an extensive range of 70,000 catalog products in multiple forms available off the shelf.

Granta Design

Booth# 115

Granta provides resources and support for anyone teaching materials or related topics across all disciplines in engineering, science, and design. We coordinate a series of annual Materials Education Symposia, including our upcoming event at Stanford University. Our products assist engineering enterprises in making better decisions, saving time and money, and reducing risk.

Haarslev Industries Press Technology GmbH + Co.Kg

Booth# 210

The world leader for most efficient wear protection materials. We supply optimized wear and spare parts for Anode Paste mixers at economical prices with longer life times than any other supplier to this industry. Furthermore we provide services and process support for anode paste preparation. All of our parts for the Aluminium Industry are manufactured in Germany.

Hencon

Booth# 409

Hencon is a worldwide supplier of special mobile equipment for the heavy industry. Where conventional vehicles cannot operate to full satisfaction, Hencon equipment provides the solution with specially designed, custom-made vehicles. Our machines are designed to perform in the most demanding environment with high magnetic fields and in the rough and dusty mines.

Hitachi High Technologies America, Inc.

Booth# 310

Hitachi High Technologies provides technologically advanced imaging solutions to the materials science, academic, geological, and mining research sectors. Our innovative and reliability-proven instrumentation includes SEM, TEM, dedicated STEM, FIB, Ion Milling instrumentation, Atomic Force microscopes, tabletop microscopes, and microanalysis sample prep systems.

Hycast AS

Booth# 412

Hycast AS has expertise within aluminium casthouse technology and core competencies within project management, engineering and process know-how. Hycast AS has extensive experience and know-how gained from numerous projects world-wide. The main products are Billet and Slab Casting technology, Melt refining, Rod Feeders and Launderers integrated into a fully automated process.

INL Nuclear Science & Technology Booth# 405

Idaho National Laboratory is the nation's lead laboratory for nuclear energy research, development, and demonstration. INL's Nuclear Science & Technology researchers work with unparalleled irradiation and post-irradiation examination, fuel fabrication and materials testing facilities to develop better fuels and materials for current and advanced nuclear reactor designs.

International Aluminium Journal Booth# 318

International ALUMINIUM Journal deals with all facets of aluminium's value chain from the production of the metal via its processing through to recycling. The publication is thus of particular interest to smelters and remelters, semis producers, foundries, fabricators and converters, metal traders, semis stockholders and research facilities and it is distributed worldwide.

IRTC Booth# 136

The International Round Table on Materials Criticality (IRTC) is holding a Roundtable discussion on "How does industry manage Criticality?" in collaboration with the REWAS 2019 symposium. Contribute to the discussion on how to manage supply disruptions, find substitutes, or enhance resource efficiency by attending the Roundtable and filling in our survey!

Kinaltek Pty Ltd Booth# 128

Kinaltek is an innovation company specializing in low-cost technologies for production of inorganic powders. We are commercializing a novel proprietary process for production of powdery alloys and compounds based on the transition metals directly from low cost materials. Products include superalloys, HEA, refractories and coated powders for use as pigments and catalysts.

KLA Corporation Booth# 327

KLA develops industry-leading equipment and services that enable innovation throughout the electronics industry. We provide advanced process control solutions for manufacturing wafers and reticles, integrated circuits and packaging. In close collaboration with leading customers across the globe, our expert teams of physicists, engineers, data scientists and problem-solvers design solutions that move the world forward.

Leica Microsystems Booth# 406

Light Metal Age Booth# 319

Light Metal Age magazine has a long legacy in the aluminum industry with 75 years of experience covering primary and secondary production, extrusion, and rolling. We provide vital technical, industrial, and market information to aluminum producers and processors around the world. Aluminum in automotive, aerospace, and building and construction, are also major topics.

Maschinenfabrik Gustav Eirich GmbH & Co KG Booth# 317

EIRICH is a leading German supplier of industrial material processing solutions. For the carbon sector we offer paste preparation equipment for the production of prebake anodes, Soederberg, graphite electrodes, cathodes, metallurgy and carbon & graphite specialties.

MDPI AG Booth# 137

MDPI is a pioneer in scholarly open access publishing which has supported academic communities since 1996. Our 203 diverse, peer-reviewed journals are supported by over 35,500 academic editors. Metals is a journal published monthly online by MDPI, which indexed by SCIE (Web of Science), Scopus and other databases. See more information <https://www.mdpi.com/journal/metals>.

Mechatherm International Ltd Booth# 335

Mechatherm International Ltd is a world leading company of industrial engineering experts specializing in the design, supply and commissioning of furnaces and casthouse equipment for the global aluminium industry. We specialize in solutions tailored to each client's specific requirements on various size projects ranging from small existing equipment re-builds right through to multi-million dollar turnkey projects.

Micro Materials Ltd Booth# 232

Since 1988, Micro Materials Ltd has pioneered many advances in nanomechanical test instrumentation, most recently testing to 950°C. Our platforms are capable of depth sensing indentation and tribological measurements that can be done over a wide load range. Tribological techniques include scratch and wear, high strain rate nano-impact, micro impact, & nano-fretting.

Microtrac Inc.

Booth# 416

Microtrac strives to provide the materials characterization world with innovative, reliable & repeatable particle analysis instrumentation. Our product portfolio contains instruments that provide particle size and shape, zeta potential, 3D Image Analysis and dust characterization. Our instruments are used in virtually every industry, from pharmaceutical to food processing.

MTI Corporation

Booth# 101

MTI Corporation has been providing a total solution for material research since 1995. MTI manufactures and provides lab R&D equipment including alloy melting, casting, annealing sectioning, polishing, mixing machines, high-temperature muffle and tube furnaces, pressing machines, thin film coaters, high vacuum or high-pressure furnaces, RTP furnaces, hydrogen furnaces, as well compact XRD and XRF for High Throughput Metallography.

MTS Systems Corporation

Booth# 332

Materials testing solutions for today's leading applications: high-temperature testing, additive manufacturing, high-force dynamic mechanical analysis (DMA), and more. Reliable, high-performance MTS test systems and accessories are helping researchers develop new materials for stronger bridges and buildings, lighter aircraft and vehicles, and better consumer products.

Nanovea

Booth# 120

Nanovea aims to simplify advanced measurement technologies to stimulate material engineering. Ease of use, advanced automation and the dedication to superior accuracy are the driving forces behind its full range of precision instruments. Thousands of clients rely on our accurate & honest solutions, superior instruments and experienced laboratory and consulting services.

Netzsch Instruments NA LLC

Booth# 401

NETZSCH Instruments offers highly sensitive, versatile, and reliable thermal analysis instrumentation for R&D, quality control, process safety, and failure analysis. Our instruments and methods allow for material characterization and the study of properties including Cp, enthalpy, weight change, Young's modulus, conductivity, diffusivity, and evolved gas analysis.

NKM Noell Special Cranes GmbH

Booth# 316

Together towards performance. REEL International, for more than 70 years on the market with its constitutive companies NKM Noell, REEL Alesa and COH, is the leading independent equipment supplier of special cranes, complex handling solutions and processing equipment for Primary Aluminum Smelters worldwide having a global vision that delivers total efficiency.

Nuclear Science User Facilities

Booth# 407

The Nuclear Science User Facilities (NSUF) offers unparalleled research opportunities for nuclear energy researchers via 21 partner institutions. Users are granted access via a competitive peer-reviewed process to world-class nuclear research facilities, technical expertise, and assistance with experiment design, assembly, safety analysis and examination.

Outotec

Booth# 203

Outotec develops leading technologies and services for the sustainable use of Earth's natural resources. Our role is to build, maintain and even run entire operations from the ground up. We help our customers create the smartest value from natural resources and work with them to find the most sustainable solutions for handling the full value chain from ore to metals.

Pace Technologies

Booth# 213

Pace Technologies offers a full line of economically priced metallographic equipment...everything from abrasive saws to grinder and polishers we try to simplify your sample preparation experience while keeping costs to a minimum. In addition to our line of equipment, Pace Technologies prides itself on its excellent quality consumable supplies. Please come by our booth.

PolarOnyx, Inc.

Booth# 410

PolarOnyx has developed the world's first Additive Manufacturing (AM) and Subtractive Manufacturing (SM) system (Tungsten-LAM) for refractory materials such as Tungsten. With its innovation is femtosecond fiber lasers and AM/SM processes, this machine is capable of melting materials with high melting temperatures (>4000C) and high thermal conductivities, and fabricating complex structures. Both industrial grade and research grade systems are available to meet customers' needs.

Precimeter Inc. Booth# 127

Precimeter is a globally active company headquartered in Sweden. We are also located in Germany, U.S.A and China. The core business and focus of Precimeter is molten metal level and flow control.

PROTO Booth# 105

PROTO Manufacturing is a leading provider of portable and laboratory based x-ray diffraction systems and services including: X-ray diffraction residual stress measurement (ISO 17025, USA, CAN, JP), X-ray diffraction retained austenite and nitride analysis, Laue single crystal orientation systems, Custom powder diffraction systems, Fine focus and micro focus x-ray tubes, and Electropolishers.

Pyrotek Inc Booth# 124

Pyrotek is a global engineering leader and innovator with more than 60 years of aluminium and metals expertise. We help producers maximize profitability with our range of capital equipment, consumable products, and engineering services, which include furnace relines, degassing systems, pumps, refractories, and more. Pyrotek offers local service with global resources.

Robomet 3D / UES, Inc. Booth# 211

Robo-Met.3D is a fully automated serial sectioning system for three-dimensional microstructural investigations. The system enables metallographic etching and imaging of the microstructure of materials. Post-processing reassembles these 2D images, gathered over an optical scale, into 3D models.

Seco/Warwick Corp Booth# 106

SECO/WARWICK is a leading supplier of aluminum processing and melting/holding/tilting furnace systems. With decades of experience and deep engineering experience, SECO/WARWICK can design, manufacture, install, and upgrade nearly any furnace systems associated with aluminum processing and melting including annealing, solution heat treating, homogenizing, and melt/reheat.

Sente Software Ltd. Booth# 223

Developers of JMatPro®, a powerful simulation software package for calculating a wide range of materials properties and behavior for multi-component alloys used in industrial practice. Data exports are available to casting, forming, forging and heat treatment packages. Sente Software has a proven track record for innovation and excellence with customers worldwide.

Shandong Hwapeng Precision Machinery Co., Ltd. Booth# 110

Shandong Hwapeng Precision Machinery Co., Ltd is the only double-temperature kneading system manufacturer in China. Main products are preheating kneading cooling system and carbon extruder which are key equipment in mixing and forming process of carbon materials. We can provide design and proposal of carbon production line for new factory building and old factory renovation.

Shanghai Jiao Tong University Booth# 114

Shanghai Jiao Tong University (SJTU) pioneered in setting up the discipline of Materials Science and Engineering in China, being composed of departments of materials science and engineering since 1997 and which the major in heat treatment was set up in 1952. The subject has been consistently ranked top 1% in ESI and came twenty-fifth in global QS rankings.

Shenzhen Summit Levitation Metallurgical S&T Co., Ltd Booth# 236

Shenzhen Summit Levitation Metallurgical S&T Co., Ltd specializes in manufacturing Vacuum Cold Crucible Induction Levitation Melting Equipment. With 16 years of experience, our Business Ranges from: Levitation Melting Equipment (50g~50kg, temperature 1800~3600), Levitation Melting Service Metal & Alloys production such as sputtering target, high entropy alloys, amorphous alloys, etc.

Southwire SCR Technologies Booth# 104

Southwire Company, LLC's SCR Technologies has recently introduced the Ultra-D™ Degasser to the aluminum industry. This modular unit reduces hydrogen levels and inclusions in molten aluminum via ultrasonic technology at up to 15 tons per hour and efficiencies over 70%. The technology is applicable in numerous aluminum casting applications including die, strip, rod and DC.

STAS Inc.

Booth# 321

STAS is a world leader in the supply of various equipment to improve the productivity and quality of aluminium. We specialized in the development, fabrication and commercialisation of process equipment since 1989 : 30 years of global expertise, 180 employees and a dozen strategic partners and agents located in key markets. We provide innovative, robust machines globally.

Sunresin New Materials Co. Ltd. Xi'an

Booth# 111

Sunresin is China's biggest speciality ion exchange resin manufacturer. (stock code: 300487). Generally we produce around 200 types of resins and involved in around 25 applications. For hydrometallurgy, Sunresin supplies high selective resins, equipment, process for metals like Lithium, Nickel & Cobalt, Gallium, Rhenium, Scandium, Uranium, Gold, Copper, rare earth, etc.

Synton Mdp AG

Booth# 219

Synton-MDP is a manufacturer of diamond stylus for microtechnical instruments. Most of the tips are used in metrological equipment (surface finish, profile, form, nano-indentation, hardness, scratch and other characteristics). We specialise in small spherical tips, with a high level of dimensional accuracy in ultra-compact configurations, and points with razor sharp edges.

TA Instruments

Booth# 125

Visit TA Instruments for premier technology in thermal analysis and thermophysical testing. Innovative instrumentation for materials characterization of polymers, metals, ceramics, and more. Unmatched performance from our Discovery Series DSC, TGA, and SDT and industry leading instruments for Thermal Conductivity, Dilatometry, and Thermal Diffusivity by Flash up to 2800°C.

Techmo Car S.p.A

Booth# 333

Techmo was founded in 1961 in Italy. A few years later it was the first company in the world to conceive and fabricate specialized vehicles and fixed equipment for the Aluminium Industry. Techmo is focused on supporting the industry with innovative, environmental friendly tailor-made solutions appreciated by the most demanding Customers all over the world.

Tenova Inc.

Booth# 107

Tenova Inc., is a worldwide leader in the design and supply of loose carbonaceous material calciners based on rotary hearth technology. These furnaces are used for the processing of petroleum coke, coal, formed coke briquettes and various other carbon based products. We also provide aluminum processing furnaces for a variety of applications as well as technical services.

The Metallurgy and Materials Society of CIM

Booth# 233

MetSoc (Metallurgy & Materials Society) is a Canadian organization that attends to the needs of professionals in the global metallurgy and materials community. Our mission is to serve those involved in the research, development and application of the science and technologies for the environmentally responsible extraction, fabrication, utilization and recycling of metals and materials. See our books and events! www.metsoc.org

Thermo Fisher Scientific

Booth# 217

Innovative materials hold the key to improving safety, fuel efficiency, and productivity. Thermo Fisher Scientific supplies innovative solutions for materials science research, combining SEMs, TEMs, DualBeam™ FIB-SEMs and micro CT with advanced software suites to take customers from data to understanding.

Thermo-Calc Software

Booth# 312

Leading developer of software for computational thermodynamics and diffusion controlled simulations. Thermo-Calc: thermodynamic and phase equilibria calculations for multicomponent systems. DICTRA: predicting diffusion in multicomponent alloys. TC-PRISMA: simulations of precipitation kinetics. Databases for steels, Ti, Al-, Mg-, HEAs, Ni-superalloys and other materials.

TMS Bladesmithing Competition

Booth# 227

More than 30 hand-forged blades will be on display as part of the 2019 TMS Bladesmithing Competition. View these works of art and science, as well as the technical posters and videos depicting their production, in the Exhibit Hall. The Bladesmithing Competition winners will be revealed at a ceremony open to all on Tuesday, March 12, from 5:00 p.m. to 5:30 p.m. in the Lila Cockrell Theater of the Henry B. González Convention Center.

Wagstaff, Inc.

Booth# 423

Zeiss Microscopy

Booth# 214

ZEISS microscopy is the world's only manufacturer of light, electron, ion, and X-ray microscope systems to address challenges in materials characterization and inspection. From 2D to 3D and even 4D (through time) analysis, ZEISS microscopes offer the modalities and dimensions needed to fully investigate your material microstructures.

Zhengzhou Jingwei Technology Industry Co.,Ltd

Booth# 417

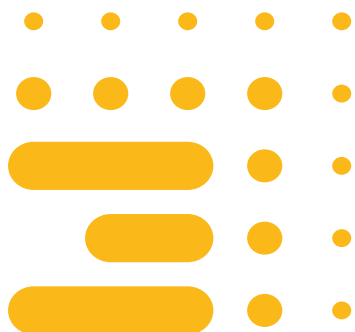
We specialize in the R&D and service of technology innovation and equipment in nonferrous metallurgical industry. Our core business covers four parts, including aluminum electrolysis, alumina, carbon, and magnesium. JingWei has gradually grown into an innovative technology partner in nonferrous metallurgical industry.

Zircar Ceramics

Booth# 117

ZIRCAR Ceramics, Inc. manufactures ceramic fiber based high temperature thermal and electrical insulation products for use at temperatures to 1825C. Offering boards, cylinders, blankets, papers, textiles, coatings and adhesives and consumables for aluminum sheet casting. Furnace Insulation Assemblies, Resistance Heated Modules and custom precision CNC machined components.

CONFERENCE BAG SPONSOR



EP M

ENERGOPROM Group is a company consolidating Russia's key carbon manufacturers. The Group's plants manufacture graphite electrodes, carbon electrodes and cathode blocks, special graphites. The main consumers are Russian and foreign companies in the steel, aluminum, ferroalloy, silicon, chemical, and engineering industries.

MATERIALS INNOVATION KEYNOTE SPONSOR



We provide advanced process control solutions for manufacturing wafers and reticles, integrated circuits and packaging. In close collaboration with leading customers across the globe, our expert teams of physicists, engineers, data scientists and problem-solvers design solutions that move the world forward.

CONFERENCE LANYARD SPONSOR



Proven Excellence.

NETZSCH Instruments offers highly sensitive, versatile, and reliable thermal analysis instrumentation for R&D, quality control, process safety, and failure analysis. Our instruments and methods allow for material characterization and the study of properties including Cp, enthalpy, weight change, Young's modulus, conductivity, diffusivity, and evolved gas analysis.

MATERIALS BOWL SPONSOR



Goodfellow is a leading global supplier of metals, alloys, ceramics, glasses, polymers, compounds, composites and other materials to meet the requirements of science and industry. The company has an extensive range of 70,000 catalog products in multiple forms available off the shelf.

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ZEISS microscopy is the world's only manufacturer of light, electron, ion, and X-ray microscope systems to address challenges in materials characterization and inspection. From 2D to 3D and even 4D (through time) analysis, ZEISS microscopes offer the modalities and dimensions needed to fully investigate your material microstructures.

CONFERENCE BAG INSERT SPONSOR



Leading developer of software for computational thermodynamics and diffusion controlled simulations. Thermo-Calc: thermodynamic and phase equilibria calculations for multicomponent systems. DICTRA: predicting diffusion in multicomponent alloys. TC-PRISMA: simulations of precipitation kinetics. Databases for steels, Ti, Al-, Mg-, HEAs, Ni-superalloys and other materials.

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THE WORLD COMES HERE

TMS 2019

148th Annual Meeting & Exhibition

PROGRAM AT-A-GLANCE

The following pages present an overview of the technical symposia and sessions planned for TMS2019. For more complete program details, including paper titles, author names, and presentation times, view the technical program on the TMS2019 App, download the full technical program as a PDF from www.tms.org/TMS2019, or pick up a print copy of the technical program at the TMS Member Welcome Center.

TOPIC COLOR KEY:

ADDITIVE TECHNOLOGIES	ENERGY & ENVIRONMENT	BIOMATERIALS
ADVANCED MATERIALS	CORROSION	CHARACTERIZATION
LIGHT METALS	ELECTRONIC MATERIALS	MATERIALS PROCESSING
MATERIALS DESIGN	MECHANICS AND STRUCTURAL RELIABILITY	NANOSTRUCTURED & HETEROSTRUCTURED MATERIALS
NUCLEAR MATERIALS	PHYSICAL METALLURGY	SPECIAL TOPICS

NOTICE REGARDING TECHNICAL PROGRAM CANCELLATIONS

Changing the times of presentations is disruptive to the program and may cause delegates to miss valuable presentations. We have asked symposium organizers and session chairs not to adjust presentation times in the event that a speaker is unable to deliver his or her talk due to international travel and/or visa issues resulting in late cancellation or "no show."

Topic/Symposia/Session	Day	Time	Room	Page
ADDITIVE TECHNOLOGIES				
Additive Manufacturing and Welding: Physical and Mechanical Metallurgy of Rapidly Solidified Metals				
Computational Tools for Additive Manufacturing	MON AM	8:00 AM	221A	109
Poster Session	MON EVE	5:30 PM	Hall 3	323
In Situ Process Monitoring	TUES AM	8:30 AM	221A	160
Process, Structure, and Properties I	TUES PM	2:00 PM	221A	190
Process, Structure, and Properties II	WED AM	8:30 AM	221A	217
Defects and Residual Stresses	WED PM	2:00 PM	221A	246
Properties	THU AM	8:30 AM	221A	274
In Situ Synchrotron Measurements	THU PM	2:00 PM	221A	300
Novel Materials and Applications	THU PM	2:00 PM	217C	300
Additive Manufacturing for Energy Applications				
Nuclear Components and Instrumentation	MON AM	8:00 AM	223	109
Student Poster Session	MON EVE	5:30 PM	Hall 3	324
Microstructure and Characterization	TUE AM	8:30 AM	223	161
Design, Process Optimization and Qualification	TUE PM	2:00 PM	223	191
Process Development and Modeling	WED AM	8:30 AM	223	217
Additive Manufacturing Joint Keynote Session				
Additive Manufacturing Joint Keynote Session	MON PM	2:30 PM	Lila Cockrell Theater	135
Additive Manufacturing of Metals: Applications of Solidification Fundamentals				
Poster Session	MON EVE	5:30 PM	Hall 3	325
Microstructure Evolution	WED AM	8:30 AM	224	218
Multi-scale Modeling	WED PM	2:00 PM	224	247
Process-microstructure Relationships I	THU AM	8:30 AM	224	275
Process-microstructure Relationships II	THU PM	2:00 PM	224	301
Process Modeling	THU PM	2:00 PM	216A	301
Additive Manufacturing of Metals: Fatigue and Fracture III				
Poster Session	MON EVE	5:30 PM	Hall 3	325
Session I	TUE AM	8:30 AM	221B	161
Session II	TUE PM	2:00 PM	221B	191
Session III	WED AM	8:30 AM	221B	218
Session IV	WED PM	2:00 PM	221B	247
Session V	THU AM	8:30 AM	221B	275
Session VI	THU PM	2:00 PM	221B	302
Additive Manufacturing of Metals: Microstructural Evolution and Phase Transformations				
High Temperature Materials	MON AM	8:00 AM	221C	110
Poster Session	MON EVE	5:30 PM	Hall 3	325
Ni-based Systems I	TUE AM	8:30 AM	221C	162
Ni-based Systems II	TUE PM	2:00 PM	221C	192
Fe-based Systems	WED AM	8:30 AM	221C	219
Al- and Cu-based Systems	WED PM	2:00 PM	221C	248
Ti-based Systems	THU AM	8:30 AM	221C	276
Additive Manufacturing: Materials Design and Alloy Development				
Fundamentals in Alloy Design for AM I	MON AM	8:00 AM	221D	110
Poster Session	MON EVE	5:30 PM	Hall 3	326
Fundamentals in Alloy Design for AM II	TUE PM	2:00 PM	221D	192

Topic/Symposia/Session	Day	Time	Room	Page
Functional Materials for AM	WED AM	8:30 AM	221D	219
Structural Alloy Design for AM I	WED PM	2:00 PM	221D	248
Structural Alloy Design for AM II	THU AM	8:30 AM	221D	276
Structural Alloy Design for AM III	THU PM	2:00 PM	221D	302
Additive Manufacturing: Solid State Processing of Metals and Ceramics				
Bonding with Kinetic Energy	MON AM	8:00 AM	221B	111
Extrusion, Powder Lithography, Direct Write	WED PM	2:00 PM	223	249
Binder Jetting I	THU AM	8:30 AM	223	277
Binder Jetting II	THU PM	2:00 PM	223	303
MATERIALS PROCESSING				
10th International Symposium on High Temperature Metallurgical Processing				
Simulation of High Temperature Processes	MON AM	9:00 AM	208	106
Energy Efficient Clean Metallurgical Technologies	MON PM	2:30 PM	208	132
Poster Session	MON EVE	5:30 PM	Hall 3	318
Fundamentals of Metallurgical Processes	TUES AM	8:30 AM	208	158
High Temperature Processing	TUES PM	2:00 PM	208	188
Extraction and Recovery of Metals	WED AM	8:30 AM	208	215
Ironmaking and Steelmaking	WED PM	2:00 PM	208	244
Preparation of Alloys and Materials I	THU AM	8:30 AM	208	273
Treatment and Recycling of Wastes	THU AM	8:30 AM	209	273
Preparation of Alloys and Materials II	THU PM	2:00 PM	208	298
Utilization of Complex Ores	THU PM	2:00 PM	209	298
Advances in Surface Engineering				
Session I	MON AM	8:00 AM	210A	113
Session II	MON PM	2:30 PM	210A	137
Poster Session	MON EVE	5:30 PM	Hall 3	326
Session III	TUE AM	8:30 AM	210A	165
Session IV	TUE PM	2:00 PM	210A	195
Freeze Lining: Myth and Reality				
Freeze Lining I	MON AM	8:00 AM	211	120
Freeze Lining II	MON PM	2:30 PM	211	146
Friction Stir Welding and Processing X				
Poster Session	MON EVE	5:30 PM	Hall 3	330
Dissimilar Materials	WED AM	8:30 AM	210B	232
High Melting Temperature Materials	WED AM	8:30 AM	210A	232
Controls and Inspection	WED PM	2:00 PM	210B	263
Lightweight Materials	WED PM	2:00 PM	210A	263
Derivative Technologies	THU AM	8:30 AM	210A	289
Simulation	THU AM	8:30 AM	210B	289
Friction Stir Processing	THU PM	2:00 PM	210B	311
Friction Stir Spot Welding	THU PM	2:00 PM	210A	311
Heterogeneous and Gradient Materials (HGM III): Tailoring Mechanical Incompatibility for Superior Properties				
Heterostructured Materials I: Strength and Ductility	MON AM	8:00 AM	209	121
Heterostructured Materials II: Processing and Properties	MON PM	2:30 PM	209	147
Poster Session	MON EVE	5:30 PM	Hall 3	332
Gradient Materials I: Mechanical Properties	TUE AM	8:30 AM	209	177
Gradient Materials II: Processing and Properties	TUE PM	2:00 PM	209	204

Topic/Symposia/Session	Day	Time	Room	Page
Structural Design, Processing and Properties	WED AM	8:30 AM	209	233
Deformation, Fracture and Fatigue	WED PM	2:00 PM	209	264
Materials Processing Fundamentals				
Modeling of Minerals and Metals Processing	MON AM	9:00 AM	212A	125
Steel - Microstructure and Properties	MON PM	2:30 PM	212A	152
Poster Session	MON EVE	5:30 PM	Hall 3	92
Alloys Processing and Properties Modeling	TUE AM	8:30 AM	212A	181
Multiphysics - Process and Properties Modeling	TUE PM	2:00 PM	212A	207
Extractive Process and Thermodynamic Modeling	WED AM	8:30 AM	212A	237
Rare Metal Extraction & Processing				
Rare Metals I	MON AM	8:00 AM	210B	129
Rare Metals II	MON PM	2:30 PM	210B	155
Poster Session	MON EVE	5:30 PM	Hall 3	335
Rare Metals III	TUE AM	8:30 AM	210B	185
Rare Metals IV	TUE PM	2:00 PM	210B	212
Shape Casting: 7th International Symposium Celebrating Prof. John Campbell's 80th Birthday				
Entrainment and Bifilms	MON AM	8:00 AM	006B	130
Casting Defects and their Characterization	MON PM	2:30 PM	006B	156
Poster Session	MON EVE	5:30 PM	Hall 3	335
Process Innovation and Modelling	TUE AM	8:30 AM	006B	186
Properties of Castings	TUE PM	2:00 PM	006B	213
Ultrasonic Processing of Liquid and Solidifying Alloys				
Fundamental Studies of Ultrasonic Processing	WED AM	8:30 AM	006B	243
Mechanisms and Applications of Ultrasonic Processing	WED PM	2:00 PM	006B	272
Mechanics & Structural Reliability				
Deformation and Damage Behavior in High Temperature Alloys				
High Entropy Alloys and Strength Models	MON AM	8:00 AM	301C	119
Refractories, Intermetallics, and Mesoscopic Modeling	MON PM	2:30 PM	301C	144
Poster Session	MON EVE	5:30 PM	Hall 3	330
Superalloys: Alloy Development and Fatigue	TUE AM	8:30 AM	301C	174
Superalloys: Creep	TUE PM	2:00 PM	301C	202
Superalloys: Microstructural Evolution and Advanced Characterization	WED AM	8:30 AM	301C	230
Superalloys: Processing and Environmental-Assisted Mechanisms	WED PM	2:00 PM	301C	260
Fatigue in Materials: Multi-scale and Multi-environment Characterizations and Computational Modeling				
Relationships Among Processing, Microstructure, and Fatigue Properties	TUE AM	8:30 AM	301B	175
Data-driven Investigations of Fatigue	TUE PM	2:00 PM	301B	203
Fatigue Characterization Using Advanced Experimental Methods in 2D and 3D	WED AM	8:30 AM	301B	231
Load and Environment Interaction Effects on the Mechanical Response during Fatigue	WED PM	2:00 PM	301B	262
Multi-scale and Multi-physics Models in Fatigue to Better Predict Behavior and Lifetime	THU AM	8:30 AM	301B	288
Crack Initiation and Propagation during Fatigue	THU PM	2:00 PM	301B	310
Thermo-mechanical Response of Materials Investigated through Novel in-situ Experiments and Modeling				
Session I	MON AM	8:00 AM	301A	131
Session II	MON PM	2:30 PM	301A	157
Session III	TUE AM	8:30 AM	301A	187
Session IV	TUE PM	2:00 PM	301A	214

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Session VI	WED PM	2:00 PM	301A	272
Corrosion				
Coatings and Surface Engineering for Environmental Protection				
Corrosion Mechanisms & Performance Evaluations I	MON AM	8:00 AM	224	118
Corrosion Mechanism and Performance Evaluation II	MON PM	2:30 PM	224	143
Poster Session	MON EVE	5:30 PM	Hall 3	329
Coatings for Corrosion Protection I	TUE AM	8:30 AM	224	171
Coatings for Corrosion Protection II	TUE PM	2:00 PM	224	200
Environmentally Assisted Cracking: Theory and Practice				
Hydrogen Embrittlement I	TUE AM	8:30 AM	214C	175
Stress Corrosion Cracking I	TUE PM	2:00 PM	214C	203
Hydrogen Embrittlement II	WED AM	8:30 AM	214C	230
Environmentally Assisted Embrittlement and Failure	WED PM	2:00 PM	214C	261
Environmentally Assisted Cracking in Aluminum Alloys	THU AM	8:30 AM	214C	287
Stress Corrosion Cracking II	THU PM	2:00 PM	214C	309
Nuclear Materials				
Ceramic Materials for Nuclear Energy Research and Applications				
Thermodynamics and Structural Properties	MON AM	8:00 AM	214A	116
Fabrication and Characterization	MON PM	2:30 PM	214A	141
Poster Session	MON EVE	5:30 PM	Hall 3	329
Environmental Degradation	TUE AM	8:30 AM	214A	170
Irradiation Effect	TUE PM	2:00 PM	214B	199
In Reactor Fuel Behavior	WED PM	2:00 PM	214B	257
Thermophysical Properties and Irradiation	THU PM	2:00 PM	214B	306
Irradiation Effects on Phase Transformations in Nuclear Reactor Materials				
Pure and Binary Alloys	MON AM	8:00 AM	214B	124
Fe and FeCr Based Alloys	MON PM	2:30 PM	214B	150
Poster Session	MON EVE	5:30 PM	Hall 3	333
Nanoprecipitates and Nanoclusters	TUE AM	8:30 AM	214B	179
Ceramics and Fuels	WED AM	8:30 AM	214B	236
Multicomponent Alloys and Advanced Characterization Techniques	THU AM	8:30 AM	214B	293
Mechanical Behavior of Nuclear Reactor Components				
Processing Effects	MON AM	8:00 AM	215	126
Microstructure Effects I	MON PM	2:30 PM	215	152
Poster Session	MON EVE	5:30 PM	Hall 3	335
Defect Evolution I	TUE AM	8:30 AM	215	181
Early Career	TUE PM	2:00 PM	215	208
Creep, Fatigue, and Fracture	WED AM	8:30 AM	215	237
Microstructure Effects II	WED PM	2:00 PM	215	267
Defect Evolution II	THU AM	8:30 AM	215	294
Small Scale Testing	THU PM	2:00 PM	215	313
Physical Metallurgy				
Computational Thermodynamics and Kinetics				
Computational Discovery	MON AM	8:00 AM	225C	119
Novel Approaches	MON PM	2:30 PM	225C	144
Kinetics	TUE AM	8:30 AM	225C	173

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Poster Session	TUE EVE	5:30 PM	Hall 3	311
Phase Prediction and Stability	WED AM	8:30 AM	225C	229
Microstructural Evolution I	WED PM	2:00 PM	225C	260
Microstructural Evolution II	THU AM	8:30 AM	225C	286
Nuclear Materials and Radiation Effects	THU AM	8:30 AM	301A	286
Mechanics	THU PM	2:00 PM	225C	309

Phase Transformations and Microstructural Evolution

Phase Transformations in Non-ferrous Alloys I	MON AM	8:00 AM	225D	128
Phase Transformations in Ferrous Alloys	MON PM	2:30 PM	225D	154
Phase Transformations in Steels and Non-ferrous Alloys	TUE AM	8:30 AM	225D	184
Modelling and Simulation of Phase Transformations in Alloys	TUE PM	2:00 PM	225D	211
Poster Session	TUE EVE	5:30 PM	Hall 3	349
Phase Transformation in Non-ferrous Alloys II	WED AM	8:30 AM	225D	239
Phase Transformation in Non-ferrous Alloys III	WED PM	2:00 PM	225D	268
Phase Transformation in Non-ferrous Alloys IV	THU AM	8:30 AM	225D	295
Phase Transformation in Non-ferrous Alloys V	THU PM	2:00 PM	225D	315

Light Metals

2019 Light Metal Keynote

Aluminum Industry: Vision for the Next Decade	MON AM	8:00 AM	004	107
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Alumina & Bauxite

Poster Session	MON EVE	5:30 PM	Hall 3	326
Bayer Process and Non-conventional Processing	WED AM	8:30 AM	006A	224
Bauxite Residue: Management and Valorization	WED PM	2:00 PM	006A	253

Aluminum Alloys, Processing and Characterization

Aluminum Alloy Development	MON PM	2:30 PM	007A	138
Poster Session I - Development of Aluminum Alloy Processing	MON EVE	5:30 PM	Hall 3	327
Poster Session II - Characterizations of Aluminum Alloys	MON EVE	5:30 PM	Hall 3	327
Microstructures and Mechanical Properties of Aluminum Alloys	TUE AM	8:30 AM	007A	167
Behavior of Casting Alloys	TUE PM	2:00 PM	007A	197
Simulations and Studies of Processing	WED AM	8:30 AM	007A	225
Characterizations and Applications of Aluminum Alloys	WED PM	2:00 PM	007A	254
Casting and Solidification	THU AM	8:30 AM	007A	281

Aluminum Reduction Technology

Cell Technology Development and Modeling	MON PM	2:30 PM	004	139
Poster Session	MON EVE	5:30 PM	Hall 3	328
Cell Design and Modelling	TUE AM	8:30 AM	004	167
Joint Session Alumina Feeding and Alumina Scale Formation	TUE PM	2:00 PM	004	197
Joint Session with Electrode Technology	WED AM	8:30 AM	004	225
Fundamentals in Cell Behavior, Inert Anodes and other Research	WED PM	2:00 PM	004	254
Environmental Issues including PFC Emissions	THU AM	8:30 AM	004	281
Cell Operations, Control and Improvements	THU PM	2:00 PM	004	305

Cast Shop Technology

EHS and Cast House Operation	MON PM	2:30 PM	007B	141
Casting and Cast House Products	TUE AM	8:30 AM	007B	170
Melt Treatment	WED PM	2:00 PM	007B	256
Continuous Casting	THU AM	8:30 AM	007B	283

Topic/Symposia/Session	Day	Time	Room	Page
Cast Shop Technology: Energy Joint Session				
Cast Shop Technology: Energy Joint Session	WED AM	8:30 AM	007B	227
Electrode Technology for Aluminum Production				
Electrodes - Raw Materials and Paste Plant	MON PM	2:30 PM	006D	145
Poster Session	MON EVE	5:30 PM	Hall 3	330
Electrodes - Baking	TUE AM	8:30 AM	006D	174
Cathodes and Electrode Technology	TUE PM	2:00 PM	006D	202
Magnesium Technology 2019				
Keynote Session	MON AM	8:00 AM	005	125
Alloy Design and Casting	MON PM	2:30 PM	005	151
Poster Session	MON EVE	5:30 AM	Hall 3	333
Thermomechanical Processing	TUE AM	8:30 AM	005	180
Corrosion and Surface Protection	WED AM	8:30 AM	005	236
Fundamentals, Mechanical Behavior, Twinning, Plasticity, Texture and Fatigue I	WED PM	2:00 PM	005	266
Fundamentals, Mechanical Behavior, Twinning, Plasticity, Texture and Fatigue II	THU AM	8:30 AM	005	293
REWAS 2019: Cast Shop Recycling Technologies				
Cast Shop and Recycling	TUES PM	2:00 PM	007B	212
Scandium Extraction and Use in Aluminum Alloys				
Scandium Markets and Extraction	WED AM	8:30 AM	006D	242
Aluminium Scandium Alloys	WED PM	2:00 PM	006D	270
Solidification Processing of Light Metals and Alloys: An MPMD Symposium in Honor of David StJohn				
Grain Refinement	MON AM	8:00 AM	006C	131
In-situ Observation and Simulation of Grain Formation	MON PM	2:30 PM	006C	157
Poster Session	MON EVE	5:30 PM	Hall 3	336
Shape Casting and Defects	TUE AM	8:30 AM	006C	186
External Fields and the Columnar to Equiaxed Transition	TUE PM	2:00 PM	006C	213
Magnesium Alloys	WED AM	8:30 AM	006C	242
Titanium Alloys and Research Partnerships	WED PM	2:00 PM	006C	271
TMS-DGM Symposium on Lightweight Metals: A Joint US-European Symposium on Challenges in Light Weighting the Transportation Industry				
Poster Session	MON EVE	5:30 PM	Hall 3	336
Aluminum	TUE AM	8:30 AM	006A	187
Magnesium	TUE PM	2:00 PM	006A	214
Characterization				
Advanced Characterization Techniques for Quantifying and Modeling Deformation				
Session I	MON AM	8:00 AM	302A	111
Session II	MON PM	2:30 PM	302A	135
Session III	TUE AM	8:30 AM	302A	162
Session IV	TUE PM	2:00 PM	302A	193
Poster Session	TUE EVE	5:30 PM	Hall 3	338
Session V	WED AM	8:30 AM	302A	220
Session VI	WED PM	2:00 PM	302A	249
Session VII	THU AM	8:30 AM	302A	277
Advanced Real Time Imaging				
Iron and Steelmaking I	MON AM	8:00 AM	302B	113
Energy, Fuels, and Environment	MON PM	2:30 PM	302B	136

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Iron and Steelmaking II	TUE PM	2:00 PM	302B	195
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Additive Manufacturing and Biomaterials	WED AM	8:30 AM	302B	222
Iron and Steelmaking III	WED PM	2:00 PM	302B	252
Phase Transformation I	THU AM	8:30 AM	302B	279
Phase Transformation II	THU PM	2:00 PM	302B	304
Atom Probe Tomography for Advanced Characterization of Metals, Minerals and Materials II				
General Methods and Development	MON AM	8:00 AM	303A	115
Semiconductors and Light-weight Alloys	MON PM	2:30 PM	303A	139
Steels and Ni Alloys	TUE AM	8:30 AM	303A	168
High-entropy Alloys and Nuclear Materials	TUE PM	2:00 PM	303A	198
Characterization of Materials through High Resolution Imaging				
Poster Session	TUE EVE	5:30 PM	Hall 3	341
Imaging I	WED AM	8:30 AM	303A	227
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Modeling and Computation for High Resolution Imaging	THU AM	8:30 AM	303A	283
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Characterization of Minerals, Metals, and Materials				
Characterization Method Development I	MON AM	8:00 AM	212B	117
Nanostructure and Characterization of Materials	MON AM	8:00 AM	006A	117
Characterization Method Development II	MON PM	2:30 PM	212B	142
Construction Materials	MON PM	2:30 PM	006A	142
Metallurgical Process	TUE AM	8:30 AM	212B	171
Process and Characteristics of Advanced Ceramics and Glasses I	TUE PM	2:00 PM	212B	200
Poster Session	TUE EVE	5:30 PM	Hall 3	341
Process and Characteristics of Advanced Ceramics and Glasses II	WED AM	8:30 AM	212B	228
Non-ferrous Metals and Processes	WED PM	2:00 PM	212B	258
Polymer and Composite Materials	WED PM	2:00 PM	212A	258
Analysis of Surfaces and Interfaces	THU AM	8:30 AM	212A	284
Ferrous Materials and Processes	THU AM	8:30 AM	212B	284
Characterization and Synthetic Process of Materials	THU PM	2:00 PM	212B	307
Mineral Processing and Extraction	THU PM	2:00 PM	213A	308
Interfaces in Structural Materials: An MPMD Symposium in Honor of Stephen M. Foiles				
Interatomic Potentials and Methods: A Joint Session with Computational Materials Discovery and Design	MON AM	8:00 AM	302C	124
Structure -property Linkages	MON PM	2:30 PM	302C	150
Microstructural Evolution I	TUE AM	8:30 AM	302C	179
Microstructural Evolution II	TUE PM	2:00 PM	302C	206
Mechanical Behavior I: A Joint Session with Mechanical Behavior Related to Interfacial Physics III	WED AM	8:30 AM	302C	235
Mechanical Behavior II: A Joint Session with Mechanical Behavior Related to Interfacial Physics III	WED PM	2:00 PM	302C	266
Interface-defect Interactions I	THU AM	8:30 AM	302C	292
Interface-defect Interactions II	THU PM	2:00 PM	302C	313
Nanostructured and Heterostructured Materials				
2019 Symposium on Functional Nanomaterials: Synthesis, Integration, and Application of Emerging Nanomaterials				
Nanomaterials for Energy and Environmental Applications	MON AM	8:00 AM	213A	108
Atomic Layer Deposition for Functional Nanomaterials	MON PM	2:30 PM	213A	133

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Two-dimensional Nanomaterials I	TUE AM	8:30 AM	213A	159
Two-dimensional Nanomaterials II	TUE PM	2:00 PM	213A	189
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Functional Thin Film Materials	WED AM	8:30 AM	213A	216
Additive Manufacturing and General Nanomaterials	WED PM	2:00 PM	213A	245
Fracture Processes of Thin Films and Nanomaterials				
Poster Session	TUE EVE	5:30 PM	Hall 3	345
Fracture of Functional and Structural Materials	WED AM	8:30 AM	217B	231
Thin Film and Interface Fracture	WED PM	2:00 PM	217B	262
Local Fracture Processes: Insights from Experiments and Modeling	THU AM	8:30 AM	217B	288
Size Effects on Fracture Processes in Monolithic and Multilayer Materials	THU PM	2:00 PM	217B	310
Mechanical Behavior Related to Interface Physics III				
Grain Boundaries I	MON AM	8:00 AM	303C	126
Grain Boundaries II	MON PM	2:30 PM	303C	153
Nanocrystalline Materials I	TUE AM	8:30 AM	303C	182
Nanocrystalline Materials II	TUE PM	2:00 PM	303C	208
Poster Session	TUE EVE	5:30 PM	Hall 3	347
Nanocomposites I	THU AM	8:30 AM	304B	294
Nanocomposites II	THU PM	2:00 PM	304B	314
Micro- and Nanomechanical Testing in Harsh Environments				
High Temperature Micromechanics I	MON AM	8:00 AM	217B	127
High Temperature and Cryogenic Micromechanics	MON PM	2:30 PM	217B	153
Advances in Micromechanical Testing Techniques	TUE AM	8:30 AM	217B	182
Micromechanical Testing under Extreme Conditions	TUE PM	2:00 PM	217B	209
Poster Session	TUE EVE	5:30 PM	Hall 3	348
Nanoarchitected and Morphology-controlled Nanoporous Materials				
NP Materials-mechanical Behavior I	TUE PM	2:00 PM	214A	210
Poster Session	TUE EVE	5:30 PM	Hall 3	348
Structure Properties-radiation	WED AM	8:30 AM	214A	238
Metamaterials-MOFs-nano Architected	WED PM	2:00 PM	214A	267
Synthesis	THU AM	8:30 AM	214A	295
NP Materials-structure Properties-mechanical Behavior II	THU PM	2:00 PM	214A	314
Powder Processing of Bulk Nanostructured Materials				
Densification Methods	TUE AM	8:30 AM	211	184
Nanostructured Metals	TUE PM	2:00 PM	211	211
Poster Session	TUE EVE	5:30 PM	Hall 3	350
Powder Synthesis	WED AM	8:30 AM	211	239
Nanocomposites	WED PM	2:00 PM	211	268
Structural Evolution and Thermal Stability	THU AM	8:30 AM	211	296
Advanced Materials				
Advanced High-Strength Steels III				
Microstructure, Processing, and Properties Advanced High-Strength Steels I	TUE AM	8:30 AM	205	163
Microstructure, Processing, and Properties Advanced High-Strength Steels II	TUE PM	2:00 PM	205	193
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Microstructure, Processing, and Properties Advanced High-Strength Steels III	WED AM	8:30 AM	205	220

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Mechanical Properties of Advanced High-Strength and Microalloyed Steels	THU PM	2:00 PM	205	303
Bulk Metallic Glasses XVI				
Alloy Development and Application	TUE AM	8:30 AM	206B	169
Structures and Mechanical Properties	TUE PM	2:00 PM	206B	199
Poster Session	TUE EVE	5:30 PM	Hall 3	341
Synthesis and Mechanical Properties	WED AM	8:30 AM	206B	226
Structures and Modeling I	WED PM	2:00 PM	206B	256
Thermal and Other Properties	THU AM	8:30 AM	206B	283
Structures and Characterization	THU PM	2:00 PM	207A	305
Structures and Modeling II	THU PM	2:00 PM	206B	306
High-Entropy Alloys VII				
Alloy Design and Thermal Properties	MON AM	8:00 AM	207B	122
Alloy Development and Applications I	MON AM	8:00 AM	206B	122
Structures and Modeling I	MON AM	8:00 AM	207A	123
Structures and Characterization	MON PM	2:30 PM	207B	148
Structures and Mechanical Properties I	MON PM	2:30 PM	206B	148
Structures and Modeling II	MON PM	2:30 PM	207A	149
Structures and Mechanical Properties II	TUE AM	8:30 AM	207B	177
Alloy Development and Applications II	TUE PM	2:00 PM	207B	205
Poster Session	TUE EVE	5:30 PM	Hall 3	346
Thermal and Other Properties I	WED AM	8:30 AM	207B	234
Structures and Mechanical Properties III	WED PM	2:00 PM	207A	264
Thermal and Other Properties II	WED PM	2:00 PM	207B	265
Alloy Development and Applications III	THU AM	8:30 AM	207B	290
Mechanical and Other Properties I	THU AM	8:30 AM	207A	290
Structures and Mechanical Properties IV	THU AM	8:30 AM	008B	291
Synthesis and Mechanical Properties	THU PM	2:00 PM	207B	312
Thermal and Other Properties III	THU PM	2:00 PM	008B	312
Refractory Metals 2019				
(I) Mo and Nb; (II) Co-Re, Cr, and Nb-Si	MON AM	8:00 AM	205	129
(III) Welding and W Alloys; (IV) W, Re and Ru	MON PM	2:30 PM	205	155
Electronic Materials				
Advanced Microelectronic Packaging, Emerging Interconnection Technology, and Pb-free Solder				
Quality and Reliability of Advanced Microelectronic Packaging	MON AM	8:00 AM	216A	112
Solder Joint Intermetallics	MON PM	2:30 PM	216A	136
Pb-free Solder Alloys I	TUE AM	8:30 AM	216A	164
3D Microelectronic Packaging and Emerging Interconnects I	TUE PM	2:00 PM	216A	194
Poster Session	TUE EVE	5:30 PM	Hall 3	339
Advanced Microelectronic Packaging Materials	WED AM	8:30 AM	216A	222
3D Microelectronic Packaging and Emerging Interconnects II	WED PM	2:00 PM	216A	251
Pb-free Solder Alloys II	THU AM	8:30 AM	216A	279
Alloys and Compounds for Thermoelectric and Solar Cell Applications VII				
Session I	MON AM	8:00 AM	216B	114
Session II	MON PM	2:30 PM	216B	138
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Student Poster Session	TUE EVE	5:30 PM	Hall 3	340
Session V	WED AM	8:30 AM	216B	224
Session VI	WED PM	2:00 PM	216B	253
Phase Stability, Phase Transformations, and Reactive Phase Formation in Electronic Materials XVIII				
Advanced Electronic Interconnection	MON AM	8:00 AM	217D	128
Phase Formation of Electronic Materials	MON PM	2:30 PM	217D	154
Interfacial Reaction of Electronic Materials	TUE AM	8:30 AM	217D	183
Phase Stability of Energy Materials	TUE PM	2:00 PM	217D	210
Recent Advances in Functional Materials and 2D/3D Processing for Sensors and Electronic Applications				
2D/3D Printed Electronics Advances	WED AM	8:30 AM	217D	240
Printed Electronics I: Functional Materials and Devices	WED PM	2:00 PM	217D	269
Printed Electronics II: Functional Materials and Devices	THU AM	8:30 AM	217D	296
Printed Electronics III: Functional Materials and Devices	THU PM	2:00 PM	217D	315
Solar Cell Silicon				
Poster Session	TUE EVE	5:30 PM	Hall 3	351
Properties, Impurities, and Refining	WED PM	2:00 PM	008A	271
Slag, Recycling, and Photovoltaics	THU AM	8:30 AM	008A	297
Energy & Environment				
2019 Energy Technologies and Carbon Dioxide Management Symposium				
Energy and Material Production	MON AM	8:00 AM	007D	106
Process and Waste Gas Operations	MON PM	2:30 PM	007D	132
Nanomaterials and Catalysts	TUES AM	8:30 AM	007D	158
Poster Session	TUES EVE	5:30 PM	Hall 3	336
5th Symposium on Advanced Materials for Energy Conversion and Storage				
Materials Design for Sustainability and Energy Harvesting	MON AM	8:00 AM	225A	108
Energy Conversion with Emphasis on SOFCs I	MON PM	2:30 PM	225A	134
Energy Storage with Emphasis on Batteries I	MON PM	2:30 PM	223	134
Functional Materials Including High-temperature Ceramics and Alloys	TUE AM	8:30 AM	225A	160
Energy Storage with Emphasis on Batteries II	TUE PM	2:00 PM	225A	189
Poster Session	TUE EVE	5:30 PM	Hall 3	337
Energy Conversion with Emphasis on SOFCs II	WED AM	8:30 AM	225A	216
Energy Storage with Emphasis on Batteries III	WED PM	2:00 PM	225A	246
Energy Conversion with Emphasis on SOFCs III	THU AM	8:30 AM	225A	274
Energy Storage with Emphasis on Batteries IV	THU PM	2:00 PM	225A	299
Energy Storage with Emphasis on Batteries V	THU PM	2:00 PM	213B	299
Advanced Magnetic Materials for Energy and Power Conversion Applications				
Development in Rare Earth Permanent Magnets	MON AM	8:00 AM	225B	112
Alloy Development and Application of Magneto-thermal Materials	MON PM	2:30 PM	225B	135
Application of Advanced Soft Magnetic Materials in Power Electronics and Motors	TUE AM	8:30 AM	225B	163
Additive Manufacturing and Advanced Processing of Magnetic Materials	TUE PM	2:00 PM	225B	194
Poster Session	TUE EVE	5:30 PM	Hall 3	339
FEMS-TMS Joint Session on Critical Materials in Magnet Supply Chains	WED AM	8:30 AM	225B	221
Development and Application of Soft Magnetic Materials for Transformers and Inductors	WED PM	2:00 PM	225B	250
Development in Rare Earth Free Permanent Magnets	THU AM	8:30 AM	225B	278

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Development and Application of Soft Magnetic Materials for Electric Machines	THU PM	2:00 PM	225B	304
Advanced Materials and Reservoir Engineering for Extreme Oil & Gas Environments III				
Session I	WED AM	8:30 AM	206A	221
Session II	WED PM	2:00 PM	206A	251
Green Materials Engineering: An EPD Symposium in Honor of Sergio Monteiro				
Sustainable Ceramics	MON AM	8:00 AM	008A	121
Natural Fiber Composites	MON PM	2:30 PM	008A	147
Nano and Micro Green Composites	TUE AM	8:30 AM	008A	176
Properties and Characterization of Green Materials	TUE PM	2:00 PM	008A	204
Poster Session	TUE EVE	5:30 PM	Hall 3	345
Biomass in Armor Composites	WED AM	8:30 AM	008A	233
Materials for Molten Salt Energy Systems				
Corrosion and Compatibility I	MON AM	8:00 AM	008B	125
Corrosion and Compatibility II	MON PM	2:30 PM	008B	151
Advanced Materials for Molten Salt Systems	TUE AM	8:30 AM	008B	180
Thermodynamics and Electrochemistry	TUE PM	2:00 PM	008B	207
REWAS 2019: Disruptive Material Manufacturing - Scaling and Systems Challenges				
Disruptive Material Manufacturing - Scaling and Systems Challenges	MON AM	8:00 AM	007C	130
REWAS 2019: Education and Workforce Development				
Education and Workforce Development	WED AM	8:30 AM	007D	241
REWAS 2019: Plenary Session				
Plenary Session	TUE AM	8:30 AM	007C	185
REWAS 2019: Rethinking Production				
Poster Session	TUE EVE	5:30 PM	Hall 3	350
Rethinking Production	WED AM	8:30 AM	007C	241
REWAS 2019: Secondary and Byproduct Sources of Materials, Minerals, and Metals				
Secondary and Byproduct Beneficial Use	MON PM	2:30 PM	007C	156
Electronics and Battery Recycling	TUE PM	2:00 PM	007C	212
Poster Session	TUE EVE	5:30 PM	Hall 3	351
Circularity and Materials Availability	WED PM	2:00 PM	007C	270
Biomaterials				
Biological Materials Science				
Biological and Natural Materials I	MON AM	8:00 AM	217A	116
Biological and Natural Materials II	MON PM	2:30 PM	217A	140
Poster Session	MON EVE	5:30 PM	Hall 3	328
Biomimetic and Bioinspired Materials	TUE AM	8:30 AM	217A	169
Bioenabled Materials and Systems	TUE PM	2:00 PM	217A	198
Biomaterials (Implants and Devices)	WED PM	2:00 PM	007D	255
Biorelated Applications	THU AM	8:30 AM	007D	282
Bio-nano Interfaces and Engineering Applications				
Bio-Nano Interfaces I	MON AM	8:00 AM	217C	115
Bio-Nano Interfaces II	MON PM	2:30 PM	217C	140
Poster Session	MON EVE	5:30 PM	Hall 3	328
Bio-Nano Interfaces III	TUE AM	8:30 AM	217C	168
Bio-Nano Interfaces IV	WED AM	8:30 AM	217C	226
Bio-Nano Interfaces V	WED PM	2:00 PM	217C	255
Bio-Nano Interfaces VI	THU AM	8:30 AM	217C	282

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Recent Developments in Biological, Structural and Functional Thin Films & Coatings				
Biomedical and Polymeric Applications	WED AM	8:30 AM	217A	240
Functional Films and Coatings I	WED PM	2:00 PM	217A	269
Functional Films and Coatings II	THU AM	8:30 AM	217A	297
Functional Films and Coatings III	THU PM	2:00 PM	217A	316
Materials Design				
Advances in Computational Methods for Damage Mechanics and Failure Phenomena				
Poster Session	TUE EVE	5:30 PM	Hall 3	340
Computational Modeling of Failure: Novel Methods	WED AM	8:30 AM	303C	223
Crystal Plasticity Methods I	WED PM	2:00 PM	303C	252
Atomistic and Coarse-grained Methods	THU AM	8:30 AM	301C	280
Non-local Methods: Peridynamics and Phase-field	THU AM	8:30 AM	303C	280
Crystal Plasticity Methods II	THU PM	2:00 PM	303C	304
Algorithm Development in Materials Science and Engineering				
Electronic, Atomistic, and Machine Learning Algorithms for Study and Design of Materials	MON AM	8:00 AM	304A	114
Atomistic, Mesoscale, and Machine Learning Algorithms for Study and Design of Materials	MON PM	2:30 PM	304A	137
Computational, Experimental, and Machine Learning Algorithms in Study and Design of Materials I	TUE AM	8:30 AM	304A	166
Computational, Experimental, and Machine Learning Algorithms in Study and Design of Materials II	TUE PM	2:00 PM	304A	196
Poster Session	TUE EVE	5:30 PM	Hall 3	340
Atomistic and MesoScale Algorithms in Study and Design of Materials	WED AM	8:30 AM	304A	223
Applications of Algorithms for Study and Design of Materials	WED PM	2:00 PM	304A	253
Computational Approaches for Big Data, Artificial Intelligence and Uncertainty Quantification in Computational Materials Science				
AI-based Investigation of Material Properties I	TUE AM	8:30 AM	305	172
AI-based Investigation of Material Properties II	TUE PM	2:00 PM	305	200
Poster Session	TUE EVE	5:30 PM	Hall 3	344
Big Data	WED AM	8:30 AM	305	228
AI Applied to General Materials Science	WED PM	2:00 PM	305	259
Uncertainty Quantification and AI-model Development in Atomistic Simulations	THU AM	8:30 AM	305	286
Uncertainty Quantification for Micro- and Macro-scale Modeling	THU PM	2:00 PM	305	308
Computational Materials Discovery and Design				
Applications to Surfaces, Interfaces, and 2D Materials	MON AM	8:00 AM	304C	118
Applications for Defect and the Bulk I	MON PM	2:30 PM	304C	143
Applications for Defect and the Bulk II	TUE AM	8:30 AM	304C	173
Computational Methods for Materials Discovery and Design I	TUE PM	2:00 PM	304C	201
Poster Session	TUE EVE	5:30 PM	Hall 3	344
Computational Methods for Materials Discovery and Design II	WED AM	8:30 AM	304C	229
Computational Methods for Materials Discovery and Design III	WED PM	2:00 PM	304C	259
Gamma (FCC)/Gamma-Prime (L12) Co-Based Superalloys III				
Mechanical Behavior	MON AM	8:00 AM	206A	120
Environmental Resistance and Processing	MON PM	2:30 PM	206A	146
Alloy Development & Microstructural Evolution	TUE AM	8:30 AM	206A	176
Poster Session	TUE EVE	5:30 PM	Hall 3	345

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Hume-Rothery Symposium – Bulk and Interfacial Thermodynamics of Complex Materials: Insights Derived from Integrating Modeling and Experiment				
Interfacial Thermodynamics and Kinetics I	MON AM	8:00 AM	304B	123
Interfacial Thermodynamics and Kinetics II	MON PM	2:30 PM	304B	149
Materials Design and Discovery I	TUE AM	8:30 AM	304B	178
Materials Design and Discovery II	TUE PM	2:00 PM	304B	205
CALPHAD and Ab-initio Studies of Phase Equilibria	WED AM	8:30 AM	304B	234
Fundamental Thermodynamics and Kinetics of Alloys	WED PM	2:00 PM	304B	265
ICME Case Studies and Validation: Extreme Environments				
Session I	TUE AM	8:30 AM	207A	175
Session II	TUE PM	2:00 PM	207A	206
Session II	WED AM	8:30 AM	207A	235
ICME Education in Materials Science and Mechanical Engineering				
ICME Education in Materials Science and Mechanical Engineering	THU AM	8:30 AM	304A	291
Modeling and Simulation of Composite Materials				
Session I	MON AM	8:00 AM	303B	127
Session II	TUE AM	8:30 AM	303B	183
Session III	TUE PM	2:00 PM	303B	209
Poster Session	TUE EVE	5:30 PM	Hall 3	348
Session IV	WED AM	8:30 AM	303B	238
Special Topics				
2019 EPD Distinguished Lecture				
Distinguished Lecture	MON AM	8:00 AM	213B	107
2019 Institute of Metals Lecture/Robert Franklin Mehl Award				
Presentation Lecture	WED PM	12:15 PM	303C	244
2019 International Metallurgical Processes Workshop for Young Scholars (IMPROWYS 2019):				
Electrometallurgy	MON AM	9:00 PM	213B	107
Metal Refining	MON PM	2:30 PM	213B	133
Poster Session	MON EVE	5:30 PM	Hall 3	319
Solidification Processing	TUES AM	8:30 AM	213B	159
Powder Metallurgy and Additive Manufacturing	TUES PM	2:00 PM	213B	188
Physical and Mechanical Metallurgy	WED AM	8:30 AM	213B	215
Early Career Professional Forum	WED PM	2:00 PM	213B	245
2019 Technical Division Student Poster Contest				
2019 Technical Division Student Poster Contest	MON PM	5:30 PM	Hall 3	319
2019 Technical Division Young Professional Poster Contest				
2019 Technical Division Young Professional Poster Contest	MON PM	5:30 PM	Hall 3	323
Acta Materialia Symposium				
Acta Materialia Award Session	TUE PM	3:15 PM	217C	190
Diversity in STEM and Best Practices to Improve it				
Best Practices and Lessons Learned	MON AM	8:20 AM	301B	120
Being Out in STEM	MON PM	2:30 PM	301B	145
Effective Business Improvement Methodologies for the Minerals, Metals, and Materials Industries				
Effective Business Improvement Methodologies for the Minerals, Metals, and Materials Industries	WED PM	2:00 PM	303B	261
Frontiers of Materials Research: A Decadal Survey				
Outputs and Discussion	TUE PM	12:15 PM	221D	204

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General Poster Session				
Poster Session	MON EVE	5:30 PM	Hall 3	331
International Round Table on Materials Criticality				
How Industry Manages Criticality	THU AM	8:30 AM	007C	292
How Industry Manages Criticality Round Table	THU PM	2:00 PM	007C	313
Materials and Manufacturing Innovation Keynote: Autonomous Materials Research				
Autonomous Materials Research	TUE AM	8:30 AM	221D	180
Science Policy within the Materials Research Community				
Science Policy for Materials Research	WED AM	9:00 AM	008B	242
Getting Involved in Science Policy	WED PM	2:00 PM	008B	271
TMS 2019 Annual Meeting & Exhibition				
Plenary Session	MON PM	12:00 PM	Lila Cockrell Theater	158