IMAT
ASM'S ANNUAL MEETING

INTERNATIONAL MATERIALS, APPLICATIONS & TECHNOLOGIES
2023

OCTOBER 16–19, 2023
HUNTINGTON PLACE | DETROIT, MI

ADVANCED MATERIALS AND MANUFACUTRING TECHNOLOGIES

HEAT TREAT | 2023

OCTOBER 17–19, 2023
HUNTINGTON PLACE | DETROIT, MI

DRIVING THE FUTURE OF THERMAL PROCESSING

FINAL PROGRAM

ORGANIZED BY:
ASM INTERNATIONAL

COLOCATED WITH:
MOTION+POWER TECHNOLOGY EXPO

ORGANIZED BY:
ASM INTERNATIONAL
HTS Heat Treating Society ASM INTERNATIONAL

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IMAT WELCOME

ASM International and its Affiliate Societies warmly welcome all participants to IMAT 2023 – the International Materials Applications and Technologies Conference and Exhibition. This industry-focused technical conference places a strong emphasis on the practical implementation of materials research and emerging technologies. The central themes of this year's conference revolve around Advanced Materials and Advanced Manufacturing Technologies. It's worth noting that IMAT 2023 is co-located with the Heat Treat 2023 Conference, enabling attendees to benefit from the combined technical programming of both conferences, as well as explore the exhibit hall, which will also house the Motion + Power Technology Expo.

The event's agenda comprises a range of enlightening keynotes, engaging panel discussions, and a comprehensive array of technical sessions dedicated to the latest advancements in the materials field. Alongside these sessions, attendees can partake in networking events and peruse the exhibit floor. Our primary objective is to foster collaboration among professionals from diverse branches of the materials realm—be it industry, academia, or government. This collaborative atmosphere aims to facilitate the sharing of recent accomplishments in materials research and technological developments, while also fostering the transfer and application of these breakthroughs within industrial contexts.

Participating alongside ASM International are a number of its affiliates, including the Heat Treating Society, Failure Analysis Society, Electronic Device Failure Analysis Society, International Metallographic Society, Thermal Spray Society, and Shape Memory and Superplastic Technologies. Representatives from each society will contribute to panel discussions, offering insights into the far-reaching impacts of advanced materials and manufacturing technologies within their respective domains. The exposition itself will feature prominent OEMs, materials suppliers, producers, and corporate partners, presenting cutting-edge technologies. Attendees can also partake in various educational workshops that offer opportunities for professional development and practical solutions to materials-related challenges. Workshops will cover an array of topics, including Alloy Development for Additive Manufacturing, Residual Stresses, Metallography and Failure Analysis, and Heat Treating of Materials. Encompassing core areas such as metals, ceramics, coatings, and composites, the event's scope will extend to encompass emerging technologies, energy materials, and renewables for power and transportation. Advanced subjects like additive manufacturing, materials informatics, biomaterials, and sustainability will also feature prominently in the technical sessions.

We are eagerly anticipating your presence at IMAT 2023 and the opportunity to engage with you in the shared pursuit of materials innovation and technological advancement.

IMAT Co-Chairs

Burak Akyuz
Vice President
Testing, Applied Technical Services

Andrzej Wojcieszynski
Consultant
Wingens Consulting LLC

#imat2023

HEAT TREAT WELCOME

Welcome to Detroit and Heat Treat 2023, where we're "Driving the Future of Thermal Processing"! This year's conference and expo is co-located with ASM's annual meeting, IMAT 2023, and AGMA's MPT Expo. This powerful collaboration brings to you three events in one location, offering more content, networking, and ROI.

Over the next 2.5 days, we hope you will take advantage of all that Heat Treat 2023 has to offer (and a few bonus activities), including a fully packed technical program, distinguished keynote speakers, ASM and HTS awards ceremonies, student competitions, and a bustling exhibition with 350+ companies represented across all 3 expos. In addition, Heat Treat attendees can attend all IMAT technical programming and keynote sessions at no additional charge.

One of the standout features of Heat Treat 2023 is undoubtedly the impressive lineup of keynote speakers we have secured, including:

- Dr. Stefanie Tompkins, Director, Defense Advanced Research Projects Agency, "Materials Science and Thermal Processing at DARPA – On the Road to Discovery"
- Dr. Bryan McEnerney, Technical Fellow, Materials, NASA Engineering & Safety Center, "The Challenges of Insertion of Advanced Materials & Processes for Spaceflight"
- Dr. Iver Anderson, FASM, Senior Metallurgist, Division of Materials Sciences and Engineering at Ames Laboratory, "Heat Treatment Effects on Sintering of Highly Grain-refined Dy-free Nd-Fe-B Anisotropic Magnets"
- Dr. Marvin Barnes, Branch Chief, Advanced Propulsion Research and Development at NASA, "Ordinary Materials, Extraordinary Applications"

Throughout the week, there will be numerous opportunities for networking with colleagues and exhibitors, from the welcome reception with exhibitors on Tuesday to a special networking event on Wednesday evening to coffee breaks and lunches in the exhibit hall. These interactions will allow attendees to expand their professional networks and cultivate relationships with key contacts across the thermal processing, materials science and gear industries.

Lastly, please join us in extending our gratitude to the Heat Treat 2023 organizing committee (listed on page 6) who have worked tirelessly to make this conference possible.

Thank you for your support of Heat Treat 2023. We hope you enjoy and make the most of your time in Detroit and Heat Treat 2023.

Heat Treat 2023 Core Organizing Committee

Andrew Banka
Airflow Sciences Corp
Technical Program Chair

Tim DeHennis
Boeing Research & Technology
Expo Co-Chair

Chuck Faulkner
Quaker Houghton
Expo Co-Chair

Trisha Rouse
General Motors
Technical Program Vice Chair

#ht2023

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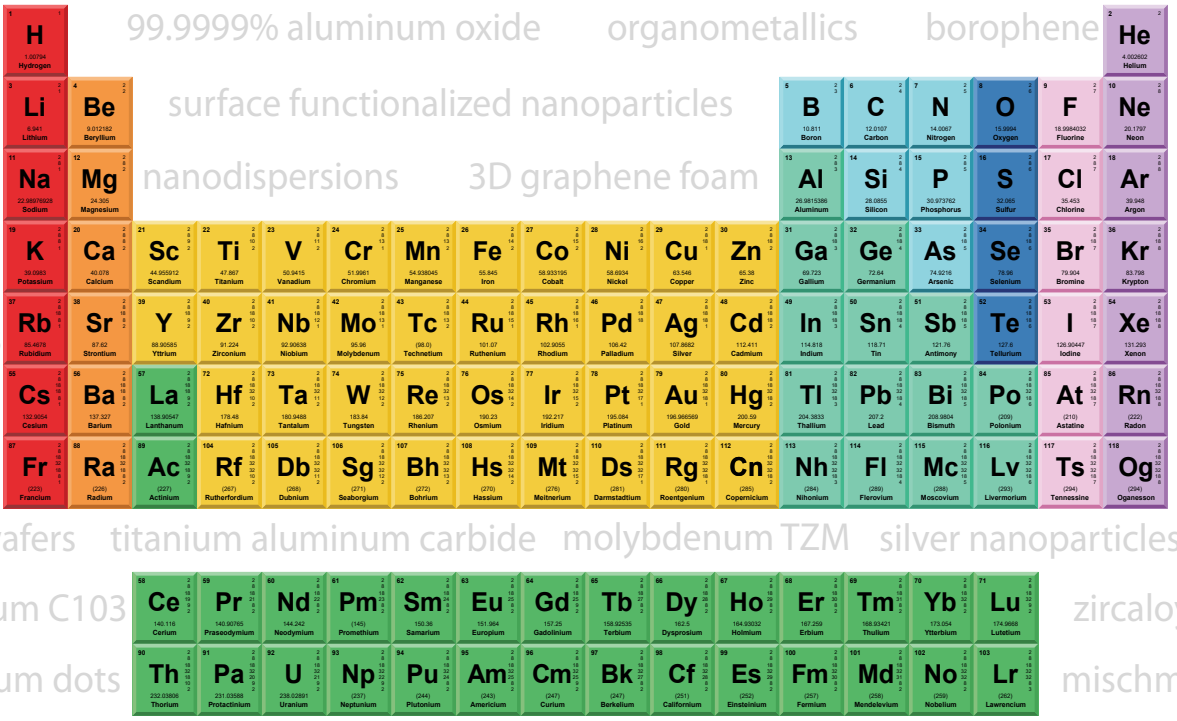
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Contact KJ Johanns at kj.johanns@asminternational.org to discuss ways to brand alongside ASM.
Reference this advertisement for special rates for 2024!

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Expo

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GENERAL INFORMATION

CONFERENCE REGISTRATION HOURS

Huntington Place Convention Center, Hall A Foyer

Sunday, October 15 .....3:00 – 5:00 p.m.
Monday,October 16.....7:00 a.m. – 5:00 p.m.
Tuesday, October 17 .....7:00 a.m. – 6:00 p.m.
Wednesday, October 18 .....7:30 a.m. – 6:00 p.m.
Thursday, October 19 ..... 7:30 a.m. – 12:00 p.m.

EXHIBITION DATES AND TIMES

Huntington Place Convention Center, Hall A

Tuesday, October 17 .....9:00 a.m. – 6:00 p.m.
Wednesday, October 18 .....9:00 a.m. – 5:00 p.m.
Thursday, October 19 ..... 9:00 a.m. – 12:00 p.m.

REFRESHMENT BREAKS AND LUNCHES

Mid-morning and afternoon refreshment breaks will be provided each day. Lunch can be purchased on Monday. Lunch is provided for Full Conference registrants Tuesday and Wednesday.

Monday, October 16

Morning Refreshment Break .....9:30 – 10:30 a.m.
Meeting Room Foyer
Lunch (*Available for purchase on level 2*) .... 11:30 a.m. – 1:30 p.m.
On Own
Afternoon Refreshment Break .....2:30 – 3:30 p.m.
Meeting Room Foyer

Tuesday, October 17

Morning Refreshment Break .....9:30 – 10:30 a.m.
Exhibit Hall A
Lunch on the Show Floor..... 11:30 a.m. – 1:30 p.m.
Exhibit Hall A
Sponsored by: MESSER Gases for Life
Afternoon Refreshment Break .....2:30 – 3:30 p.m.
Exhibit Hall A

Wednesday, October 18

Morning Refreshment Break .....9:30 – 10:30 a.m.
Exhibit Hall A
Lunch on the Show Floor..... 11:30 a.m. – 1:30 p.m.
Exhibit Hall A
Afternoon Refreshment Break .....2:30 – 3:30 p.m.
Exhibit Hall A

Thursday, October 19

Morning Refreshment Break .....9:30 – 10:30 a.m.
Exhibit Hall A

MOBILE APP

Download the official event app for Apple and Android devices by searching **'IMAT/Heat Treat 2023'.**

SPECIAL NOTE

The only way to view the full IMAT and Heat Treat technical program is via the mobile app or via the IMAT or Heat Treat 2023 websites.

Access all of the following features on your smart phone:

- Search for exhibitors, read their company profiles, and request meetings
- Locate the booths of your favorite exhibitors on the exhibit hall floor plan
- View the technical schedule and search for presentations that interest you
- Create an itinerary and review your saved presentations and exhibitors
- Search for speakers and connect with other attendees at the event
- Complete a survey for each tutorial presentation and the Best Paper!

STAY CONNECTED AT THE SHOW

Follow show news on Twitter, Facebook and LinkedIn. Share your photos and videos by using #IMAT2023 and #HT2023.

INTERNET ACCESS

Complimentary WiFi access for attendees is available throughout the Convention Center and the Exhibit Halls. No password necessary.

IMAT & HEAT TREAT SPEAKERS

REMINDER: All speakers should plan to meet in the room of your presentation 30 minutes prior to the start of your session in order to upload your presentation. This will allow all speakers the opportunity to meet their session chair and go over any final conference details and any audio visual concerns.

IMAT SPEAKERS & SESSION CHAIRS

Authors' Coffee will be available in Convention Center Room 330AB Monday, October 16 from 8:30 a.m. – 10:30 a.m. and Tuesday, October 17 through Thursday, October 19 from 7:00 a.m. – 9:00 a.m.
Presenters should only attend on the day of their scheduled presentation.

HEAT TREAT SESSION CHAIRS BRIEFING

Session Chairs may pick up their packets from 8:00 a.m. – 9:00 a.m. on Tuesday, October 17 – Thursday, October 19 in Convention Center Room 314. All session chairs should plan to attend the Session Chair Briefing on the day you are chairing a session. These briefings will review instructions and program information relevant to the day for you to pass along to your speakers. Your attendance is very important.

SCHEDULE AT A GLANCE

IMAT AND HEAT TREAT SCHEDULE AT A GLANCE, SPECIAL EVENTS, ASM MEETINGS AND PROTOCOL EVENT LISTING

Sunday, October 15			
7:00 - 8:00 a.m.	ASM International Metallographic Society (IMS) Board and Judges Breakfast	Convention Center	355
8:00 a.m. - 5:00 p.m.	ASM International Metallographic Society (IMS) Judging for IMC Contest	Convention Center	354
8:30 a.m. - 12:00 p.m.	ASM International Metallographic Society (IMS) Board, Committee and Subcommittee Chair Meeting	Convention Center	353
10:00 a.m. - 1:00 p.m.	Action in Education Committee	Marriott	Greco
11:00 a.m. - 2:00 p.m.	REHEARSAL - Annual Meeting/Awards Dinner Reception	Marriott	Mackinac East
12:00 - 1:30 p.m.	Lunch for IMS Board and IMC Contest Judges	Convention Center	355
1:00 - 4:00 p.m.	ASM Failure Analysis Society (FAS) Board, Committee and Subcommittee Chair Meeting	Convention Center	353
3:00 - 5:00 p.m.	Registration Open (HT/IMAT)	Convention Center	Exhibit Hall A Foyer
3:00 - 6:00 p.m.	ASM Foundation Board Meeting	Marriott	Michelangelo
5:00 - 7:00 p.m.	ASM Technical Committees Summit	Marriott	Greco
6:00 - 9:00 p.m.	ASM Foundation Board/Guest Dinner	Marriott	Duluth A&B
6:00 - 9:00 p.m.	ASM International Metallographic Society Awards Dinner	Marriott	Monet
7:00 - 10:00 p.m.	International Materials Reviews (IMR) Committee	Marriott	Michelangelo
Monday, October 16			
7:00 a.m. - 4:00 p.m.	Chapter Leadership Day	Convention Center	110AB
7:00 a.m. - 5:00 p.m.	Registration Open (HT/IMAT)	Convention Center	Hall A Foyer
8:00 - 9:30 a.m.	Metallography, Microstructure, and Analysis (MMA) Editorial Board	Marriott	Joliet
8:00 - 10:00 a.m.	ASM Handbook and Technical Book Committee Meeting	Convention Center	113AB
8:00 - 10:30 a.m.	Guest Hospitality	Marriott	Davinci
8:00 a.m. - 5:00 p.m.	Exhibitor Set-up	Convention Center	Exhibit Hall A
8:30 - 10:30 a.m.	IMAT Author's Coffee	Convention Center	330AB
9:00 - 10:00 a.m.	IMAT Keynote Speaker: Dr. Evelyn N. Wang, Advanced Research Projects Agency-Energy (ARPA-E) Sponsored by: weldaloy metallurgical laboratory	Convention Center	310B
9:30 -10:30 a.m.	Refreshment Break	Convention Center	Meeting Space Foyer
10:00 a.m. - 6:00 p.m.	Tuxedo Pickup	Marriott	Monet
10:30 - 11:30 a.m.	ASM-TMS Distinguished Lectureship in Materials and Society: Dr. Viola Acoff, University of Mississippi	Convention Center	310B
10:30 a.m. - 12:10 p.m.	IMAT Technical Programming	Convention Center	320, 321, 331ABC, 332, 333, 336, 337, 338, 411BC, 412AB, 413AB
11:30 a.m. - 1:30 p.m.	Lunch (On Own)	Convention Center	2nd Floor Foyer
11:30 a.m. - 1:30 p.m.	ASM Leadership Luncheon	Convention Center	330AB
12:00 - 5:00 p.m.	ASM Heat Treating Society (HTS) Board, Committee and Subcommittee Chair Meeting	Convention Center	353
1:00 - 5:20 p.m.	IMAT Technical Programming	Convention Center	320, 321, 331ABC, 332, 333, 336, 337, 338, 411BC, 412AB, 413AB
2:00 - 3:00 p.m.	ASM Awards Policy Committee Meeting	Convention Center	111AB
2:30 - 3:30 p.m.	Refreshment Break	Convention Center	Meeting Space Foyer

SCHEDULE AT A GLANCE

IMAT AND HEAT TREAT SCHEDULE AT A GLANCE, SPECIAL EVENTS, ASM MEETINGS AND PROTOCOL EVENT LISTING

4:00 - 5:00 p.m.	ASM 110th Annual Society Meeting	Convention Center	114AB
5:00 - 7:00 p.m.	AM&P Editorial Committee	Convention Center	113AB
5:00 - 6:00 p.m.	ASM International Metallographic Society (IMS) General Membership Meeting	Convention Center	320
5:30 - 7:30 p.m.	ASM HTS T&P Committee Meeting	Convention Center	353
5:30 - 7:00 p.m.	Future Leaders Reception	Convention Center	112ABCD
6:30 - 7:30 p.m.	ASM Failure Analysis Society (FAS) General Membership Meeting	Marriott	Brule
7:00 - 9:00 p.m.	Ignite the Night: A Materials Camp Celebration	Marriott	42 Degrees North
7:30 - 9:30 p.m.	Alloy Phase Diagram (APD) Committee	Marriott	Duluth
7:30 - 9:00 p.m.	ASM Failure Analysis Society (FAS) Program Committee Meeting	Marriott	Brule
Tuesday, October 17			
7:00 - 8:30 a.m.	Journal of Failure Analysis and Prevention (JFAP) Editorial Board	Marriott	Joliet
7:00 - 9:00 a.m.	Women in Manufacturing and Engineering Breakfast (ticketed event) - Joint with IMAT, HT and MPT	Convention Center	310A
7:00 - 9:00 a.m.	IMAT Author's Coffee	Convention Center	330 AB
7:00 a.m. - 6:00 p.m.	Registration Open (HT/IMAT)	Convention Center	Hall A Foyer
8:00 - 9:00 a.m.	Heat Treat Session Chair Briefing	Convention Center	314
8:00 - 10:30 a.m.	Guest Hospitality	Marriott	Davinci
9:00 - 10:00 a.m.	Alpha Sigma Mu Lecturer: Prof. Robert O. Ritchie, FASM, University of California Berkeley	Convention Center	310B
9:00 - 11:30 a.m	Heat Treat Technical Programming	Convention Center	311AB, 312AB, 313AB
9:00 - 11:30 a.m	IMAT Technical Programming	Convention Center	320, 321, 331ABC, 332, 333, 334, 336, 337, 338, 412AB, 413AB
9:00 a.m. - 6:00 p.m.	Exhibit Hall Open	Convention Center	Exhibit Hall A
9:00 a.m. - 6:00 p.m.	SECO/VACUUM & SECO/WARWICK Wellness Lounge	Convention Center	Exhibit Hall A
9:00 a.m. - 6:00 p.m.	GeoCorp Voltage Lounge - Next to GeoCorp Booth	Convention Center	Exhibit Hall A - Booth 1901
9:00 a.m. - 2:00 p.m.	ASM DomesDay Competition	Convention Center	Exhibit Hall A
9:00 a.m. - 2:00 p.m.	Mini-Materials Camp	Convention Center	Hall A
9:15 - 10:45 a.m.	Education Mini Course: Metallurgy for the Non Metallurgist	Convention Center	Exhibit Hall A – Education Exchange
9:30 - 10:30 a.m.	ASM Education Foundation Session: Make a Material Difference in your Community: How your business or chapter can engage and inspire the next generation of materials science professionals	Convention Center	414AB
9:30 - 10:30 a.m.	Refreshment Break with the Exhibitors - Open	Convention Center	Exhibit Hall A
10:00 - 11:00 a.m.	ASM IDEA Committee Meeting	Convention Center	353
10:30 - 11:30 a.m.	Edward DeMille Campbell Lecturer: Dr. George Gray III, FASM, Los Alamos National Laboratory	Convention Center	310B
11:00 a.m. - 5:00 p.m.	Tuxedo Pickup	Marriott	Monet
11:30 a.m. - 1:00 p.m.	Education Mini Course: General Heat Treating	Convention Center	Exhibit Hall A – Education Exchange
11:30 a.m. - 1:30 p.m.	Lunch Concessions Open on the Show Floor Sponsored by: MESSER Gases for Life	Convention Center	Exhibit Hall A
11:45 a.m. - 1:00 p.m.	IMAT Technical Advisory Board Meeting	Convention Center	113AB
11:45 a.m. - 1:30 p.m.	Journal of Materials Engineering & Performance (JMEP) Committee	Convention Center	115AB

SCHEDULE AT A GLANCE

IMAT AND HEAT TREAT SCHEDULE AT A GLANCE, SPECIAL EVENTS, ASM MEETINGS AND PROTOCOL EVENT LISTING

11:50 a.m. - 1:00 p.m.	Joining of Advanced Specialty Material (JASM) Committee Meeting	Convention Center	111AB
12:00 - 1:00 p.m.	QuesTek Innovations Lunch & Learn	Convention Center	Exhibit Hall A – Industry Forum
1:00 - 2:00 p.m.	Henry Clifton Sorby Lecture: Prof. Yuichi Ikuhara, The University of Tokyo	Convention Center	331ABC
1:00 - 2:20 p.m.	Heat Treat Technical Programming	Convention Center	311AB, 312AB, 313AB
1:00 - 2:20 p.m.	IMAT Technical Programming	Convention Center	320, 321, 331ABC, 332, 333, 334, 336, 337, 338, 412AB, 413AB
2:30 -3:30 p.m.	Refreshment Break with the Exhibitors - Open	Convention Center	Exhibit Hall A
2:30 - 3:15 p.m.	Heat Treat Keynote Speaker: Dr. Stephanie Tompkins, DARPA	Convention Center	Exhibit Hall A – Industry Forum
2:45 - 4:00 p.m.	ASM Past Presidents Meeting	Marriott	Joliet
3:15 - 4:00 p.m.	IMAT Keynote Speaker: Bryan W. McEnerney, NASA Engineering & Safety Center (NESC) Sponsored by: weldaloy metallurgical laboratory	Convention Center	Exhibit Hall A – Industry Forum
3:30 - 4:30 p.m.	ASM Education Foundation Session: Workforce Development Begins in the Classroom: Learn how a Materials Science Camp grows a diversified workforce through its hands-on curriculum	Convention Center	414AB
4:00 - 5:00 p.m.	ASM Emerging Professionals Committee Meeting	Convention Center	353
4:00 - 5:30 p.m.	Student Competitions / Poster Phase: Fluxtrol Student Research Competition and HTS Strong Bar Competition	Convention Center	Exhibit Hall A - Heat Treat Student Poster Area
4:00 - 5:30 p.m.	IMAT and Heat Treat Welcome Reception with Exhibitors	Convention Center	Exhibit Hall A
6:00 - 7:00 p.m.	ASM Awards Dinner Cocktail Reception	Marriott	Ambassador
7:00 - 9:30 p.m.	ASM Awards Dinner	Marriott	Ambassador
9:30 - 11:00 p.m.	President's Reception	Marriott	Mackinac East
Wednesday, October 18			
7:00 - 8:00 a.m.	Breakfast - ASM Board of Trustees	Marriott	Greco
7:00 - 9:00 a.m.	IMAT Author's Coffee	Convention Center	330 AB
7:00 a.m. - 12:00 p.m.	Tuxedo Drop Off	Marriott	Renoir
7:30 a.m. - 6:00 p.m.	Registration Open (HT/IMAT)	Convention Center	Hall A Foyer
8:00 - 9:00 a.m.	Heat Treat Session Chair Briefing	Convention Center	314
8:00 - 9:00 a.m.	ASM Heat Treating Society (HTS) General Membership Meeting	Convention Center	310A
8:00 - 10:00 a.m.	IMAT Technical Programming	Convention Center	320, 321, 331ABC, 332, 336, 337, 338, 412AB
9:00 a.m. - 2:00 p.m.	Mini-Materials Camp	Convention Center	Hall A
9:00 a.m. - 5:00 p.m.	Exhibit Hall Open	Convention Center	Exhibit Hall A
9:00 a.m. - 5:00 p.m.	SECO/VACUUM & SECO/WARWICK Wellness Lounge	Convention Center	Exhibit Hall A
9:00 a.m. - 5:00 p.m.	GeoCorp Voltage Lounge - Next to GeoCorp Booth	Convention Center	Exhibit Hall A - Booth 1901
9:15 - 10:00 a.m.	Heat Treat Keynote: Dr. Iver Anderson, FASM, Ames Laboratory	Convention Center	Exhibit Hall A – Industry Forum
9:30 - 10:30 a.m.	Refreshment Break with the Exhibitors - Open	Convention Center	Exhibit Hall A
10:30 - 11:30 a.m.	Fluxtrol Student Research Competition - Phase 2 - Oral Presentations	Convention Center	313AB

SCHEDULE AT A GLANCE

IMAT AND HEAT TREAT SCHEDULE AT A GLANCE, SPECIAL EVENTS, ASM MEETINGS AND PROTOCOL EVENT LISTING

10:30 a.m. - 12:00 p.m.	IMAT Panel Session: Advanced Materials and Manufacturing Technologies	Convention Center	Exhibit Hall A - Industry Forum
11:30 a.m. - 1:30 p.m.	Lunch Concessions Open on the Show Floor	Convention Center	Exhibit Hall A
11:45 a.m. - 12:30 p.m.	HTS Strong Bar Competition - Phase 2 - Testing	Convention Center	Exhibit Hall A - MTS Booth
12:00 - 1:00 p.m.	ASM Programming Committee Meeting	Convention Center	113AB
12:30 - 2:00 p.m.	Education Mini Course: Critical Thinking in the Application of Additive Manufacturing Processes	Convention Center	Exhibit Hall A – Education Exchange
1:00 - 5:10 p.m.	Heat Treat Technical Programming	Convention Center	311AB, 312AB, 313AB
1:00 - 5:10 p.m.	IMAT Technical Programming	Convention Center	320, 321, 331ABC, 332, 336, 337, 338, 412AB
2:30 - 3:30 p.m.	Break with Exhibitors/Dessert Reception	Convention Center	Exhibit Hall A
3:00 p.m.	Winner of the Walking Challenge Announced. You must be present to win!	Convention Center	Exhibit Hall A - Industry Forum
3:00 - 3:30 p.m.	HTS Student Competitions - Award Presentations	Convention Center	Exhibit Hall A - Industry Forum
3:30 - 4:30 p.m.	VIP Industry Tour (Featuring stops at the Data Ecosystem Booths)	Convention Center	Exhibit Hall A
6:00 - 9:00 p.m.	Networking Event at the Waterview Loft Sponsored by: Surface Combustion ECM USA	Waterview Loft	Waterview Loft
Thursday, October 19			
7:00 - 9:00 a.m.	IMAT Author's Coffee	Convention Center	330 AB
7:30 a.m. - 12:00 p.m	Registration Open	Convention Center	Hall A Foyer
8:00 - 9:00 a.m.	Heat Treat Session Chair Briefing	Convention Center	314
8:00 a.m. - 12:20 p.m.	IMAT Technical Programming	Convention Center	320, 321, 338
8:00 a.m. - 5:00 p.m.	Education Course: Materials Selection and Heat Treatment of Gears (joint with AGMA)	Convention Center	250B
9:00 a.m. - 12:00 p.m.	Exhibit Hall Open	Convention Center	Exhibit Hall A
9:00 a.m. - 12:00 p.m.	SECO/VACUUM & SECO/WARWICK Wellness Lounge	Convention Center	Exhibit Hall A
9:00 a.m. - 12:00 p.m.	GeoCorp Voltage Lounge - Next to GeoCorp Booth	Convention Center	Exhibit Hall A - Booth 1901
9:15 a.m. - 10:00 a.m.	Heat Treat Keynote: Dr. Marvin Barnes, NASA	Convention Center	Exhibit Hall A – Industry Forum
9:30 - 10:30 a.m	Refreshment Break with the Exhibitors - Open	Convention Center	Exhibit Hall A
10:30 a.m. - 12:30 p.m.	Heat Treat Technical Programming	Convention Center	311AB, 312AB, 313AB
12:00 - 8:00 p.m.	Exhibitor Tear Down	Convention Center	Exhibit Hall A
Friday, October 20			
8:00 a.m. - 12:00 p.m.	Exhibitor Tear Down Huntington Place Convention Center	Convention Center	Exhibit Hall A



IS METAL CLEANING MAKING OR BREAKING YOUR HEAT TREAT PROCESS?

Surface contaminations during heat treatment can greatly impact the quality of the end products, especially when it comes to demanding processes such as nitriding, brazing, vacuum treating and PVD-coating. This is why quality cleaning – both prior and after hardening – has such a key role to play.

With both non-polar and polar properties, our virgin-grade, proven modified alcohols **DOWCLENE™* 1601**, **DOWCLENE™* 1621** and **DUALENE™ 1601 S** can effectively remove oils and greases as well as certain polar contaminations. With low toxicity, they are chemically highly stable and can meet the maximum requirements of high-precision cleaning.

The making or breaking of heat treat process may lie in your metal cleaning. Are you making a conscious choice today?

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IMAT KEYNOTE SPEAKERS

Sponsored By:

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metallurgical laboratory



ARPA-E Advances High-Potential, High-Impact Energy Technology

Monday, October 16, 2023
9:00 – 10:00 a.m. | Convention Center: 310B

Dr. Evelyn N. Wang, Director, Advanced Research Projects Agency-Energy (ARPA-E)



The Challenges of Insertion of Advanced Materials & Processes for Spaceflight

Tuesday, October 17, 2023
3:15 – 4:00 p.m. | Convention Center: Exhibit Hall A - Industry Forum

Bryan W. McEnerney
NASA Technical Fellow, Materials, NASA Engineering & Safety Center (NESC)

HEAT TREAT KEYNOTE SPEAKERS



Materials Science and Thermal Processing at DARPA – On the Road to Discovery

Tuesday, October 17, 2023
2:30 p.m. | Convention Center: Exhibit Hall A - Industry Forum

Dr. Stefanie Tompkins, Director, Defense Advanced Research Projects Agency (DARPA)



Heat Treatment Effects on Sintering of Highly Grain-refined Dy-free Nd-Fe-B Anisotropic Magnets

Wednesday, October 18, 2023
9:15 – 10:00 a.m. | Convention Center: Exhibit Hall A - Industry Forum

Dr. Iver Anderson, FASM, Senior Metallurgist, Division of Materials Sciences and Engineering, Ames Laboratory



Ordinary Materials, Extraordinary Applications

Thursday, October 19, 2023
9:15 – 10:00 a.m. | Convention Center: Exhibit Hall A - Industry Forum

Dr. Marvin Barnes, Branch Chief, Advanced Propulsion Research and Development, NASA

GUEST LECTURES

ASM-TMS Distinguished Lectureship in Materials and Society

Reimagining the Development of a 21st Century Workforce to Address Society's Need for Materials Engineering and Technology

Monday, October 16
10:30 – 11:30 a.m. | Convention Center: Room 310B



Dr. Viola Acoff
Dean of the School of Engineering,
Professor of Mechanical Engineering,
University of Mississippi
Oxford, Mississippi

Henry Clifton Sorby Lecture 2023

Grain Boundary Atomic Structures, Segregation, Dynamics in Ceramics

Tuesday, October 17
1:00 – 2:00 p.m. | Convention Center: Room 331ABC



Prof. Yuichi Ikuhara
Director
Institute of Engineering Innovation
School of Engineering
The University of Tokyo

Alpha Sigma Mu Lecture

Deformation and Fracture of Biological and Engineering Materials

Tuesday, October 17
9:00 a.m. – 10:00 a.m. | Convention Center: Room 310B



Prof. Robert O. Ritchie
Materials Sciences Division, Lawrence Berkeley National Laboratory, and Department of Materials Science & Engineering, University of California Berkeley, California, USA

Edward DeMille Campbell Memorial Lecture

Dynamic Behavior of Additively Manufactured Materials

Tuesday, October 17
10:30 – 11:30 a.m. | Convention Center: Room 310B



Dr. George Gray III, FASM
Laboratory Fellow
Los Alamos National Laboratory

ASM MATERIALS EDUCATION FOUNDATION

Ignite the Night: A Materials Camp Celebration

Monday, October 16
7:00 p.m. – 9:00 p.m. | Marriott: 42 Degrees North

Experience the ultimate fusion of science and fun at the AMEF Materials Camp Celebration! Join us for a special reception that blends materials science with campfire delights. Sip on themed drinks like the Mosquito Mojito, indulge in camp-inspired treats, and ignite your curiosity with captivating materials demonstrations. Discover the magic that shapes our world and spark new connections in an unforgettable night of celebration and exploration.

ASM Foundation Informational Session: Make a Material Difference in your Community

Tuesday, October 17
9:30 a.m. – 10:30 a.m. | Convention Center: Room 414AB

How your business or chapter can engage and inspire the next generation of materials science professionals.

ASM FOUNDATION INFORMATIONAL SESSION: Workforce Development Begins in the Classroom

Tuesday, October 17
3:30 a.m. – 4:30 p.m. | Convention Center: Room 414AB

Learn how a Materials Science Camp grows a diversified workforce through its hands-on curriculum
Carrie Wilson, ASM Materials Education Foundation
Kristie Maravalli, ASM Materials Education Foundation

Mini Materials Camp

Tuesday, October 17
9:00 a.m. – 2:00 p.m. | Convention Center: Exhibit Hall A

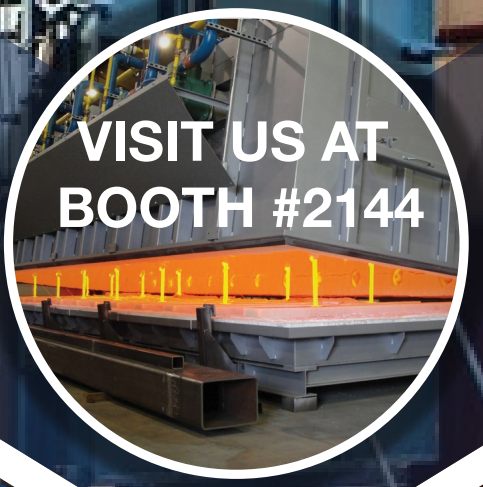
Wednesday, October 18
9:00 a.m. – 2:00 p.m. | Convention Center: Exhibit Hall A

HEAT TREAT FURNACES

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- MOVING
- PIT
- QUENCHING
- ROLLER
- TIP-UP

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PANEL DISCUSSIONS

IMAT Panel Discussion

Wednesday, October 18 | 10:30 a.m -12:00 p.m | Exhibit Hall A - Industry Forum

Advanced Materials and Manufacturing Technologies

Moderator:
David Furrer, Dr.-Eng., FASM
Principal Technical Fellow and Discipline Lead – Materials and Processes, Pratt & Whitney

Panelists:
Christopher J. Misorski, FASM, Product Development & Engineering, Mercury Marine – ASM Representative
Jay Demarest, FASM, IBM – EDFAS Society
Marvin Barnes, NASA - HT Society
Thomas Ackerson, Blue Origin – FAS Society
Arvind Agarwal, College of Engineering and Computing, Florida International University – TSS Society
Laura E. Moyer, PhD, FASM, Lehigh University – IMS Society

The "Advanced Materials and Manufacturing Technologies" panel is a debate of experts from various material societies who convene to share their insights on the impact of new materials and manufacturing technologies in their respective fields. This panel provides a platform for attendees to give feedback and discuss the latest advancements in materials science, engineering, and technology. The discussion topics will include materials for high performance and critical applications such as materials for aerospace and automotive, smart materials, and will provide an update on the development status of advanced manufacturing technologies including additive manufacturing, among others. It will begin with an opening statement/comment by each panelist, which will be followed by questions to the panelists from the audience. By bringing together a diverse group of experts, the panel aims to foster collaboration, share knowledge, and identify areas for future research and development. Ultimately, the goal of this panel is to advance the field of materials science and engineering and improve an understanding of the impact of materials on the quality of life.

Heat Treat Panel Discussion

Wednesday, October 18 | 2:20 p.m. | 313AB

Residual Stress Panel Session

Moderator:
David Furrer, Dr.-Eng., FASM
Principal Technical Fellow and Discipline Lead – Materials and Processes, Pratt & Whitney

How Manufacturing can Induce Residual Stress (HT of greatest interest for this conference) – Dr. Nihad Ben Sala, NBS – M&P Consulting
How Residual Stresses are Measured – Dr. Iuliana Cernatescu, Pratt & Whitney
Methods to model and predict Residual Stresses – Dr. Charlie Li, DANTE Solutions
Designing with and Specifying Product Residual Stresses – Mr. TJ Spradlin, United States Air Force

EDUCATION COURSES

*Pre-registration Required

Materials Selection and Heat Treatment of Gears
Thursday, October 19
8:00 a.m. – 5:00 p.m. | Convention Center: 250B

EDUCATION ON THE EXPO SHOW FLOOR

Metallurgy for the Non-Metallurgist — Short Course
Tuesday, October 17
9:15 – 10:45 a.m. | Convention Center: Exhibit Hall A – Education Exchange

Heat treating is considered the least understood, but the most integral part within manufacturing. An efficient heat treating process reduces the overall manufacturing costs associated with energy use, scrap, re-work, and quality issues.
This introduction is for personnel that require a basic education in heat treating and need to learn how to "speak the language". Participants will learn about the effects that time, temperature, and atmospheres have on the heat treating process and the links between microstructure and mechanical properties.

General Heat Treating — Short Course
Tuesday, October 17
11:30 a.m. – 1:00 p.m. | Convention Center: Exhibit Hall A – Education Exchange

Metals and alloys are used in the greatest variety of applications of all engineering materials and drive your products success. That is why it's crucial to have knowledge about what metals are, how they behave, and why they behave differently than ceramics, glass, and plastics. This course will provide you with essential knowledge about metallurgy and how to apply it your business or industry.

QuesTek Innovations Lunch & Learn*
Tuesday, October 17
12:00 – 1:00 p.m. | Exhibit Hall A – Industry Forum

Digital transformation is here, the future of materials engineering is ICMD®
Learn how QuesTek's expertise in Integrated Computational Materials Engineering (ICME) technologies has been used to accelerate design, development, and deployment of materials. We'll discuss how physics-based modeling can enhance alloy chemistry to improve material properties. Our newly released ICMD® materials design and engineering software will be showcased during our presentation where we will focus on several toolkits and their associated methodologies such as alloy design and optimization, sensitivity analysis, uncertainty qualification, and accelerated insertion of materials (AIM).

*Free to attend. Sign up within registration process.

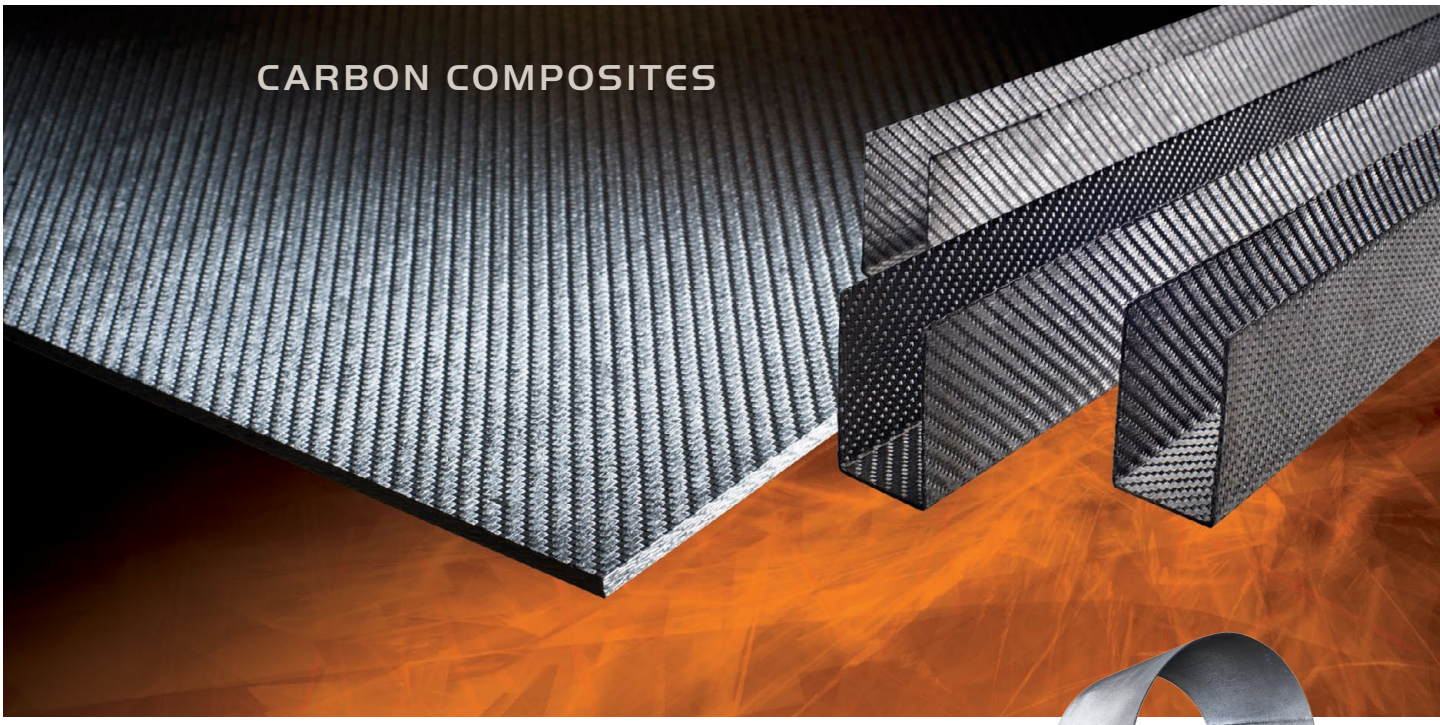
Critical Thinking in the Application of Additive Manufacturing Processes — Short Course
Wednesday, October 18
12:30 – 2:00 p.m. | Convention Center: Exhibit Hall A – Education Exchange

This course introduces the metal AM processes and discusses the potential sources of failure that are currently known, or should be anticipated, for metal AM processed hardware. In addition, the course discusses the effect of the metal AM processes on the failure analysis process. Lastly, this course discusses areas of consideration when using metal AM processes including design, metallurgy, production, quality, supplier management, and failure investigation, as well as providing some potential solutions.

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AMERICARB engineers and custom manufactures all of our own advanced composites from raw materials to finished goods using patented densification technology. Our ultra-high strength composites can be used in applications exceeding 2,500°C with sheet sizes available up to 25mm thick x 1820mm x 1820mm. These composites are stiffer and lighter than metals, and possess excellent strength properties that make them a more effective alternative and a better solution for different components.

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- Fasteners (nuts and bolts)
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- Hot pressing advanced ceramics
- Heat Treat Fixtures Grids

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SPECIAL EVENTS

ASM Leadership Awards Luncheon

Monday, October 16
11:30 a.m. – 1:30 p.m. | Convention Center: Room 330 AB

ASM's Chapter awards, organizational unit awards, as well as awards and scholarships of the ASM Materials Education Foundation will be presented. ASM's incoming committee/ council chairs will also be recognized for their leadership.
Cost: $60.00 per person

ASM 110th Annual Society Meeting

Monday, October 16
4:00 – 5:00 p.m. | Convention Center: Room 114AB

Officers will be elected for the 2023-2024 term, as well as other ASM business transactions. ASM members and guests are welcome.

Ignite the Night: A Celebration of Materials Camp

Monday, October 16
7:00 – 9:00 p.m. | Marriott: 42 Degrees North

Experience the ultimate fusion of science and fun at the AMEF Materials Camp Celebration! Join us for a special reception that blends materials science with campfire delights. Sip on themed drinks like the Mosquito Mojito, indulge in camp-inspired treats, and ignite your curiosity with captivating materials demonstrations. Discover the magic that shapes our world and spark new connections in an unforgettable night of celebration and exploration.

International Metallographic Society (IMS) IMC Booth

Tuesday, October 17 | Convention Center: IMC Booth

The International Metallographic Contest draws the interest of metallographers around the world, as they compete for the prestigious ASM-IMS Jacquet Lucas Award of $3,000. The award is endowed by Buehler Ltd. There are five different classes of competition covering all fields of optical and electron microscopy. Visit IMS booth # to see the winners of the 2023 competition.

Women in Manufacturing and Engineering Breakfast

Joint with IMAT, Heat Treat & AGMA
Tuesday, October 17
7:00 – 9:00 a.m. | Convention Center: Room 310A

Hosted by ASM International, AGMA, and the ASM Heat Treating Society, this event features speakers who will describe how to navigate your career while avoiding pitfalls and complacency. This breakfast sells out each year, so make sure to reserve your tickets ahead of time with your IMAT or Heat Treat 2023 registration. All are welcome!

Speakers: Nicole Wolter, president of HM Manufacturing
Liz Hoffman, Savanah River National Laboratory
Madilyn Jerke, Boeing
Cost: $40
Student Cost: $25

Welcome Reception with Exhibitors and Poster Session

Tuesday, October 17
4:00 - 5:30 p.m. | Convention Center: Exhibit Hall A

Attendees will have the opportunity to mix, mingle and build business relationships with key contacts. This fun-filled event is an attendee favorite featuring light hors d'oeuvres and local beer/wine selections.

ASM Awards Dinner/Reception

Tuesday, October 17
6:00 – 9:30 p.m. | Marriott Room: Ambassador

Join ASM in celebrating the accomplishments of ASM'S 2023 award recipients. Tickets, which include the President's Reception following the dinner can be purchased with IMAT registration.

- Cocktail Reception: 6:00 p.m. – 7:00 p.m. in Marriott Room: Ambassador
- Banquet: 7:00 p.m. – 9:30 p.m.
- President's Reception: 9:30 – 11:00 p.m. in Marriott Room: Mackinac East

Cost: $150.00 per person

Social Networking Event at Waterview Loft

Wednesday, October 18
6:00 – 9:00 p.m. | Waterview Loft

130 Atwater Street
Detroit, Michigan

Get ready for the ultimate networking event of the year! Join IMAT, Heat Treat, and MPT attendees for this year's event at the Waterview Loft at Port Detroit. Prepare to be entertained throughout the night with captivating performances and surprises that will keep you on the edge of your seat. Don't miss out on this incredible opportunity to connect with industry professionals while indulging in delectable local cuisine, cocktails, and mind-blowing entertainment. Ticket Required. Must be purchase in advance.

Cost: $90 per person

Title Sponsors: ECM TECHNOLOGIES, Surface Combustion

GeoCorp Voltage Lounge - Next to GeoCorp Booth (1901)

Be sure to stop by throughout each day for a hot cup of coffee or tea, and don't miss the opportunity to join us for cocktails and hors d'oeuvres during the Welcome Reception with Exhibitors. Plus, be prepared for daily special surprises that await! Open during exhibit hall hours.

Sponsored by: GEO

A METALLURGIST GUIDE TO DINING IN DETROIT

DINING IN DETROIT

1. Mom's Spaghetti, momsspaghetti.com/, 2131 Woodward Ave, Detroit, MI 48201
2. Basement Burger, basementburgerbar.com/, 1326 Brush St. Detroit, MI 48226
3. Brooklyn St. Local, brooklynstreetlocal.com/, 1266 Michigan Ave, at Brooklyn St. Detroit, MI 48216
4. Fishbones, fishbonesusa.com/, 400 Monroe St #8th, Detroit, MI 48226
5. Loco's Tex-Mex Grille, nuicreativeagency.wixsite.com/locos, 454 Lafayette St E, Detroit, MI 48226
6. Golden Fleece, goldenfleecedetroit.com/, 525 Monroe Street, Greektown, Detroit 48226
7. Pegasus Taverna, pegasustavernas.com/, 558 Monroe St. Detroit, MI 48226
8. Ottava Via, ottavaviadetroit.com/, 1400 Michigan Ave, Detroit, MI 48216
9. Vicente's Cuban Cuisine, vicentesdetroit.com/, 1250 Library St, Detroit, MI 48226
10. TABLE NO.2, tablenumber2.com/, 1045 Brush St, Detroit, MI 48226
11. Townhouse Detroit, townhousedetroit.com/, 500 Woodward Ave, Detroit, MI 48226
12. Brass Rail Pizza Bar, brassraildetroit.com/, 18 W Adams Ave, Detroit, MI 48226
13. La Lanterna, lalanternadetroit.com/, 1224 Griswold St, Detroit, MI 48226
14. Mootz Pizzeria + Bar, mootzpizzeria.com/, 1230 Library St, Detroit, MI 48226
15. Redsmoke Barbeque, redsmokebarbeque.com/, 573 Monroe St, Detroit, MI 48226
16. American Coney Island, americanconeyisland.com/, 114 W Lafayette Blvd, Detroit, MI 48226
17. Downtown Louie's Grill, downtownlouiesgrill.com/, 30 Clifford St, Detroit, MI 48226
18. BESA, besadetroit.com/, 600 Woodward Ave, Detroit, MI 48226
19. Go! Sy Thai, gosythai.com/, 1226 Griswold St, Detroit, MI 48226
20. Union Assembly, unionassembly.com/, 2131 Woodward Ave, Detroit, MI 48201
21. Leila, leiladetroit.com/, 1245 Griswold St, Detroit, MI 48226
22. The Statler French American Bistro, statlerdetroit.com/, 313 Park Ave, Detroit, MI 48226
23. Maru Sushi & Grill, marusushi.com/location/detroit, 160 W Fort St, Detroit, MI 48226
24. Buddy's Pizza, buddyspizza.com/downtown-detroit, Madison Building, 1565 Broadway St, Detroit, MI 48226
25. Woodward Coney Restaurant, woodwardconeyrestaurant.com/, 616 Woodward Ave, Detroit, MI 48226

ELEMENTS THAT MAKE DETROIT UNIQUE

BEYOND THE ORDINARY: 20 ELEMENTS THAT MAKE DETROIT UNIQUE

1. Detroit is home to the Detroit Windsor Tunnel, the first traffic tunnel between two nations.
2. Detroit installed the world's very first four-way traffic light in 1920 after its invention by local police officer William Potts.
3. Detroit holds the record for most registered bowlers in the country.
4. Detroit is home to a floating post office, the J.W. Westcott II (The only boat in the U.S. with its own zip code), which delivers mail to vessels in the area.
5. Detroit is home to the first mile of concrete highway ever paved.
6. Detroit boasts the nation's oldest surviving soda: Vernor's ginger ale, first served in 1866.
7. Detroit's 987-acre Belle Isle Park—which has a golf course, museum, basketball courts, and baseball fields—is the largest island park in the United States.
8. 1,200 feet underneath Detroit there are 1,400 acres of salt mines. Operated by the Detroit Salt Company, the mine contains more than 100 miles of road.
9. The 72-floor Marriott at the Renaissance Center in Detroit is the tallest hotel in North America. When it opened in 1977, it was the tallest in the world.
10. The city of Detroit is the only major US city that sits directly on the Canada-USA border. And the only US city in the lower 48 states that Canadians would have to drive north to visit.
11. Detroit is the birthplace of the techno music genre in the early 80s.
12. Standing at an impressive height of 80 feet and weighing a staggering 12 tons, The World's Largest Tire calls Detroit home.
13. The assembly line, a revolutionary method of mass production, was pioneered by Ransom Olds in Detroit in the early 20th century, transforming the manufacturing landscape and shaping the modern industrial era.
14. The Charles H. Wright Museum of African American History is a renowned cultural institution located in Detroit and is widely recognized as the largest collection of African American history and culture in the world.
15. Detroit is known for having the largest collection of Middle Eastern and Mediterranean restaurants in the United States, offering a diverse and vibrant culinary scene that reflects the city's rich cultural heritage.
16. Harry Houdini performed his last show in Detroit on Oct. 24, 1926, and died on Halloween at Detroit's Grace Hospital due to abdomen inflammation and a ruptured appendix.
17. In 1879, Detroit became the first city in the United States to assign telephone numbers.
18. The Detroit International Jazz Festival is the largest free jazz festival in the world.
19. On August 31, 1920, the first news delivered by radio – the returns of a primary local, state and congressional election – was broadcast by 8MK in Detroit.
20. Urban Farming Movement: In recent years, Detroit has gained attention for its urban farming initiatives. The city has repurposed abandoned lots into community gardens and farms, fostering sustainability, providing fresh produce, and revitalizing neighborhoods.


HEAT TREAT | 2025
OCTOBER 21–23, 2025 | DETROIT, MICHIGAN
SAVE THE DATE
ORGANIZED BY:
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Heat Treating Society
ASM INTERNATIONAL
ASM INTERNATIONAL
CO-LOCATED WITH:
IMAT
ASM'S ANNUAL MEETING
MOTION + POWER
TECHNOLOGY EXPO

STUDENTS & EMERGING PROFESSIONALS

Student-Focused Sessions

Perspectives for Emerging Materials Professionals
Monday, October 16 | 1:00 p.m. – 2:40 p.m., 3:00 p.m. – 5:20 p.m.
Convention Center: Room 411 BC
A full day of talks that will focus on soft skills, professional development, and career paths. A must-attend event for anyone looking for advice on how to maximize their materials science career!

ASM STUDENT PASSPORT PROGRAM

Calling all students! This interactive contest will guide you through key conference stops to encourage you to learn and see more. Simply download the Conference App where you will be able to access instructions and participate. Prizes will be offered.

ASM CAREER CONNECTIONS

This program is a chance to see the variety of careers available in the materials science and engineering industry. Download the conference app to view exhibitors who are hiring and to learn more about their open positions.

Fluxtrol Student Research Competition

Sponsored By: FLUXTROL

You won't want to miss this year's Fluxtrol Student Research Competition, where young innovative scientists/professionals will go head-to-head for the grand prize of $2,500. Let's come together to support and cheer on these emerging professionals as they provide attractive offers and opportunities in the worldwide Thermal Processing community. With the generous support of Fluxtrol, this event promises to be an exciting and memorable experience for all.

First Place: $2,500 cash prize
Second Place: $1,000 cash prize
Third Place: $500 cash prize

Competition Schedule:

Phase 1: Student Poster Competition
Tuesday, October 17 | 4:00 p.m. – 5:30 p.m.
Exhibit Hall A – Heat Treat Student Poster Area – Expo Show Floor

Phase 2: Oral Presentations
Wednesday, October 18 | 10:30 a.m. – 11:30 a.m.
Convention Center: Room 313AB

Announcement of Award Winners
Wednesday, October 18 | 3:00 - 3:30 p.m.
Exhibit Hall A – Industry Forum

HTS Strong Bar Competition

Sponsored By: MTS

Student teams will heat treat steel bar to achieve the highest combination of bending strength and bend deflection. Come support and encourage our student teams participating in this competition!

Competition Schedule

Phase 1: Student Poster Competition
Tuesday, October 17 | 4:00 p.m. – 5:30 p.m.
Exhibit Hall A – Student Poster Area – Expo Show Floor

Phase 2: Bend Test
Wednesday, October 18 | 11:45 a.m. - 12:30 p.m.
Exhibit Hall A: MTS Booth

Announcement of Award Winners
Wednesday, October 18 | 3:00 - 3:30 p.m.
Exhibit Hall A – Industry Forum

DomesDay Competition

Sponsored By: MTS NSL ANALYTICAL

Tuesday, October 17 | 9:00 a.m. – 2:00 p.m. | Exhibit Hall A
Can their domes take the weight? Teams designed and built a dome to be judged in various categories, the last of which will see the dome pitted against the compression machine! Come support the ten teams participating in ASM's Geodesic Dome Design Competition, DomesDay, at IMAT.

10TH INTERNATIONAL CONFERENCE ON ADVANCES IN MATERIALS, MANUFACTURING & REPAIR FOR POWER PLANTS

OCTOBER 15–18, 2024 | BONITA SPRINGS, FLORIDA

CALL FOR PAPERS

The world is undergoing an energy transformation and the safe, reliable, affordable, and environmentally responsible operation of today and development of tomorrow's powerplants requires continued advancement of high-temperature materials technology. Materials are the key enabling technology that drives the development of high-efficiency power conversion technology. The Electric Power Research Institute (EPRI) is pleased to continue its partnership with ASM for its 10th Advances in Materials Conference building on EPRI's initial event in 1987 and rotating between the UK, Europe, North America, and the Pacific with its most recently held conference in Nagasaki, Japan (2019). The 2024 Conference will cover the latest advancements in materials, manufacturing, and repair for conventional thermal power generation including but not limited to: steam power (HRSG, Boilers, steam turbines), gas turbines, concentrating solar power, and geothermal, and advanced energy system: small modular reactors, advanced nuclear technologies, bulk thermal energy storage, sCO2 power cycles, next generation CSP, A-USC steam, and hydrogen.

This conference will enable a robust technical exchange and promotion of collaboration among scientists, engineers, and academics on an international scale focused around the following conference themes:

- High-Temperature Materials: superalloys, CSEF steels, stainless steels, intermetallics, non-metallics, coatings, claddings
- Damage Mechanisms & Properties: Creep, creep-fatigue, oxidation and corrosion, weld performance, wear/erosion
- Component Manufacturing: castings, forgings, blades, rotors, valves, shop & field fabrication processes, etc.
- Advanced Manufacturing: additive (PBF, DED, etc.), Powder Metallurgy Hot Isostatic Pressing (PM-HIP), advanced welding and cladding processes
- Qualification: Design, design rules, codes & standards
- Performance: Field experience, Life management, Fitness-for-Service (FFS), feature testing, modeling & validation
- Repair: weld repair, rejuvenation, advanced repair methods
- Emerging High-Temperature Materials Technology: refractories, new alloy developments, modeling developments

SUBMIT YOUR ABSTRACT TODAY!

DEADLINE: DECEMBER 13, 2023

ORGANIZED BY:

ASM INTERNATIONAL EPRI

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TECHNICAL PROGRAM — IMAT



CLICK HERE TO VIEW THE FULL TECHNICAL PROGRAM SCHEDULE ONLINE!

SPECIAL NOTE

The only way to view the full IMAT and Heat Treat technical program is via the mobile app or via the IMAT or Heat Treat 2023 websites. Schedule subject to change for the most updated information download the official event app for Apple and Android devices by searching **'IMAT/Heat Treat 2023'**.

Date	Oct 16, 2023		Oct 17, 2023		Oct 18, 2023		Oct 19, 2023
Locations	**Mon AM**	**Mon PM**	**Tue AM**	**Tue PM**	**Wed AM**	**Wed PM**	**Thu AM**
310 B **Keynotes / Special Sessions**	9:00 AM - 10:00 AM IMAT Keynote: ARPA-E Advances High-Potential, High-Impact Energy Technology: Dr. Evelyn N. Wang, Director, Advanced Research Projects Agency-Energy (ARPA-E) 10:30 AM - 11:30 AM ASM-TMS Distinguished Lectureship in Materials and Society: Dr. Viola Acoff, Dean of the School of Engineering, Professor of Mechanical Engineering, University of Mississippi		9:00 AM - 10:00 AM Alpha Sigma Mu Lecture: Prof. Robert O. Ritchie, Materials Sciences Division, Lawrence Berkeley National Laboratory, and Department of Materials Science & Engineering, University of California Berkeley 10:30 AM - 11:30 AM Edward DeMille Campbell Memorial Lecture: Dr. George Gray III, FASM, Laboratory Fellow, Los Alamos National Laboratory				
320 **Failure Analysis**	10:30 AM - 11:50 AM Aviation I	1:00 PM - 2:40 PM Aviation II 3:00 PM - 5:00 PM JOINT SESSION: FAS/IMS	8:00 AM - 9:40 AM Automotive & Transportation 10:30 AM - 11:50 AM Embrittlement – Related Failures I	1:00 PM - 1:40 PM Embrittlement – Related Failures II	8:00 AM - 9:40 AM Tools & Techniques I	1:00 PM - 4:20 PM Tools & Techniques II	8:00 AM - 9:40 AM Threaded Joints & Fasteners I 10:40 AM - 12:20 PM Threaded Joints & Fasteners II
321 **Failure Analysis**	10:30 AM - 11:30 AM Corrosion I	1:00 PM - 2:40 PM Corrosion II 3:00 PM - 4:40 PM Welding & Joining	10:30 AM - 11:50 AM Food & Beverage I	1:00 PM - 1:40 PM Food & Beverage II	8:40 AM - 9:40 AM Casting & Processing Defects	1:00 PM - 4:40 PM Non- Metallic Materials	8:00 AM - 9:40 AM Fatigue & Fracture I 10:40 AM - 12:20 PM Fatigue & Fracture II
331 ABC **Characterization of Materials and Microstructure through Metallography, Image Analysis, and Mechanical Testing - Fundamental and Applied Studies**	10:30 AM - 11:50 AM: Microstructural Characterization and the Correlation of Microstructure to Mechanical Properties I	1:00 PM - 2:40 PM Microstructural Characterization and the Correlation of Microstructure to Mechanical Properties II 5:00 PM - 6:00 PM IMS Annual Meeting	8:40 AM - 9:40 AM Microstructural Characterization and the Correlation of Microstructure to Mechanical Properties III 10:30 AM - 11:50 AM Quantification and Simulation of Microstructures and Properties		9:00 AM - 9:40 AM Microstructural Characterization and the Correlation of Microstructure to Mechanical Properties IV	1:20 PM - 5:00 PM Microstructures in Additive Manufacturing (Joint session with the AM Committee) and Metallographic Preparation Techniques from Fundamentals to Novel Solutions	

TECHNICAL PROGRAM — IMAT



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Locations	**Mon AM**	**Mon PM**	**Tue AM**	**Tue PM**	**Wed AM**	**Wed PM**	**Thu AM**
331 ABC **Special Sessions**				1:00 PM - 2:00 PM Henry Clifton Sorby Lecture: Prof. Yuichi Ikuhara, Director, Institute of Engineering Innovation, School of Engineering, The University of Tokyo			
332 **PSDK XVIII: Phase Stability and Diffusion Kinetics**	10:30 AM - 11:50 AM PSDK XVIII: J Willard Gibbs Equilibria Award Session Honoring Ji-Cheng 'JC' Zhao I	1:00 PM - 2:40 PM PSDK XVIII: J Willard Gibbs Equilibria Award Session Honoring Ji-Cheng 'JC' Zhao II 3:00 PM - 4:20 PM PSDK XVIII: J Willard Gibbs Equilibria Award Session Honoring Ji-Cheng 'JC' Zhao III	8:00 AM - 9:40 AM PSDK XVIII: Alloy Design 10:30 AM - 11:50 AM PSDK XVIII: Phase-Field Modeling				
332 **Thermal Spray & Surface Engineering**					8:00 AM - 10:00 AM TSSE - 1	1:00 PM - 2:00 PM TSSE – 2	
333 **Materials Behavior & Characterization**		1:20 PM - 2:40 PM Microstructural Characterization 3:00 PM - 4:40 PM Materials Behavior & Characterization: Processing and Microstructural Characterization	8:20 AM - 10:00 AM Mechanical Properties of Materials I 10:30 AM - 11:30 AM Mechanical Properties of Materials II				
334 **Sustainable Materials & Processes**			10:30 AM - 11:50 AM Sustainable Materials Processing and Manufacturing I	1:20 PM - 2:00 PM Sustainable Materials Processing and Manufacturing II			
336 **Corrosion and Environmental Degradation**		3:00 PM - 4:40 PM Crosscutting Issues in Corrosion of Materials: Control, Monitoring, Mitigation and Material Selection					
336 **Archaeometallurgy and Ancient Metalworking**			8:40 AM - 9:40 AM Archaeometallurgy and Ancient Metalworking I 10:30 AM - 11:10 AM Archaeometallurgy and Ancient Metalworking II				

TECHNICAL PROGRAM — IMAT



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Locations	**Mon AM**	**Mon PM**	**Tue AM**	**Tue PM**	**Wed AM**	**Wed PM**	**Thu AM**
336 **Metals, Ceramics and Composite Materials (raw materials, processing, manufacturing methods, applications, environmental effects**					8:40 AM - 9:40 AM Metallic Materials, Alloy Development, and Heat Treatment	1:00 PM - 2:20 PM Ceramics, Composites, and Coatings	
337 **Emerging Technologies**	10:30 AM - 12:10 PM Emerging Technology						
337 **Materials for Energy & Utilities**		3:00 PM - 4:40 PM Materials for Entergy & Utilities					
337 **EDFAS**				1:00 PM - 2:00 PM EDFAS Tutorial I - Christian Boit, Photonic Localization Techniques	8:40 AM - 9:40 AM EDFAS Tutorial II - Jason Holm, Transmission Electron Imaging and Diffraction in the SEM: What, Why and How to Do This in Your Microscope	1:00 PM - 2:00 PM EDFAS Tutorial III - Dave Albert, Microelectronic Failure Analysis	
338 **Additive Manufacturing**	10:30 AM - 11:50 AM Challenges in AM Qualification, Supply Chains and Logistics	1:00 PM - 2:20 PM: Additive Manufacturing Process Modeling and Monitoring 3:00 PM - 5:00 PM Additive Manufacturing for Energy Applications	8:00 AM - 9:40 AM Advancement in AM Processing of Non-Ferrous Metals 10:30 AM - 11:50 AM Advancing Understanding of Process Structure Property Relationships in AM I	1:00 PM - 2:00 PM Advances in Polymer Additive Manufacturing	8:00 AM - 9:40 AM Novel Alloy Design Approaches for AM	1:00 PM - 4:40 PM Novel Alloy Design Approaches for AM (Part 2)/ Cold Spray Additive Manufacturing	8:00 AM - 9:00 AM Advancing Understanding of Process Structure Property Relationships in AM II
411 BC **Perspectives for Emerging Professionals**	10:30 - 11:50 AM Perspective for Emerging Professionals I	1:00 PM - 2:40 PM Perspective for Emerging Professionals I 3:00 PM - 5:20 PM Perspective for Emerging Professionals II					
412 AB **Joining of Advance and Specialty Materials (JASM XXII)**	10:30 AM - 11:30 AM Ultrasonic and Impact Welding	1:00 PM - 2:40 PM Laser and Energy Beam Joining I 3:00 PM - 4:20 PM Laser and Energy Beam Joining II	8:00 AM - 9:40 AM Friction Stir Technologies I 10:30 AM - 11:30 AM Friction Stir Technologies II	1:00 PM - 2:00 PM Metallurgy	8:00 AM - 10:00 AM NanoJoining		

TECHNICAL PROGRAM — IMAT



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Locations	**Mon AM**	**Mon PM**	**Tue AM**	**Tue PM**	**Wed AM**	**Wed PM**	**Thu AM**
413 AB **Processing and Applications**	10:30 AM - 11:50 AM Aluminum Alloys for Automotive I	1:00 PM - 2:00 PM Aluminum Alloys for Automotive II 3:00 PM - 5:00 PM Materials Processing I	8:40 AM - 9:40 AM Materials Processing II 10:30 AM - 11:50 AM Materials used in Railway Transportation	1:00 PM - 2:00 PM Materials used in Railway Transportation II			
Exhibit Hall A - Industry Forum **Keynotes/ Special Sessions/ Education Workshops**				2:30 PM - 3:15 PM Heat Treat Keynote: Materials Science and Thermal Processing at DARPA – On the Road to Discovery: Dr. Stefanie Tompkins, Director Defense Advanced Research Projects Agency (DARPA) 3:15 PM - 4:00 PM IMAT Keynote: The Challenges of Insertion of Advanced Materials & Processes for Spaceflight: Bryan W. McEnerney, NASA Technical Fellow, Materials, NASA Engineering & Safety Center (NESC)	9:15 AM - 10:00 AM Heat Treat Keynote: Heat Treatment Effects on Sintering of Highly Grain-refined Dy-free Nd-Fe-B Anisotropic Magnets: Dr. Iver Anderson, FASM, Senior Metallurgist, Division of Materials Sciences and Engineering Ames Laboratory 10:30 AM - 12:00 PM IMAT Panel Session: Advanced Materials and Manufacturing Technologies		9:15 AM - 10:00 AM Heat Treat Keynote: Ordinary Materials, Extraordinary Applications: Dr. Marvin Barnes, Branch Chief, Advanced Propulsion Research and Development, NASA
Exhibit Hall A – IMAT Poster Area – Expo Show Floor				IMAT Poster Session, HTS Strong Bar Competition, & Fluxtrol Student Research Competition			

HEAT TREAT / TRATAMIENTO TÉRMICO

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SUBMIT AN ABSTRACT FOR HEAT TREAT MEXICO 2024

You are invited to share your expertise and insights with a diverse audience of industry professionals by becoming a speaker at Heat Treat 2024. This is your chance to showcase your knowledge, contribute to cutting-edge discussions, and leave a lasting impact on the field. Seize this moment to inspire, educate, and connect – submit your abstract now!

SUBMISSION DEADLINE: DECEMBER 1, 2023

SUBMIT AN ABSTRACT FOR HEAT TREAT MEXICO 2024

Abstracts are being encouraged (but not limited to) the following topics:

- Heat treatment for aerospace (materials standards, lightweight materials, etc.)
- Heat treatment for automotive (component hardening, lightweight materials, etc.)
- Heat treatment for manufacturing and tooling (improving wear resistance, hardness, dimensional stability)
- Heat treatment techniques and technologies (induction hardening, nitriding, carburizing, and vacuum heat treatment)
- Industry 4.0 and automation in heat treatment (automation, robotics, and digitalization)
- Energy efficiency and sustainability in heat treatment (waste reduction, recycling, energy management, and renewable energy sources)
- Quality control and inspection in heat treatment (non-destructive testing, process monitoring, surface analysis, quality assurance)
- Heat treatment for additive manufacturing
- Heat treatment safety and compliance
- Emerging trends and future of heat treatment

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Locations	**Tue AM**	**Tue PM**	**Wed AM**	**Wed PM**	**Thu AM**
311 AB	9:00 AM - 10:00 AM Applied Technology / Processes and Applications: Energy Consumption and Efficiency 10:30 AM - 11:30 AM Applied Technology / Processes and Applications: Quality Control	1:00 PM - 1:40 PM New Trends in Global Heat Treating		1:00 PM - 2:40 PM Simulation & Modeling I: Process Simulation (CFD/FEA) 3:30 PM - 4:50 PM Quenching Technologies I: High Pressure	10:30 AM - 12:10 PM Atmosphere Technology and Surface Engineering II: Nitriding and Cleaning
312 AB	9:00 AM - 10:00 AM Atmosphere Technology and Surface Engineering I 10:30 AM - 11:30 AM "Green" Heat Treating / Low Carbon I	1:00 PM - 2:20 PM "Green" Heat Treating / Low Carbon II		1:00 PM - 3:00 PM Materials Durability / Mechanical Testing / Non-Destructive Testing 3:30 PM - 4:50 PM Industry Internet of Things	10:30 PM - 12:10 PM Simulation & Modeling II: Process Simulation (CFD/FEA)
313 AB	9:00 AM - 10:00 AM Microstructural Development / Characterization I 10:30 AM - 11:30 AM Microstructural Development / Characterization II	1:00 PM - 2:20 PM Vacuum Processes and Technology	10:30 AM - 11:30 AM FLUXTROL STUDENT RESEARCH COMPETITION - PHASE 2 - ORAL PRESENTATIONS	1:00 PM - 3:00 PM Residual Stress / Panel Session 3:30 PM - 5:10 PM Heat Treating: Induction Heat Treating	10:30 AM - 12:10 PM Quenching Technologies II
Exhibit Hall - Industry Forum		2:30 PM - 3:15 PM Heat Treat Keynote: Materials Science and Thermal Processing at DARPA – On the Road to Discovery: Dr. Stefanie Tompkins, Defense Advanced Research Projects Agency (DARPA) 3:15 PM - 4:00 PM IMAT Keynote: The Challenges of Insertion of Advanced Materials & Processes for Spaceflight: Dr. Bryan W. McEnerney, NASA Technical Fellow, Materials, NASA Engineering & Safety Center (NESC)	9:15 AM - 10:00 AM Heat Treat Keynote: Heat Treatment Effects on Sintering of Highly Grain-refined Dy-free Nd-Fe-B Anisotropic Magnets: Dr. Iver Anderson, FASM, Ames Laboratory 11:30 AM - 12:00 PM IMAT Panel Session: Advanced Materials and Manufacturing Technologies	3:00 – 3:30 PM Bar Student Award Presentations – Fluxtrol and HTS Strong Bar Competitions	9:15 AM - 10:00 AM Heat Treat Keynote: Ordinary Materials, Extraordinary Applications: Dr. Marvin Barnes, NASA
Exhibit Hall A – Heat Treat Student Poster Area – Expo Show Floor		4:00 PM - 5:30 PM Fluxtrol Student Research Competition – Phase 1 – Poster Presentation 4:00 PM - 5:30 PM HTS Strong Bar Student Competition - Phase 1 - Poster Presentations			

IMAT
ASM'S ANNUAL MEETING

INTERNATIONAL MATERIALS, APPLICATIONS & TECHNOLOGIES
2023

OCTOBER 16–19, 2023
HUNTINGTON PLACE | DETROIT, MI

HEAT TREAT | 2023

OCTOBER 17–19, 2023
HUNTINGTON PLACE | DETROIT, MI

THE SHOW GUIDE

HEAT TREAT AND IMAT EXTENDED EDITION

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EXHIBIT HALL HOURS

Tuesday, October 17

Exhibit Hall Open
9:00 a.m. – 6:00 p.m.

Morning Refreshment Break
9:30 – 10:30 a.m.

Lunch on the Show Floor
11:30 a.m. – 1:30 p.m.

Afternoon Refreshment Break
2:30 – 3:30 p.m.

Welcome Reception with Exhibitors
4:00 p.m. – 5:30 p.m.

Wednesday, October 18

Exhibit Hall Open
9:00 a.m. – 5:00 p.m.

Morning Refreshment Break
9:30 a.m. – 10:30 a.m.

Lunch on the Show Floor
11:30 a.m. – 1:30 p.m.

Afternoon Refreshment Break
2:30– 3:30 p.m.

Thursday, October 19

Exhibit Hall Open
9:00 a.m. – 12:00 p.m.

Morning Refreshment Break
9:30 a.m. – 10:30 a.m.

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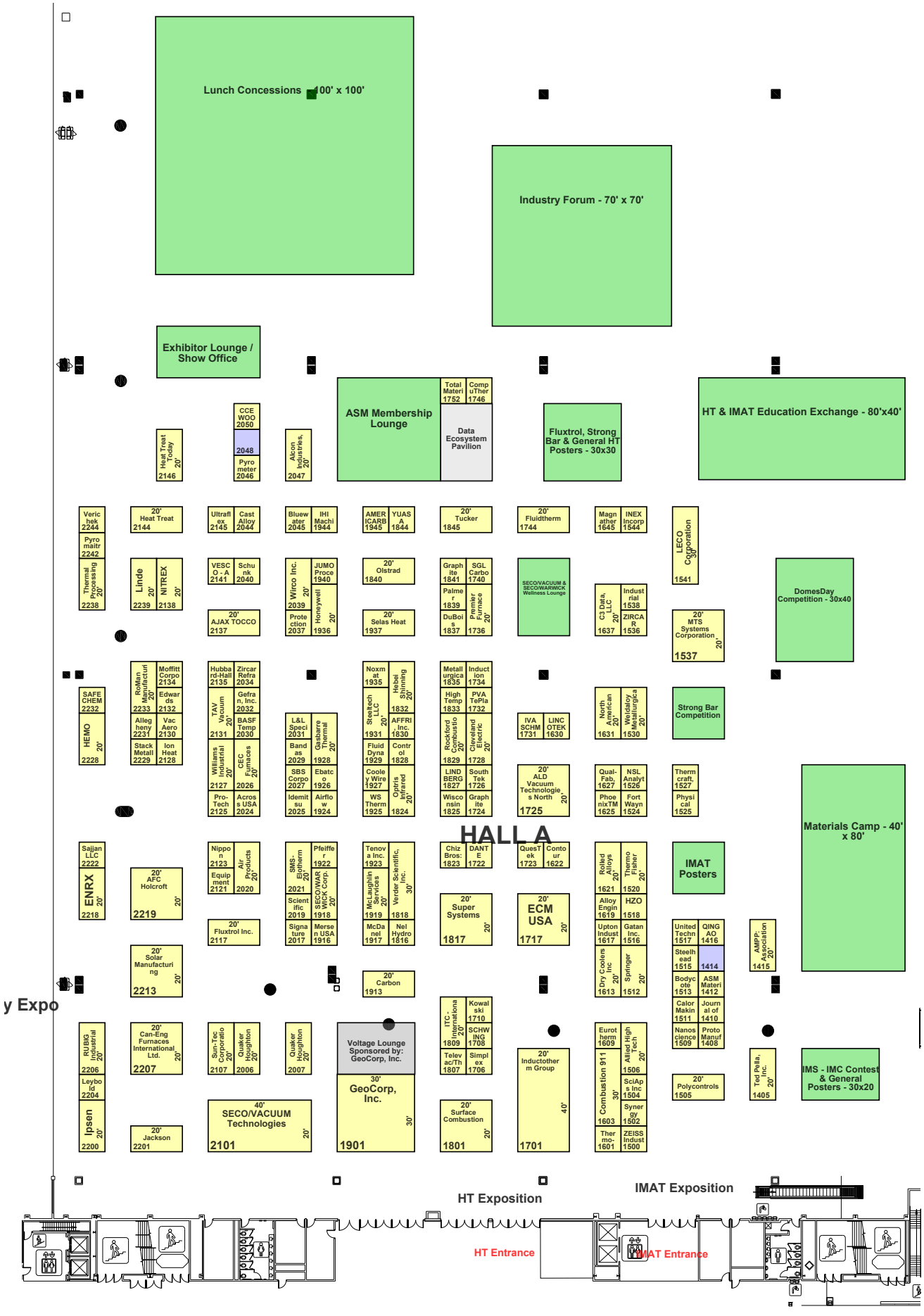
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HEAT TREAT/ IMAT FLOOR PLAN



IMAT/HEAT TREAT EXHIBITOR LIST

Huntington Place | Exhibit Hall A
2023 IMAT & Heat Treat Exhibitors

Across USA 2024
AFC Holcroft 2219
AFFRI, Inc. 1830
Air Products and Chemicals, Inc. 2020
Airflow Sciences Corporation 1924
AJAX TOCCO 2137
Alcon Industries, INC 2047
ALD Vacuum Technologies North America, Inc. 1725
Allegheny Alloy, Inc. 2231
Allied High Tech Products, Inc. 1506
Alloy Engineering 1619
AMPP 1414
ASM Materials Education Foundation 1412
AMERICARB Inc 1945
BASF Temperature Sensing 2030
Bluewater Thermal Solutions 2045
Bodycote 1513
C3 Data, LLC 1637
Calor Makine Sanayi Ticaret A.Ş. 1511
Can-Eng Furnaces International Ltd. 2207
Carbon Composites, Inc. 1913
Cast Alloy Products 2044
CCEWOOL Thermomax Inc. 2050
CEC Furnaces 1645
Chiz Bros: Refractory and Insulation Specialists 1823
Cleveland Electric Laboratories, Inc. 1728
CODINA 2029
Combustion 911 1603
CompuTherm 1746
Contour Hardening 1622
Control Concepts Inc. 1828
Cooley Wire Products 1927
DANTE Solutions, Inc. 1722
Dry Coolers Inc 1613
DuBois Chemicals/ Heatbath 1837
Ebatco 1926
ECM USA Inc. 1717
Edwards Vacuum 2132
ENRX 2218
Equipment Controls Company 2121
Eurotherm by Schneider Electric 1609
Fluid Dynamics 1929
Fluidtherm Technology 1744
Fluxtrol Inc. 2117
Fort Wayne Metals 1524
Gasbarre Thermal Processing Systems 1928
Gatan Inc. 1516
Gefran, Inc. 2032
GeoCorp, Inc. 1901
Graphite Machining, Inc. 1724
Graphite Materials GmbH 1841
Heat Treat Furnaces (a TTX Company) 2144
Heat Treat Today 2146
Hebei Shinning Metals Co., Ltd. 1832
HEMO GmbH 2228
High Temperature Concept 1833
Honeywell 1936
Hubbard-Hall 2135
HZO 1518
Idemitsu Lubricants America 2025
IHI Machinery and Furnace Co., Ltd. 1944
INEX 1544
Induction Tooling 1734
Inductotherm Group 1701
Industrial Heating Equipment Association (IHEA) 1538
Ion Heat S.A.S 2128
Ipsen 2200
ITC - International Technical Ceramics 1809
IVA SCHMETZ GMBH 1731
Jackson Transformer 2201
Journal of Thermal Spray Technology (JTST) 1410
JUMO Process Control, Inc. 1940
Kowalski Heat Treating Company 1710
L&L Special Furnace Co., Inc. 2031
LECO Corporation 1541
Leybold USA, Inc. 2204
LINCOTEK 1630
LINDBERG/MPH 1827
Linde 2239
Magnatherm Alloys 1645
McDanel Advanced Ceramic Technologies 1917
McLaughlin Services LLC 1919
Mersen USA Greenville-MI Corp. 1916
Metallurgical High Vacuum Corp 1835
Moffitt Corporation 2134
MTS Systems Corporation 1537
Nanoscience Instruments 1509
Nel Hydrogen 1816
Nippon Kornmeyer Carbon Group 2123
NITREX 2138
North American Cronite 1631
Noxmat Industrial Heating Technology 1935
NSL Analytical Services 1526
Olstrad Engineering Corporation 1840
Optris Infrared Sensing, LLC 1824
Palmer Wahl Instruments, Inc 1839
Pfeiffer Vacuum Inc. 1922
PhoenixTM LLC 1625
Physical Electronics 1525
Polycontrols Technologies Inc. 1505
Premier Furnace Specialists / Beavermatic 1736
Pro-Tech Company Inc. 2125
Protection Controls, Inc. 2037
Proto Manufacturing 1408
PVA TePla America LLC 1732
Pyromaitre Inc 2242
Pyrometer, LLC 2046
QINGAO HEATECH INSULATION MATERIALS CO.,LTD 1416
Quaker Houghton 2006
Qual-Fab, Inc. 1627

IFHTSE World Congress

OCTOBER 1–3, 2024 | CLEVELAND, OHIO

INNOVATIONS IN HEAT TREATMENT AND SURFACE ENGINEERING
FOR A SUSTAINABLE FUTURE

CALL FOR PAPERS NOW OPEN

The 2024 IFHTSE World Congress revolves around the theme “Innovations in Heat Treatment and Surface Engineering for a Sustainable Future.” Emphasizing the critical role of these technologies in shaping a sustainable world, the event will explore the latest developments, breakthroughs, and practices that can enhance the efficiency, performance, and environmental impact of heat treatment and surface engineering processes. In addition, traditional heat treating topics will be offered.

CONFERENCE HIGHLIGHTS:

- Cutting-Edge Research: Join us for a dynamic congress featuring presentations by global experts, unveiling the latest innovations and case studies in the field of heat treatment and surface engineering.
- Real-World Impact: Discover how heat treatment and surface engineering are transforming industries like automotive, aerospace, manufacturing, and electronics through practical applications and impactful case studies.
- Explore the Exhibit Hall: Immerse yourself in a co-located exhibition with IMAT 2024, where top companies showcase cutting-edge equipment, technologies, and products in the heat treatment and surface engineering realm.
- Connect and Collaborate: Network with professionals, forge partnerships, and exchange ideas, fostering future advancements in the field during this ideal platform for collaboration.

ORGANIZED BY:

IFHTSE

HTS Heat Treating Society ASM INTERNATIONAL

CO-LOCATED WITH:

IMAT ASM'S ANNUAL MEETING INTERNATIONAL MATERIALS, APPLICATIONS & TECHNOLOGIES 2024

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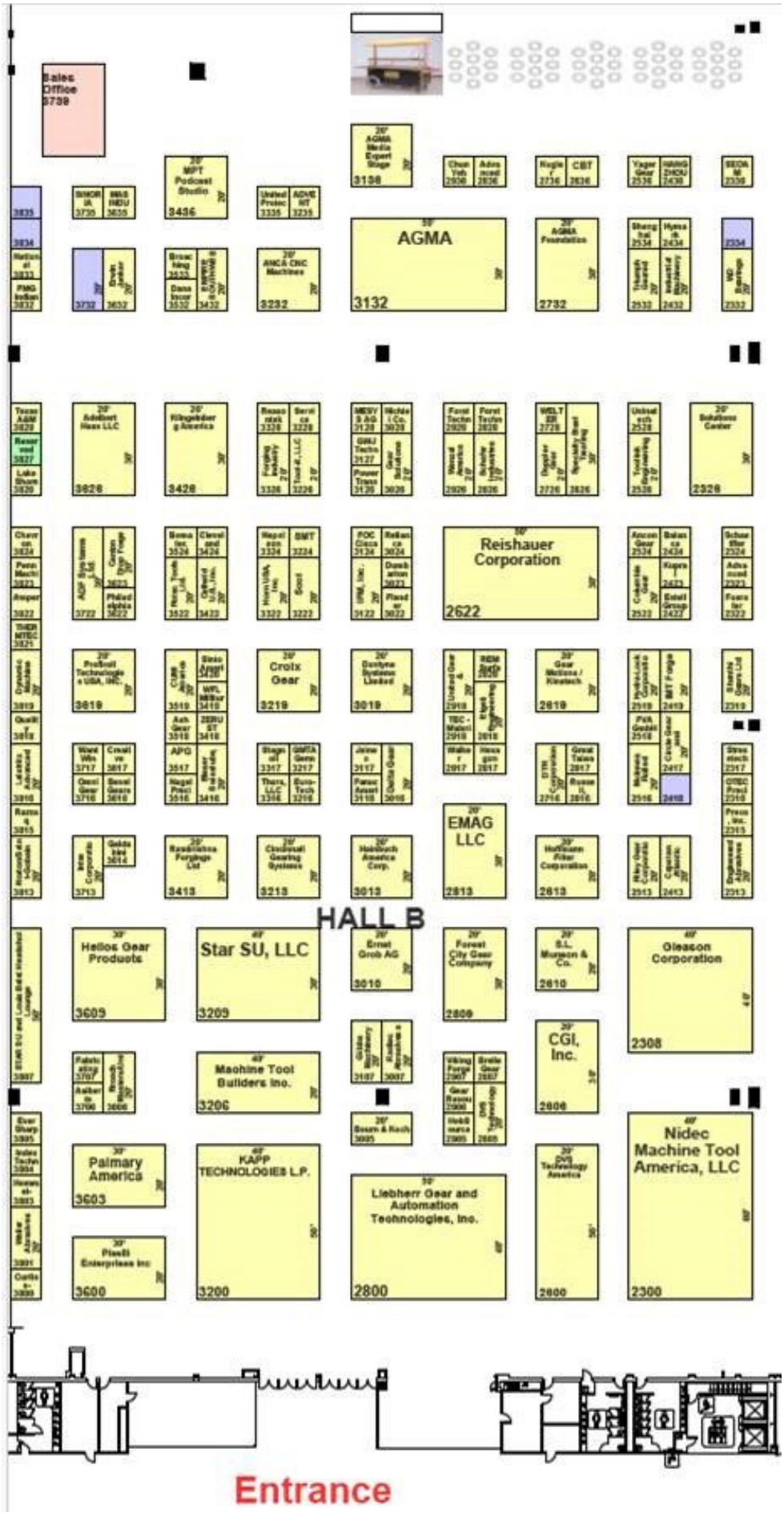
IMAT/HEAT TREAT EXHIBITOR LIST

QuesTek Innovations LLC....1723
Rockford Combustion....1829
Rolled Alloys....1621
RoMan Manufacturing....2233
RUBIG Industrial Furnaces....2206
SAFECHEM Europe GmbH....2232
Sajjan LLC....2222
SBS Corporation....2027
Schunk Carbon Technology, LLC....2040
SCHWING Technologies....1708
SciAps Inc....1504
Scientific Forming Technologies Corp. 2019
SECO/VACUUM Technologies....2101
SECO/WARWICK Corp.....1918
Selas Heat Technology....1937
SGL Carbon....1740
Signature Vacuum Systems....2017
Simplex Metals LTD....1706
SMS-Elotherm....2021
Solar Manufacturing....2213
South Tek Systems....1726
Springer....1512
Stack Metallurgical Services....2229
Steelhead Technologies....1515
Steeltech LLC....1931
Sun-Tec Corporation....2107
Super Systems....1817
Surface Combustion....1801
Synergy Additive Manufacturing....1502
TAV Vacuum Furnaces / Furnacare Inc. 2131
Ted Pella, Inc. 1405
Televac/The Fredericks Company....1807
Tenova Inc....1923
Thermal Processing....2238
Thermcraft, Inc. 1527
Thermo Fisher Scientific....1520
Thermo-Calc Software Inc. 1601
Total Materia AG....1752
Tucker Induction Systems....1845
Ultraflex Power Technologies Corp. 2145
United Technical Inc....1517
Upton Industries, a Kolene company....1617
Vac Aero International Inc. 2130
Verder Scientific, Inc. 1818
Vericheck Technical Services, Inc....2244
VESCO - A Company of the Busch Group....2141
Weldaloy Metallurgical Laboratory....1530
Williams Industrial Service....2127
Wirco Inc. 2039
Wisconsin Oven....1825
WS Thermal Process Technology Inc. 1925
YUASA INTERNATIONAL....1844
ZEISS Industrial Quality Solutions....1500
ZIRCAR Ceramics, Inc....1536
Zircar Refractory Composites, Inc.....2034

Orange indicates Sponsor

Exhibitor List
*as of 9/18/2023

MOTION POWER + TECHNOLOGY FLOOR PLAN



MOTION+POWER TECHNOLOGY EXHIBITOR LIST

Huntington Place | Exhibit Hall B
2023 MPT Exhibitors

Aalberts Surface Technologies 3706
Adelbert Haas LLC 3626
ADF Systems Ltd. 3722
Advanced Heat Treat Corp. 2836
Advanced Nitriding Solutions 2323
ADVENT TOOL & MANUFACTURING 3235
AGMA 3132
AGMA Foundation 2732
Amper 3822
ANCA CNC Machines 3232
Ancon Gear & Instrument Corporation 2524
APG 3517
Ash Gear & Supply 3518
Balance Systems Corporation 2424
Bevel Gears India Pvt. Ltd. 3616
Blaser Swisslube, Inc 3416
Bomatec International Corp 3524
Bourn & Koch Inc. 3005
Brelie Gear Co. 2807
Broach Masters/Universal Gear Co. 3606
Broaching Machine Specialties 3533
Canton Drop Forge 3623
Capstan Atlantic 2413
CBT 2636
CGI, Inc. 2606
Chevron Lubricants 3824
Chun Yeh Gear Co., Ltd. 2936
Cincinnati Gearing Systems 3213
Cincinnati Steel Treating 3213
Circle Gear and Machine Company 2417
Cleveland Deburring Machine Company 3424
Columbia Gear Corporation 2522
Creative Automation Inc. 3617
Croix Gear 3219
CUMI America Inc. 3519
Curtiss-Wright Surface Technologies 3800
Dana Incorporated 3532
Delta Gear 3016
DixiTech CNC 3107
Dontyne Systems Limited 3019
Doppler Gear Company 2726
DTR Corporation 2716
Dumbarton Tool 3023
DVS Technology America 2805
Dynamic Machine 3819
Elgeti Engineering GmbH 2818
EMAG LLC 2813
EMPIRE SOUTHWEST/PROJECT PHOENIX 3432
Engineered Abrasives 2313
Ernst Grob AG 3010
Erwin Junker Machinery Inc. 3632
Euro-Tech Corp. 3216
Ever Sharp Tools 3805
Fabricating & Metalworking Magazine 3707
Fanuc America Corporation 3116
Flender Corporation 3022
FOC Ciscato 3124
Foerster Instruments Inc 2322
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*as of 8/14/2023



VIP INDUSTRY TOUR

VIP Industry Tour
**featuring stops at the Data Ecosystem booths*
Wednesday, October 18 | Exhibit Hall A - Industry Forum
3:30 – 4:30 p.m.

What is the VIP Industry Tour? Firsthand presentations of the latest tools, products and services in the industry. Limited to the first 150 attendees, sign up for this complimentary opportunity during the registration process. Already registered? No problem! Sign in to your registration account and add to your package today!

Pre-registration is required. Registrants should meet at 3:15 pm outside of the entrance doors to Exhibit Hall A.

Demonstrations will be provided by:

DATA ECOSYSTEM

Booth
Overview: At the ASM Data Ecosystem Pavilion, we will embark on an enlightening journey into the ASM Data Ecosystem, where participants will discover the transformative power of data-driven innovation in materials science. We'll explore how to predict and prevent manufacturing issues, reduce downtime, and optimize production processes using advanced simulation and analytics with SmartUQ. We will also be unveiling the groundbreaking ASM Global Materials Platform PRO, poised to become the world's most comprehensive digital materials resource. Additionally, participants will experience firsthand the fusion of AI chat technology and ASM's legacy content, enabling users to access personalized recommendations and insights backed by peer-reviewed ASM publications. Join us to revolutionize the future of materials science.

dante°

Booth #1722
Overview: DANTE is the Sate-of-the-Art heat treatment simulation software for steel, aluminum and nickel based alloys. With validated material models and material database, DANTE has been successfully used in the aerospace, automotive, heavy equipment industries, and research institutes. The practical applications include gas carburizing, low pressure carburizing, gas nitriding, immersion quenching, high pressure gas quenching, press quenching, induction tempering, and laser hardening, etc. The simulated hardness, microstructural phases, in-process and residual stresses, and distortion are used for part design, process optimization, and fatigue life prediction. DANTE has developed a series of standalone utility programs that aid in material database customization, heat treatment process simulation and design for simplified geometries. All DANTE standalone tools are available for short-term subscription through ASM Data Ecosystem.

25th ANNIVERSARY ECM USA Inc.

Booth #1717
Product: Vacuum furnace technology
Overview: Vacuum furnace technology is the most sustainable alternative to conventional heat treating (often replacing batch IQ and/or sealed quench systems) that gives you a cleaner, safer, and more efficient operation. Energy consumption is minimal, CO2 emissions are near 80% less, and safety concerns are eliminated with the removal of open flames and fire hazards. ECM's cold wall technology enables higher temperature treatments and easy integration into machining lines. It allows for a higher throughput while also preventing inter-granular oxidation during carburizing thanks to the absence of oxygen.
Let's achieve your green initiatives by integrating ECM vacuum technology into your facility.

GEO

Booth #1901
Product: Pyrometry Management Software
Overview: Our presentation will focus on combining our high quality thermocouples, thermocouple wire, calibration services with our Pyrometry Management Software for the complete all-in-one Pyrometry solution. No more paper calibration reports to lose, all will be saved digitally. Removal of input errors when entering or averaging correction factors on calibration reports. Simple tracking of load sensors, TUS, SAT, scheduling of tests thru one package.

INDUCTOHEAT

Booth #1701
Product: The Inductoscan© Induction Heat Treating System
Overview: We can't wait to show you around our booth and the new and improved Inductoscan Induction Heat Treating System. The Inductoscan has been recently improved to meet the changing needs of our customers and the manufacturing industry. The platform boasts a high-strength architecture, rigid

VIP INDUSTRY TOUR

tower assembly, precision controls, integrated Signature Quality Monitoring System, and many customization options. Hand-assembled in Madison Heights, Michigan, the Inductoscan utilizes cutting-edge induction heating technology to deliver optimal performance, reliability, and production longevity.

Booth #1746
Product: PANDAT software suite
Overview: PANDAT is a software suite developed with the CALPHAD method. It has six modules and can be used to calculate phase equilibria of complicated multi-component, multi-phase systems, simulate diffusion-controlled kinetic processes, such as solidification, diffusion, and precipitation. Moreover, it can also simulate microstructure evolution by the phase field method. PANDAT software has a robust calculation engine, user-friendly graphical interface, and it can be easily coupled with other software tools for a variety of applications. PANDAT software is an essential tool for alloy design and processing optimization, and it plays an important role in ICME.

Booth #1505
Product: Cold spray additive manufacturing services
Overview: Polycontrols is thrilled to showcase its PolyCSAM industrial hub! PolyCSAM integrates advanced surface preparation techniques, metal deposition, in-situ robotic machining and surface finishing, heat treatment, and data analytics with machine learning-based process control. This fully digital additive manufacturing environment allows for the production and repair of parts and assemblies of various sizes and weights, ranging from a few centimeters to several meters in length and from a few kilograms to hundreds of kilograms in weight. The CSAM process, 100% sustainable, enables multi-materials deposition without any oxidation/phase transformation of the initial feedstock nor any heat affected zone in the substrate.

Booth #2006/2007
Overview: Quaker Houghton delivers superior industrial solutions to meet required metallurgical properties and reduce distortion in heat treated components to the automotive, aerospace, bearing and commercial heat treatment industries. Visit us at Booth 2006/2007 to learn about our heat treatment solutions, including:

- Aqueous Polymers
- Cold Quenching Oils
- Heat Treatment Salts
- Martempering Oils
- Vacuum Quench Oils
- Specialty Greases

Booth #1801

Booth #1752
Overview: Total Materia is a proud ASM Data Ecosystem partner, helping bring the ASM Global Materials Platform Pro to the market. Total Materia is the one-stop shop for enriching, organizing, and connecting material information across an enterprise with the combination of industry-leading machine learning tools for predicting material properties, and compliance and sustainability calculation tools.

FIRESIDE CHAT WITH SPONSORS

ECM

Dennis Beauchesne, General Manager

If you had to give an impromptu 30-minute speech on any topic, what would you talk about?

"Low pressure carburizing and its effects on the auto industry over the last 25 years"

What is one piece of advice you're glad you ignored?

"Gas quenching will never work for carburized steels"

Inductoheat

Rob Madeira, Director IHWM

Global Manager of Heat Treating Technologies, Inductoheat Inc.

Strangest thing you've ever observed during a virtual meeting?

"Nature gives us the opportunity to see that strange can also be adorable. This is going to be shared by many that know of him: Lou the bird gets pretty tired of hearing others speak, so he will join in on the conversation."

What is the worst piece of advice you have ever been given?

"Oil has a high enough flash point. I wish I could say more about it."

Polycontrols

What is your favorite quote, who said it? Why is it your favorite?

"A dream you dream alone is only a dream. A dream you dream together is reality." John Lennon & Yoko Ono.

At Polycontrols, we believe that everything, including innovation, starts with a dream. That the team is key to achieving ambitious dreams. And that there is no "I" in the word "team" !

Quaker Houghton

Chuck Faulkner, Commercial Development Manager
Heat Treatment

What is one thing you wish could be automated at your job?

"I wish we could automate our supply chain and logistics to be able to ship our products like the Amazon business model."

What is something that sets your team apart?

"We have a great global team that has worked together for many years and we are able to communicate and collaborate effectively and efficiently to excel at our customer intimacy."

SECO VACUUM / SECO WARWICK USA

What your company is doing to be "green"?

SECO/VACUUM

At SECO/VACUUM we offer innovative, ecological technologies allowing our partners to make pro-environmental changes in the energy, aviation, automotive and recycling industries. Primary solutions such as low pressure carburizing (LPC) reduce production energy consumption, increase production efficiency, and shorten the process and treatment time.

SECO/WARWICK USA

SECO/WARWICK USA's Aftermarket Services offer on-site gas-to-electric conversions to make heat treating furnaces of any make greener. The SECO/WARWICK service team can retrofit existing furnaces with new electric heating elements, control components, and wiring to reduce energy consumption, increase efficiency and shorten heat treating time.

SAVE THE DATE

COLD SPRAY
NORTH AMERICAN COLD SPRAY CONFERENCE 2024

SEPTEMBER 10–11, 2024 | BOUCHERVILLE, CANADA

TSS Thermal Spray Society ASM INTERNATIONAL

ASM INTERNATIONAL

coldsprayevent.org



JOIN US IN CASCAIS, PORTUGAL FOR SMST 2024!

MAY 6–10, 2024
HOTEL CASCAIS MIRAGEM | CASCAIS, PORTUGAL

The International Conference on Shape Memory and Superelastic Technologies (SMST) is the premier conference and exposition for shape memory and superelastic technologies in the world, with a strong emphasis on the creation and utilization of shape memory materials. SMST brings together a diverse group of worldwide experts who are active in the improvement, design, and application of Nitinol. The technical program will include keynote sessions, educational workshops, a panel discussion, and numerous networking events. Plan today to attend SMST 2024!

ORGANIZED BY:

SMST Shape Memory & Superelastic Technologies ASM INTERNATIONAL

ASM INTERNATIONAL

smstevent.org

SOLUTION CENTER

SOLUTIONS CENTER SCHEDULE

Exhibit Hall A – Industry Forum.
The Solutions Center focuses on solving actual customer problems with FREE presentations given by exhibiting companies. Presentations will include products and/or services that can help attendees solve a particular manufacturing problem, or improve productivity. Presentations will be held Tuesday–Thursday.

TUESDAY, OCTOBER 17

10:30 a.m.
Steelhead Technologies
Presenter: Jeff Halonen
Future Proofing Your Plant in 2 Weeks: Digitize, Automate, Optimize

"There has to be a better way..." Our team of automation and optimization experts listened to your call for help, feeling your frustration from a lack of ERP options designed specifically for the heat-treating process. With fully digital plant management solutions carefully crafted for the heat treating and metal finishing industry, Steelhead digitizes, automates, and optimizes processes, saving endless hours, dollars, and management headaches.

You'll learn how to replace clunky systems, outdated software, and the paper shuffle with an updated system that's so easy to use, you can train any Operator how to use it in just 10 minutes!

10:50 a.m.
Thermo Fisher Scientific
Presenter: John Yorsten
Determining the Unique Components of Materials Using ChemiSEM & ChemiPhase

Scanning electron microscopy and energy dispersive x-ray microanalysis (SEM-EDX) is widely used in the characterization of materials. Advances in computing power together with the application of adaptive super-pixel clustering algorithms has vastly decreased the time necessary to map, determine elemental compositions and to delineate statistically similar component phases.
ChemiSEM Technology uses a big data approach to detect all statistically significant spectra within the acquired data cube. ChemiPhase software then provides a simple probability for each pixel, indicating if it belongs to each of these spectra. This makes interpretation of complex samples much more straightforward and intuitive, as each pixel can only belong to a single phase.

In this short tutorial, we will look at several examples of how ChemiSEM and ChemiPhase are used to speed the time to accurate SEM-EDX results.

11:10 a.m.
Thermo Fisher Scientific
Presenter: Rogier Miltenburg
Thermo Scientific Perception Software: A gamechanger in quality control

These days scanning electron microscopy (SEM) is used not only for research but also for daily quality control. Steel, precision parts and battery components are routinely inspected for contaminations or defects. Depending on the size, shape and composition, particles can have a negative impact on the quality of the finished product and therefore it is critical to understand the properties of the particles.

Discover how Thermo Fisher Scientific's new Perception Software enables advanced SEM-EDS automated particle analysis. Perception is an all-in-one software package which will turn your scanning electron microscope into a dedicated solution for your particle analysis needs.

1:10 p.m.
HZO
Presenter: Ryan Moore
Thin-film Conformal Coating Practices to Safeguard & Enhance Your Product Design

Explore optimal techniques and options for employing thin-film conformal coatings in product design to ensure both protection and augmentation. This presentation delves into innovative practices that safeguard electronics from environmental factors while enhancing performance. Learn about state-of-the-art application methods, material selection, and industry standards, equipping you to strike the perfect balance between functionality and reliability. Discover how conformal coatings act as a shield against moisture, dust, and chemicals, prolonging product lifespan. Join us to unravel the synergy between advanced coating strategies and elevated product design, resulting in resilient electronics fit for diverse applications.

1:30 p.m.
Air Products and Chemicals
Presenter: Mark Weise
Industrial gas tank monitoring system to ensure safety, reliability, and NFPA 86 compliance

Ensuring a safe and reliable supply of gases to your furnace in compliance with NFPA 86 is critical to your operation. Join this Air Products presentation and visit booth #2020 to learn more about Air Products Tank Monitoring System - a convenient, reliable way to remotely monitor your storage tanks. Not only does this system help you manage your industrial gas supply, but it also allows detection of abnormal gas usage and tracking of tank liquid and vaporized gas temperature. With Air Products Smart Technology, you get the benefit of decades of experience in gas supply, applications solutions, and safety.

1:50 p.m.
Polycontrols
Presenter: Luc Pouliot
Sustainable, Valued-Added Restoration of a Worn Steel Component Using Laser-Assisted CSAM

In this presentation, the audience will gain a deeper understanding on the upcoming regulation and how solvents used in modern closed vacuum machines can ensure – in addition to achieving the required level of cleanliness on a consistent basis – a reliable process, environmental compliance, low waste volumes, and above all, miniscule chemistry consumption.

WEDNESDAY, OCTOBER 18

1:10 p.m.
Quaker Houghton
Presenter: Chris Hill
Real time process fluid condition monitoring

The QH FLUIDMONITOR™ GREENLIGHT is a self-contained measurement system allowing continuous concentration monitoring of water-dilutable metalworking fluids. Water dilutable process fluids concentration is essential to ensure peak operating performance. QH FLUIDMONITOR GREENLIGHT can seamlessly integrate with QH FLUIDTREND™, Quaker Houghton's cloud, allowing for real time data, alerts, and data retention.

1:30 p.m.
ECM USA
Presenter: Thomas Michel
Advancing Global Sustainability through Vacuum Heat Treating

In response to evolving global sustainability imperatives and the pressing need to reduce CO2 emissions and energy consumption in the heat treat industry, vacuum furnace technology has emerged as the leading solution. Unlike conventional methods such as batch IQ and sealed quench systems, vacuum furnaces (with their cold wall technology) offer a cleaner, safer, and remarkably efficient approach to heat treatment. They not only facilitate higher temperature treatments but also seamlessly integrate into existing or new production lines. Join us in this eco-friendly initiative, as we pave the way for a carbon-neutral future in the global heat treat industry.

1:50 p.m.
SAFECHEM Europe GmbH
Presenter: Stefan Lukowski
Cleaning before and after heat treatment – what are future options retaining cost efficiency, sustainability and process reliability?

Metal cleaning has the potential to make or break heat treat processes. However, many heat treat companies are struggling with common cleaning challenges. Recently, within the Toxic Substance Control Act (TSCA) EPA has announced more stringent regulation for the use of various cleaning chemistries causing a lot of uncertainty in choosing a long-term sustainable technology.

2:10 p.m.
Noxmat USA
Presenter: Matt Wolf
Energy efficient heating and conversions GAS/ Electric

New and innovative methods in heating for industrial furnaces, focusing on saving money, energy and CO2 emissions as well as furnace upgrades from Gas- to Electric heating.

THURSDAY, OCTOBER 19

10:00 a.m.
Inductoheat
Presenter: Rob Madeira
Increasing Flexibility and Throughput for the Electric Induction Heating of Bearings and Raceways

As one of the most demanding components of the drivetrain is the point where the wheel connects to the drivetrain. The hub and spindle or inner and outer raceway are the stress component that mates the road environment to the engine torque requested by the driver.
Induction Hardening of the roller grooves it a common method of adding wear resistance and strength to hubs and raceways. Based on the parts design, it is common that a raceway exists on both in board and out board sections of the component. It is preferred for overall performance of the components that both races be induction heat treated simultaneously. The design of the induction tooling, and the process methodology employed to harden the part are determined by the geometry of the part and the desired process result.
This presentation looks in detail of how passive and active components of a induction hardening system benefit such critical process factors as: more rapid heating time, lower current densities, and those in combination with unique inductor positioning opportunities, minimize distortion.

10:20 a.m.
IHWM
Presenters: Hiram Martinez & Hasael Duran
Analysis of Errors in Simulation Modeling

Computer based simulation programs for induction heating and resulting metallurgy are extremely useful in developing tooling and process for induction heating. Induction hardening simulation brings in elements of inductor design, steel properties such as time-temperature-transformation curves, both thermal and magnetic properties at various temperatures and cooling rate based on the phase of the quench media on cooling. A common method of in place hardening (static hardening) is know as single shot hardening. In this process, the inductor commonly is designed with a top and bottom half loop connected by the heating rails. The length of heating is determined by the length of the rails and a percentage height of the width of the half loops. Accurately predicting the length of the heating pattern in this 3D modeling approach is computationally a heavy load on the modeling pre-requisites. Commonly the inductor is modeled and then tested with the actual results showing a different length than what was predicted.
This paper reaches into the analysis of why the predicted length may differ from the test results discussing what factors constitute the largest variance from the predicted outcome. Errors in computational ability of the software, material specification, Inductor design and the reliance on set up during testing will be discussed.

ORGANIZED BY:
ASM INTERNATIONAL
CO-LOCATED WITH:
SAE INTERNATIONAL

35TH AEROMAT CONFERENCE AND EXPOSITION

AEROMAT | 2024

SAVE THE DATE

MARCH 12-14, 2024 | CHARLOTTE CONVENTION CENTER, NORTH CAROLINA

BREAKTHROUGHS IN MATERIALS ENGINEERING ADDRESSING PERFORMANCE, COST, AND SUSTAINABILITY IN AEROSPACE

Plan now to attend AeroMat 2024! Showcasing the relevant technical knowledge on the components and procedures used in the aerospace industry, this 3-day long technical program will focus on innovative aerospace material & process developments, with keynotes and panel to feature research and development of aerospace materials, as well as several networking events amongst industry leaders, key stakeholders, and fellow aerospace professionals. Begin planning your AeroMat 2024 experience now!

REGISTRATION NOW OPEN

ISTFA/2023

MOVING TOWARD RELIABLE POWER ELECTRONIC DEVICES

NOVEMBER 12–16, 2023 | PHOENIX, ARIZONA

International Symposium for Testing and Failure Analysis (ISTFA) is the premier event for the microelectronics failure analysis community. Join us at the only North American event devoted to the semiconductor, electronic sample preparation, and imaging markets. This is the best venue for failure analysts and the FA community for sharing challenges and acquiring the technical knowledge and resources needed to take them on.



MEET THE 2023 KEYNOTE SPEAKER:

Dr. Peter Friedrichs,
Vice President SiC Infineon

"Wide band gap power devices and related robustness and reliability aspects"

Tuesday, November 14 at 8:30 a.m.

ORGANIZED BY:

EDFAS Electronic Device Failure Analysis Society ASM INTERNATIONAL

ASM INTERNATIONAL

ISTFAEVENT.ORG

SHOUTOUTS

NEW HIRES

ECM

We are proud to announce that Randy Beck has joined the ECM USA team as the resident Metallurgical and Pyrometry Engineer. His role is crucial to our operations, particularly in the areas of heat treatment testing, sample analysis, and troubleshooting.



Gefran, Inc.

Gefran, Inc. is thrilled to welcome Jim Norton as the new Operations Manager for our North Andover, Massachusetts plant. Jim brings over two decades of experience in industrial manufacturing to our team, along with a Bachelor of Science in Electrical Engineering from the University of Illinois Urbana-Champaign and a Master of Business Administration and Operations Management from the University of Oregon. Since joining Gefran in April 2023, Jim has made significant contributions to our operations with his approach to lean manufacturing and cycle time reduction. We are excited to see his leadership continue to drive our success in the power and process controls industry.
Jim Norton is Gefran, Inc.'s new Operations Manager.

NITREX

Forging new horizons! Although not new to the industry, Steven Sumner is the fresh face of NITREX Heat Treat Services! With a wealth of experience in the heat-treating industry, his strategic vision will steer our growth across North America.
BUILDING TEAMWORK & CREATING UNITY!

Moffitt

At Moffitt, we do monthly team Lunch and Learn seminars on a variety of topics. For August, discussing the Moffitt Culture. This is how we make sure everyone knows what to expect during their time here as we continue to grow and welcome new team members. Each holiday season we perform a day of service. In 2022, half our staff cleaned the beach and the other half volunteered at the Peace of Heart House where we harvested vegetables, made mulch, weeded the gardens, and cleaned the chicken coops. We also host regular Vision Cast meetings, where we brainstorm as a company. As a thank you for continued hard work, off site events like visiting Top Golf, trivia contests, or attending Jacksonville Jumbo Shrimp baseball games are enjoyed as a team.



Polycontrols

Fueling innovation, Fostering Team Partnerships: Spending great time with colleagues strengthens crucial bonds!

Polycontrols's Social Club is very creative at organizing social events regularly throughout the year. Special lunches, Family Feast, 5 @ 7, Annual Golf Classic, E-Karting, Ski Day, etc…

Because we believe that employees are way more than resources, we make everything possible to create a positive and vibrant workplace that will in turn stimulate collaboration and innovation.



Steelhead

In order to build the strongest team in the industry, we make sure we start by first understanding the needs of each job shop from the core of their processes to why they do what they do. Our dedication here to building a strong team is truly what sets us apart from other solutions in the industry because it powers our customized software and world-class deployments!

Team Steelhead at the June "Steelhead Run" – a semi-annual retreat when our team comes together to brainstorm new features and enhancements through creative collaboration.)



NITREX

Empowering unity! Celebrating the remarkable contributions of the women of Nitrex, who excel in diverse roles from the shop floor to the boardroom, inspiring success and shaping our journey forward.

ECM

Here at ECM USA, we place a strong emphasis on fostering a supportive and inclusive work environment. Creating a sense of unity and shared purpose among team members helps to increase internal collaboration, engagement, and overall satisfaction. Our "One Company – One Goal" mindset is a powerful concept that helps align everyone's efforts towards a common objective, fostering a sense of belonging and purpose. With a combination of internal meetings and training we offset office work with outside office bonding which helps to balance the workload. Our work family environment helps to keep work fun, productive and the result of this corporate culture can be seen in our commitment to our customers and the heat treat community.

Caption: ECM USA & ECM Technologies team members attend a Milwaukee Brewers game.

AFC-Holcroft - Partnership



AFC-Holcroft, a member of the Aichelin Group and global leader in the thermal processing equipment industry announced July 25, 2003 a strategic partnership with Sanken Sangyo, a Japanese based leader in the thermal processing equipment industry to expand aluminum heat treat furnace capabilities.

From Left to Right: AFC-Holcroft L.L.C.; Ron Waligora, COO of Project Management, Engineering, Manufacturing, and Field Services, AFC-Holcroft LLC; Tracy Dougherty, COO of Applications Engineering, Sales, and Aftermarket; Sanken Sangyo CO., LTD.; Yuichiro Miura, President, Sanken Sangyo CO., LTD.; Kosei Daida, Chairman.

Moffitt - Acquisition



Moffitt, LLC (Moffitt) is honored to announce that we have purchased Romlair Fan Company (Romlair). This purchase includes its corporate office and warehouse in San Diego, California and manufacturing facility in Tijuana, Mexico. Like Moffitt, Romlair is a family business. The addition of Romlair positions Moffitt to expand our ventilation solutions into the light industrial market including warehouses, distribution centers, and more.

Rolled Alloys - New Facility

Rolled Alloys, a leader in the metals industry for both heat-resistant and corrosion-resistant alloys, has broken ground on a new high-tech, light-manufacturing facility in Monclova Township, just south of Toledo. The project is expected to be completed in August 2024. If you'd like to learn more about Rolled Alloys, please visit rolledalloys.com.

United Technical - Award

United Technical proudly announces winning the American Welding Society's WEMCO committee 2023 Excellence in Welding award in the Small Business category. United Technical was nominated for its holistic focus on welding and the associated metallurgy, testing, engineering and training required to successfully implement welding processes for manufacturing.

Rugged Design Handles Harsh Responses & Longer Short Circuit Currents

Customizable phase configurations to meet your specific needs

Independently operate loads when in a 3-phase configuration

JACKSON VIT® (Variable Impedance Transformer)

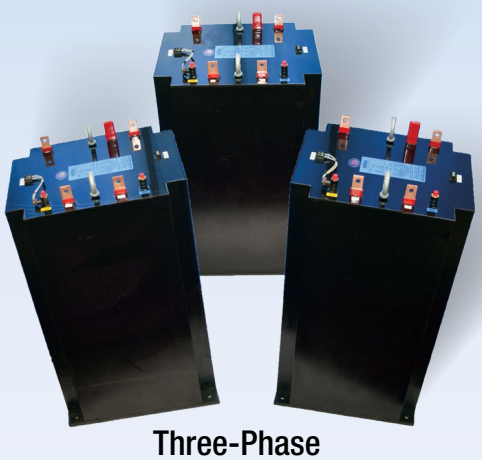


Single-Phase

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engineering@jacksontransformer.com

For more information, contact us:
(813) 879-5811



Three-Phase

Quality Magnetic Products Since 1955

IMAT & HEAT TREAT COMPANY DESCRIPTIONS

Across USA
Booth 2024
ACROSS USA and CFC Design specializes in the manufacturing technology of C/C composite [Carbon Fiber + Carbon]. Carbon-Carbon composites are among the strongest and lightest high-temperature engineered material in the world. We offer wide range of C/C solutions: Heat-treat trays, racks, shelves, grids, fixtures, furnace parts (fans, conveyors, rollers, hearth rails, fasteners) etc. At CFC, we continuously aim to provide innovative materials through the development of carbon composite technology.
acrosscc.com

AFC Holcroft
Booth 2219
Our experts will be on hand, ready to discuss your specific thermal processing needs. Let one of our experienced, knowledgeable staff personally address your unique situation. Bring your production and process requirements and challenges, and give us an opportunity to offer feedback. We're sure you will find your visit to be productive and informative. After all, AFC-Holcroft has been a trusted leader in industrial furnace technology for over 100 years. Talk with our team and you'll see why.
afc-holcroft.com

AFFRI, Inc.
Booth 1830
For over 60 years, AFFRI has been designing and manufacturing state of the art Hardness Testing equipment inclusive of test scales such as Rockwell, Brinell, Vickers, and Knoop. All materials from metals to plastic and rubber with absolute accuracy. AFFRI's innovative Closed-Loop Load Control System® enhances optimal testing performance. All hardness testers conform to ASTM and ISO hardness standards.
affri.com

Air Products and Chemicals, Inc.
Booth 2020
Air Products, a worldwide leading industrial gas supplier, brings significant experience in gas supply, applications development and safety to help you improve quality, reduce operating costs and increase production. We offer high-purity gases, gas-handling equipment and technical know-how from metals -processing focused applications engineers to help you succeed. www.airproducts.com/metals
airproducts.com/metals

Airflow Sciences Corporation
Booth 1924
Heat treating is largely controlled by the conditions applied to the surface of your parts. Take control of that environment through ASC's CFD and experimental methods. ASC has successfully improved furnaces, liquid quench tanks, high pressure gas quenching, air quenching, and intensive quenching processes.
airflowsciences.com

AJAX TOCCO
Booth 2137
Ajax Tocco Magnethermic, SAET/EMMEDI, Pillar Induction and GH Induction, all leaders in the induction industry, provide Innovative Solutions for Induction Heat Treating, Heating and Melting applications. A dual spindle compact scanner complete with power supply, water system, quench system and control will be featured. See a computer presentation of Ajax TOCCO / SAET EMMEDI / GH Induction / Pillar Induction heating and heat treat products and the latest scanner controls with coil monitoring.
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ALD Vacuum Technologies North America, Inc.
Booth 1725
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Allegheny Alloy, Inc.
Booth 2231

Allied High Tech Products, Inc.
Booth 1506
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IMAT
ASM'S ANNUAL MEETING

INTERNATIONAL MATERIALS, APPLICATIONS & TECHNOLOGIES

2024

MATERIALS FOR ENERGY STORAGE

HUNTINGTON CONVENTION CENTER | SEPTEMBER 30–OCTOBER 3, 2024 | CLEVELAND, OHIO

CALL FOR ABSTRACTS

IMAT, ASM International's annual meeting will focus on membership and materials community needs, offering an industry-oriented conference and exposition. IMAT will target a broad range of materials, processes, and their applications, with an emphasis on advanced materials and manufacturing technologies.

Traditional topics of interest will be explored, including metals, ceramics, composites, coatings, alloy development, microstructure/process/properties relationships, phase equilibria, mechanical behavior, joining, corrosion, and failure analysis.

Emerging topics, instrumental in advancing materials development and cutting-edge technologies, will be covered. Technologies such as advanced manufacturing, including additive, Industry 4.0 and digitization of the materials industry, biomedical/multifunctional materials, power, and transportation industries, materials for energy, renewable and sustainable materials and processes, as well as materials to enable automation and robotics will be covered.

Students will have the opportunity to showcase their research and connect with future materials scientists through various events and competitions.

ABSTRACT SUBMISSION DEADLINE: FEBRUARY 14, 2024

CO-LOCATED WITH: IFHTSE

ORGANIZING PARTNER: AMPP

imatevent.org

Abstracts are solicited in the following areas:

- Additive Manufacturing
- Archaeometallurgy and Ancient Metalworking
- Characterization of Materials and Microstructure through Metallography, Image Analysis, and Mechanical Testing: Fundamental and Applied Studies
- Corrosion and Environmental Degradation
- Emerging Technologies
- Failure Analysis
- Functional Materials and Structures: Solving Barriers to Adoption
- Joining of Advanced and Specialty Materials (JASM XXII)
- Light Metal Technology
- Materials 4.0: Materials Information in the Product Life Cycle
- Materials Behavior & Characterization
- Materials for Energy & Utilities
- Medical / Biomaterials: Delivering Patient Value
- Materials & Processes for Automation
- Metals, Ceramics, and Composite Materials: Raw Materials, Processing, Manufacturing Methods, Applications, and Environmental Effects
- Perspectives for Emerging Professionals
- Processing and Applications
- PSDK XV: Phase Stability and Diffusion Kinetics
- Sustainable Materials & Processes

ORGANIZED BY:

ASM INTERNATIONAL

EDFAS Electronic Device Failure Analysis Society ASM INTERNATIONAL
FAS Failure Analysis Society ASM INTERNATIONAL
HTS Heat Treating Society ASM INTERNATIONAL
IMS International Metallographic Society ASM INTERNATIONAL
SMST Shape Memory & Superelastic Technologies ASM INTERNATIONAL
TSS Thermal Spray Society ASM INTERNATIONAL

IMAT & HEAT TREAT COMPANY DESCRIPTIONS

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Booth 1619
Alloy Engineering is a diverse nickel & stainless steel fabricator specializing in high-temperature and corrosion resistant alloys. We offer custom designed & engineered products as well as custom fabrication, machining & welding to specification.

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Booth 1945
americarb.com

AMPP: Association for Materials Protection and Performance
Booth 1414
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ampp.org

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asmfoundation.org

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C3 helps heat treaters & CAL labs manage Plant Maintenance & Furnace compliance with Nadcap (AMS2750) & CQI-9. Our mobile app (eCapture™) simplifies Plant Maintenance & Furnace Compliance. From defining what tests & tolerances are required, to scheduling/collecting test data, to reporting & proof-of-compliance, we cover it. Real-time visualization of furnace compliance provides you the peace of mind & confidence that comes with knowing your furnaces are qualified to run product and audit-ready!
C3data.com

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combustion911.com

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dante-solutions.com

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duboischemicals.com

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ecm-usa.com

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eurotherm.com

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Fluidtherm Technology
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fwmetals.com

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heattreatfurnaces.com

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inductiontooling.com

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inductoheat.com

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asminternational.org

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lindbergmph.com

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praxair.com

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magnathermalloys.com

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mcdanelceramics.com

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graphite-eng.com

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methivac.com

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MTS Systems Corporation
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Nanoscience Instruments
Booth 1509
nanoscience.com

Nel Hydrogen
Booth 1816
Nel is a dedicated hydrogen company, delivering optimal solutions to produce, store and distribute hydrogen. Nel has a history of development and continual improvement of hydrogen plants, providing solutions that meet the hydrogen requirements for material processing applications including powder metallurgy, MIM and heat treating. Our Alkaline and PEM electrolysis systems and uncompromising attention to quality enable us to partner with leading corporations and research institutions worldwide.
nelhydrogen.com

Nippon Kornmeyer Carbon Group
Booth 2123
NKCG produces components made of graphite, CFC and carbon-based insulating materials in any shape, size and complexity. We manufacture single-parts, assemblies, large projects or serial production. In addition to the machining, all components can be purified and coated (e.g. SiC and PyC). Production steps are implemented and monitored to the highest standards of the respective industry sectors.
nk-carbon.com

NITREX
Booth 2138
NITREX is the only fully integrated solutions provider in the premium surface treatment market specializing in: Best-in-class nitriding, nitrocarburizing, and vacuum turnkey equipment (Nitrex NTS); Clean value-added surface treatment services for customers spanning the full range of industries around the world (Nitrex HTS); and Precision engineered instrumentation, aftermarket components, and control/automation solutions to the heat treat and combustion industries (UPC-Marathon).
nitrex.com

North American Cronite
Booth 1631
Cronite is a world leader in the manufacture of cast alloy trays, fixtures, and furnace parts for the heat treatment, steel, automotive, and aerospace industry. Cronite is present throughout the world, with 9 production, design and R&D facilities in the US, Mexico, France, England, Germany, Czech Republic, China and India.
cronite-nac.com

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HEAT TREATING COMPANY

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IMAT & HEAT TREAT COMPANY DESCRIPTIONS

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Booth 1935
NOXMAT develops, manufactures, and produces industrial gas burners as well as electric heating systems for thermal processing technology. Our range of products includes recuperator burners, control devices for burner technology, radiant tubes for heating industrial furnaces, electric heating elements, as well as customer-specific control cabinet construction. Our products are sold in over 35 countries around the globe and are used in heat treatment plants and facilities worldwide.
noxmat.com

NSL Analytical Services
Booth 1526
nslanalytical.com

Olstrad Engineering Corporation
Booth 1840
Olsträd Engineering's services include a full range of design, fabrication, installation, training, and troubleshooting, available alone or in any combination. Our experience providing turnkey solutions in a variety of industries makes us an asset to your project. We're more than a design house, and more than a field crew; we're your project partner. Customers know us for our range and degree of expertise, and enjoy our commitment to quality, flexibility, and customer service. Automation for all!
combustion911.com

Optris Infrared Sensing, LLC
Booth 1824
Optris is one of the leading companies in the field of non-contact temperature measurement familiar to many high temperature process engineers in Europe but a new brand to the U.S. and Canadian markets. Optris will develop and support the North American market from its new facility in Portsmouth, NH. At the show, we will display our full line of high temperature infrared thermometers and infrared cameras together with the accessories designed to deploy these in harsh industrial environments.
optris.com

Palmer Wahl Instruments, Inc
Booth 1839
Palmer Wahl Instruments, Inc. offers temperature and pressure instruments for industry. Our products include digital RTD & TC thermometers, custom engineered temperature sensors, infrared thermometers, temperature calibrators, thermowells, pressure gauges, temperature recording labels, chart recorders, and handheld RTD & TC meters. "Beyond the Scale" represents our commitment to provide expert knowledge, innovative engineered designs, and support for temperature and pressure measurement.
palmerwahl.com

Pfeiffer Vacuum Inc.
Booth 1922
Pfeiffer Vacuum provides vacuum solutions for all vacuum furnace needs from a single source. We stand for reliable products and outstanding service. For over 130 years, Pfeiffer Vacuum has been setting milestones in INDUSTRIAL VACUUM TECHNOLOGY. Our comprehensive line of products ranges from individual components to complex vacuum systems. From rough vacuum and roots pumps, vacuum measuring and control systems, leak detection, custom chambers and construction components.
pfeiffer-vacuum.com

PhoenixTM LLC
Booth 1625
PhoenixTM manufacture 'thru-process' temperature monitoring systems for furnace profiling and TUS. Our system eliminates the need for trailing thermocouples. Simple powerful software permits efficient process optimization and is able to generate AMS2750G and CQI-9 compliant reports. A two-way RF option offers real time monitoring and logger control. Standard or custom built PhoenixTM systems can be used in a wide range of heat treat applications even including those with oil or salt quenches.
phoenixtm.com

Physical Electronics
Booth 1525
Physical Electronics is the world's leading supplier of UHV surface analysis instrumentation used for research and development of advanced materials. PHI's innovative XPS, AES, and SIMS technologies provide our customers with unique tools to solve challenging materials problems and accelerate the development of new materials and products.
phi.com

Polycontrols Technologies Inc.
Booth 1505
IMAT SPONSOR
For nearly 40 years, we take it as a mission to help you « stay ahead » by offering unique integration, disruptive innovation, and world-renowned services in the fields of flow calibration, fluid instrumentation & systems and, metal additive manufacturing & integration. Thanks to our unique cross-disciplinary team of experienced professionals, we are committed to support you all along the entire lifetime of your product or system.
polycontrols.com

IMAT & HEAT TREAT COMPANY DESCRIPTIONS

Premier Furnace Specialists / Beavermatic
Booth 1736
Premier Furnace/BeaverMatic, with the acquisition of BeaverMatic's Intellectual property and assets (in 2015), We provide over 78 years of combined experience, with manufacturing proven performance furnace systems: (Batch and Continuous), Roller Hearth, Pusher, Car-Bottom, Tip-Up, Manipulators, Forging, Box Furnaces, Walking Beam, Brazing, Annealing, Aluminum Solution, Atmosphere Generators, Computer Management Systems, Replacement Parts, Technical Support, Field Service.
beavermatic.com
premierfurnace.com

Pro-Tech Company Inc
Booth 2125
protechcompanyinc.com

Protection Controls, Inc.
Booth 2037
Protection Controls, Inc. has been manufacturing electrical safety equipment for over 65 years. We have a complete line of single and multiple burner PROTECTOFIER Combustion Safeguards for supervision of fuel-fired burners in industrial process heating equipment. These rugged industrial grade controls are field serviceable with plug-in components featuring high signal strength and provide safe and secure operation while reducing the possibility of system shutdown.
protectioncontrolsinc.com

Proto Manufacturing
Booth 1408
PROTO is a leading manufacturer of x-ray diffraction (XRD) systems. Our product line includes residual stress measurement systems, powder diffraction, Laue single crystal orientation, custom RD systems, electropolishers, and custom x ray tubes. Our LXRD and iXRD diffraction systems provide a fast and efficient way to perform Residual Stress measurements quantitatively.
protoxrd.com

PVA TePla America LLC
Booth 1732
OUR SYSTEMS Mono system Bell-type furnace with one process chamber Shuttle system Bell-type furnace with one process chamber and an additional chamber base Tandem system Bell-type furnace with two complete process chambers Horizontal system Chamber furnace for treatment of heavy components Pit furnace Pit-type furnace for treatment of long suspended component
pvateplaamerica.com

Pyromaitre Inc.
Booth 2242
Pyromaitre Inc. manufactures highly precise industrial ovens for stress relieving and tempering applications. Pyro technology allows uniform high-speed heat transfer, reduces cycle time up to 10 folds, saves 70 % in floor space, etc. In the last 30 years, Pyro products have continued to gain recognition with such industry leaders as Airbus, GM, Ford, Caterpillar, NTN Driveshaft, and GKN, among others. Visit us and find out how we can offer you a competitive edge.
pyromaitre.com

Pyrometer, LLC
Booth 2046
pyrometer.com

QINGAO HEATECH INSULATION MATERIALS CO.,LTD
Booth 1416
Qingdao Heatech Insulation Materials Co.,Ltd is a professional manufacturer specializing in insulation and refractory materials with a service temperature range from 1832°F to 3000°F including ceramic fiber, soluble fiber, alumina fiber and insulation brick etc in China market with 25 years experiences in high temperature industry.We provides insulation and refractory materials to meet customers' need of one-stop services with stable quality, competitive price and professional services.
heatechinsulation.com

Quaker Houghton
Booth 2006 & 2007
HEAT TREAT CORPORATE SPONSOR
Quaker Houghton is the worldwide leader in heat treatment, supplying quenching fluids and associated products, technology and application expertise across a wide range of industries including automotive, aerospace, bearing and commercial heat treatment. In addition to our product technology, we provide process modeling, filtration, metering and monitoring devices, quenchant selection, customized proactive maintenance programs and complete technical service and training.
home.quakerhoughton.com

Qual-Fab, Inc.
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When you need large, high-nickel alloy and stainless fabrications such as storage tanks, dryers, ducting, scrubbers, cylinders, mist eliminators, evaporators, muffles, retorts and more, for virtually any process industry, Qual-Fab is your best choice. With a full team of experienced craftsman and over 78,000 sq. ft. of fabrication space on over 13 acres, Qual-Fab has the skills to provide you with exceptional quality, large-scale custom fabrications.
qual-fab.net

IMAT & HEAT TREAT COMPANY DESCRIPTIONS

QuesTek Innovations LLC
Booth 1723
IMAT SPONSOR
QuesTek is a global leader in materials science & engineering, and focuses on a metallurgical understanding of materials processing and performance issues to address demanding engineering challenges. Using their ICME technologies, QuesTek has designed and developed alloys across the periodic table for both traditional and additive manufacturing, recording performance improvements over current legacy alloys. Specifically for AM, several of these materials are available as powder and/or wire.
questek.com

Rockford Combustion
Booth 1829
Rockford Combustion provides fuel-train management and combustion-safety solutions. We are a single-source strategic partner for all combustion safety and field service needs. From industry-leading training to over 120,000 ventless valve trains that can ship within two weeks to complex engineered solutions, we have the expertise and experience to conduct compliance audits and improve NFPA compliance, worker safety, efficiency, and air quality while reducing the risk of fires and explosions.
rockfordcombustion.com

Rolled Alloys
Booth 1621
Since 1953, Rolled Alloys has provided specialty alloys for thermal processing applications. Our comprehensive inventory of heat-resistant alloys, including proprietary alloys RA330®, RA253MA®, and RA602CA®, offer superior strength and oxidation resistance. Our value added processing capabilities reduce labor cost, minimize scrap, and streamline the process from order placement to shipment.
rolledalloys.com

RoMan Manufacturing
Booth 2233
RoMan, was founded in 1980 as a family owned company, with a singular commitment to manufacture water-cooled, high-current, low-voltage power sources to the highest quality standards. Four decades later, we've never wavered from our foundation, as we continue to deliver innovative products, our customers rely on to confidently satisfy their manufacturing needs.
romanmfg.com

RUBIG Industrial Furnaces
Booth 2206
RUBIG Industrial Furnaces represents the premium nitriding and coating technology on the heat treatment market. RUBIG customers benefit from more than 25 years of development experience in the field of customised heat treatment systems for a wide range of industrial sectors, from contract hardening shops to fully automated industrial operations.
rubig.com

SAFECHEM Europe GmbH
Booth 2232
SAFECHEM offers non-halogenated solvents (e.g. modified alcohols) to help heat treaters meet precision cleaning requirements for critical applications such as gas nitriding, ferritic nitrocarburizing and low pressure carburizing. With no requirement for water, our solvent solutions enable a resource-efficient, cost-effective and sustainable cleaning process. Our comprehensive service portfolio also covers test kits, stabilizers, lab analysis as well as employee risk awareness training.
safechem.com

Sajjan LLC
Booth 2222
sajjancastingslimited.com

SBS Corporation
Booth 2027
sbscorporation.com

Schunk Carbon Technology, LLC
Booth 2040
Schunk is a worldwide leader in the development, production and application of carbon and ceramic solutions. With a highly-specialized technology-based product portfolio consisting of mechanical carbon, electrical carbon, thermal carbon and technical ceramics, Schunk offers solutions for a wide industrial spectrum.
schunkgraphite.com

SCHWING Technologies
Booth 1708
SCHWING engineers and manufactures fluidized bed heat treatment systems. With this especially safe and time-efficient technology, metal or non-ferrous components are immersed into a retort filled with an inert, gas-fluidized oxide powder. The benefits of this fluidized bed process are its rapid heat transfer capabilities and excellent temperature uniformity. Partial heat treatment and hot-shaping are possible as well. Fluidized bed systems are also available as a quenching bath.
schwing.tech

IMAT & HEAT TREAT COMPANY DESCRIPTIONS

SciAps Inc
Booth 1504
SciAps, Inc., is a Boston-based instrumentation company specializing in portable analytical instruments to measure any element, any place on the planet. Our industry-leading X-ray fluorescence (XRF) and laser-based (LIBS) analyzers are at work across every major industry, including oil/gas, metals and mining, aerospace, battery and strategic metals (lithium, rare-earth elements), scrap metal recycling, chemical and petrochemical, military, forensics and law enforcement.
sciaps.com

Scientific Forming Technologies Corp.
Booth 2019
The DEFORM System, developed by SFTC, is "state of the art" process simulation software for cold forming, warm and hot forging, rolling, extrusion, stamping, machining, mechanical joining and heat treatment. Designers, engineers and analysts use the software to predict shape, defects, stress, temperature, forming load, tool life, microstructure, distortion and much more. An alternative to shop trials, its output information is critical to new product development or process troubleshooting.
deform.com

SECO/VACUUM Technologies
Booth 2101
HEAT TREAT SPONSOR
SECO/VACUUM, backed by the resources and reputation of SECO/WARWICK, is a leading vacuum furnace manufacturer in the North American heat treating market. SECO/WARWICK is one of the largest and most advanced furnace companies in the world and leads in advancing technologies. SECO/VACUUM offers unmatched vacuum furnace innovation and performance backed by a commitment to provide our customers with the best support in the industry and the lowest cost of ownership.
secovacusa.com

SECO/WARWICK Corp.
Booth 1918
HEAT TREAT SPONSOR
SECO/WARWICK is a technological leader in innovative heat processing solutions. For more than 25 years, the company SECO/WARWICK has been revolutionizing the global metallurgical industry by providing equipment and technology to leading companies in the aerospace, automotive and power industries. Expertise includes end-to-end solutions in atmosphere and aluminum thermal processing, controlled atmosphere brazing of aluminum heat exchangers, and vacuum metallurgy.
secowarwick.com

Selas Heat Technology
Booth 1937
Selas is a world-class industrial burner manufacturer serving the industrial thermal processing industry with a comprehensive range of innovative and reliable gas burners, combustion systems and thermal components to support many different types and brands of ovens, furnaces and thermal processing applications. All Selas burners and combustion components are engineered to provide maximum fuel efficiency, dependable operation, and to help make your thermal process more profitable and successful.
selas.com

SGL Carbon
Booth 1740
sglgroup.com

Signature Vacuum Systems
Booth 2017
signaturevacuum.com

Simplex Metals LTD
Booth 1706
SIMPLEX METALS LTD. One of the leading manufacturer & supplier of items like Heat treating Fixtures, Fabricated Fixtures and Baskets, Bottom Base, Middle Hangers, Base Grid, Base Plate, Intermediate Plate, Guide Pillar, Hex Plate, Rail Rollers, Walking Beam, and many products for all type of furnaces. We are associated with the leading manufacturers who are in this business from last 17 years.
simplexmetalsltd.ca

SMS-Elotherm
Booth 2021
SMS-Elotherm covers a wide range of induction heating applications for heat-treating, forging, tube welding, and flat rolled steel industries. SMS Elotherm is renowned for their ability to design, repair and manufacture a wide range of Induction Heating Coils. Our team of induction specialists are skilled in the new manufacture and repair of all OEM induction heating coils and induction equipment.
techinduction.com

IMAT & HEAT TREAT COMPANY DESCRIPTIONS

Solar Manufacturing
Booth 2213
HEAT TREAT SPONSOR
At Heat Treat 2023, Solar Manufacturing will be displaying a molybdenum shielded Mentor® Pro hot zone. The Mentor® series are compact, skid-mounted, economical furnaces loaded with the same high-performance features as all our larger production furnaces. The Mentor® furnaces are well equipped to run day after day with the convenience of processing smaller workloads. All Solar Manufacturing furnaces are designed for long life, easy maintenance, and minimal downtime. Visit us in booth #2213.
solarmfg.com

South Tek Systems
Booth 1726
southteksystems.com

Springer
Booth 1512
springer.com

Stack Metallurgical Services
Booth 2229
Stack Metallurgical Services specialize in a comprehensive range of metal processing services including heat treating, hot isostatic pressing, and aluminum anodizing for a range of industries throughout North America. We are trusted for our first-rate work and our exceptional service.
www.stackmet.com/

Steelhead Technologies
Booth 1515
gosteelhead.com

Steeltech LLC
Booth 1931
steeltechltd.com

Sun-Tec Corporation
Booth 2107
sunteccorp.com

Super Systems
Booth 1817
Super Systems (SSi) is a technology company in the thermal processing industry. We engineer, develop and manufacture products and design solutions specifically for heat treat industry. Based in Cincinnati and with offices in the US, UK, Mexico, China, and India, we have exceptional coverage to support captive and commercial heat treaters around the world. Our products include oxygen probes, sensors, analyzers, flow meters, programmable controls, SCADA software, and engineered systems.
supersystems.com

Surface Combustion
Booth 1801
HEAT TREAT CORPORATE SPONSOR
Established in 1915, Surface® provides customers rugged, reliable thermal processing equipment. Our strength lies in the breadth of our product portfolio, our unparalleled process knowledge, and our commitment to customer service. From our standard atmosphere and vacuum furnace designs, to custom engineered thermal process solutions, to quick, responsive aftermarket support, Surface stands ready to serve you.
surfacecombustion.com

Synergy Additive Manufacturing
Booth 1502
synergyadditive.com

Ted Pella, Inc.
Booth 1405
tedpella.com

Televac/The Fredericks Company
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For over 85 years, Televac has been a preferred supplier of high performance vacuum gauges to the heat treat and vacuum furnace industry because our extensive line of passive vacuum gauges, active gauges, and controllers deliver world-class vacuum measurement for demanding environments. Talk to our engineers today about our EthernetIP-enabled solutions for faster and more reliable vacuum measurements that eliminate the need for additional analog to digital converter Inputs for your PLC.
televac.com

Tenova Inc.
Booth 1923
Tenova designs and supplies advanced heat treating furnaces for plate, pipe, wire, strip steel, forgings and specialty applications. We also provide a complete range of dedicated technical services including equipment upgrades and revamps, studies, tune-ups, energy audits, automation system upgrades and spare parts.
tenovacore.com

Thermal Processing
Booth 2238
The #1 primary technical heat-treating magazine covering topics such as carburizing, annealing, flame hardening, induction, austempering, case hardening, carbonitriding, stress relieving, martempering, & even cryogenic & quenching techniques. Metallurgists discuss metal/alloy research used in manufacturing parts, particularly the various heat-treating processes to which they're exposed. Engineers describe furnace technology designs leading to greater productivity, dependability, & repeatability.
thermalprocessing.com

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IMAT & HEAT TREAT COMPANY DESCRIPTIONS

Thermcraft, Inc.
Booth 1527
We are an international leading manufacturer of high quality thermal processing equipment. We manufacture low and high temperature laboratory and production furnaces and ovens, . With over 48 years of experience, we can help find the solution that fits your needs. At Thermcraft, customer service is our number one priority!
thermcraftinc.com

Thermo Fisher Scientific
Booth 1520
Thermo Fisher Scientific supplies innovative solutions for materials science, including particle analysis solution, electron microscopy, and XPS, making materials analysis not only more informative but also more rapid. Visit us in booth #1520 to discover how these systems can advance your research. Book a demo today: thermofisher.com/imat2023 | thermofisher.com/materialsscience

Thermo-Calc Software Inc.
Booth 1601
IMAT SPONSOR
Thermo-Calc empowers metallurgists and process engineers to: Calculate thermodynamic and phase-based properties as a function of chemistry, temperature, and time. Fill in data gaps while reducing costly, time-consuming experiments. Predict how actual vs nominal chemistries affect processing windows. Accelerate materials development while reducing risk. Troubleshoot issues during materials processing.. Databases for Steels, Al-, Ti-, Mg-, Cu-, HEAs, Ni-superalloys and more.
thermocalc.com

Total Materia AG
Booth 1752
The Total Materia mission is to be the global leaders in providing the ultimate one-stop place for material properties information, thus helping engineers, professionals and companies worldwide to improve efficiency, effectiveness and reliability.
totalmateria.com

Tucker Induction Systems
Booth 1845
Tucker Induction Systems has been providing World Class Excellence in Quality and Delivery to the Induction Industry since 1976. Our goal has been for our customers to recognize Tucker Induction as Number One in the industry for providing a Quality Service from Design and Build of New Induction Tooling to rebuilding Existing Tooling to a Like New Condition.
tuckerinductionsystems.com

Ultraflex Power Technologies Corp.
Booth 2145
ultraflexpower.com/

United Technical Inc.
Booth 1517
United Technical is a cutting-edge, full-service testing facility offering metallurgical analysis, destructive testing, nondestructive examination, welding training, and technical consulting. Our 25,000 square-foot facility is A2LA, Nadcap, and AWS accredited, and houses a variety of inspection, testing, training, and development equipment. Our experienced professionals provide clients practical, unbiased, data-driven solutions.
unitedtechnicalinc.com

Upton Industries, a Kolene company
Booth 1617
Kolene Corporation is a global leader in molten salt bath technology. Our equipment and chemistries are used worldwide for cleaning, conditioning, and modifying metal surfaces. Our nitriding chemistry provides exceptional surface hardening and corrosion protection. Family owned and continuously operating since 1939.
kolene.com

Vac Aero International Inc.
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VAC AERO manufactures a wide range of front and bottom loading external quench vacuum furnaces with the highest quality standards to will fulfill any specialized processing needs. From small horizontal models to large vertical furnaces VAC AERO vacuum furnaces are ideal for a broad range of vacuum processing applications of specialty alloys and engineered materials including vacuum heat treating and brazing, vacuum sintering, hardening, tempering, annealing and a host of other special processes.
vacaero.com

Verder Scientific, Inc.
Booth 1818
CARBOLITE GERO is a leading manufacturer of high temperature furnaces and ovens. With more than 100 years of experience in thermal engineering, our products are used in research laboratories, pilot plants and manufacturing sites worldwide. In addition to the wide range of standard products, CARBOLITE GERO is an expert in the development of customized equipment for complex heat treatment processes.
verder-scientific.com

Vericheck Technical Services, Inc.
Booth 2244
Verichek Technical Services has been a leader in the Metals Testing Industry for nearly 30 years. ISO17025 accredited, our testing methods include OES, Hardness, RA analysis, and Coating thickness. We feature a large product line with GNR, Hitachi, Lune CHF and OBLF instruments along with ERNST hardness testing equipment.
verichek.net

IMAT & HEAT TREAT COMPANY DESCRIPTIONS

VESCO - A Company of the Busch Group
Booth 2141
buschusa.com

Weldaloy Metallurgical Laboratory
Booth 1530
IMAT SPONSOR
weldaloy.com

Williams Industrial Service
Booth 2127
Williams Industrial Service, Inc. has designed and manufactured batch and continuous high-performance heat treating systems in standard and custom sizes for the heat treating industry since 1971. You can count on us for rugged, durable heavy construction with state of the art control and tracking systems that offer superior performance with minimal maintenance. Call us at 419-353-2120, or visit us at wisfurnaces.com for any of your heat treating needs.
wisfurnaces.com

Wirco Inc.
Booth 2039
wirco.com

Wisconsin Oven
Booth 1825
Wisconsin Oven has been designing and manufacturing industrial ovens, furnaces and other heating equipment since 1973. Their custom and standard equipment are available in batch and continuous designs and used for a multitude of applications including metal finishing, preheating, composite curing, drying, aging, and heat-treating, among others. Their experienced design team is able to meet even the most stringent standards for temperature uniformity and equipment performance documentation.

WS Thermal Process Technology Inc.
Booth 1925
Manufacturer of industrial gas burners with integrated heat exchangers. WS burners yield the highest efficiency and lowest Nox emissions on the market. The REKUMAT® self recuperative burner is available in both direct-fired and indirect-fired (radiant tube) versions. Each version is available in both metallic and ceramic (SiSiC) types. Capabilities include: sales, applications, engineering, installation assistance, start-up, service and spare parts.
flox.com

YUASA INTERNATIONAL
Booth 1844
yuasa-intl.com

ZEISS Industrial Quality Solutions
Booth 1500
zeiss.com

ZIRCAR Ceramics, Inc.
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zircarceramics.com

Zircar Refractory Composites, Inc.
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ZIRCAR Refractory Composites, Inc., produces a comprehensive line of advanced high performance ceramic-ceramic composite materials and related products. For over thirty years, we have been a problem-solver working with our customers to resolve their thermal management problems.
zrci.com

2023 HEAT TREAT AND IMAT EXHIBITOR SHOWCASE

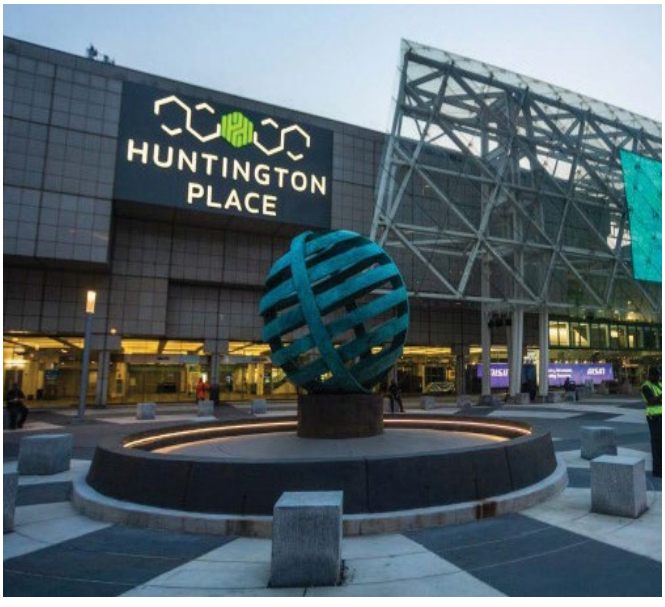
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EXHIBITION HOURS

Tuesday, October 17 • 9:00 a.m. – 6:00 p.m.

Wednesday, October 18 • 9:00 a.m. – 5:00 p.m.

Thursday, October 19 • 9:00 a.m. – 12:00 p.m.



Allied High Tech Products has provided quality products for metallographic sample preparation AND analysis for over 40 years. Allied designs and manufactures sectioning, mounting, grinding/polishing and milling equipment at their U.S. facilities, and distributes a full range of consumable products. Allied's equipment is built in-house to specifications that deliver maximum performance and dependability. All equipment carries a two-year warranty and prompt service or technical help is always available.



alliedhightech.com — Booth 1506

ECM offers furnace systems such as ECO, FLEX, JUMBO, and NANO, which have been low carbon emitting for over 25 years. Through a team of dedicated experts, ECM's ecological goals align with the global heat treat industry in its ecological and social transition by designing, manufacturing, and implementing high-tech, decarbonized (or low carbon) furnace solutions. We also implement robotics/automation within your new or existing heat treat production line to reduce cycle time and maintain consistent product quality.



ecm-usa.com — Booth 1717

Since 1989, **GeoCorp** has grown into the ultimate, all in-one pyrometry solution—thermocouples, thermocouple wire, calibration services, pyrometry standards compliance software, and exceptional customer service. As both a thermocouple manufacturer and supplier, every part of the GeoCorp process is done at our facilities in Huron, Ohio, USA.



geocorp.com — Booth 1901

PhoenixTM LLC: Thru-process Monitoring Solutions for Heat Treatment Processes



PhoenixTM LLC manufactures "thru-process" monitoring systems for TUS temperature and optical profiling. Our thru-process system effectively eliminates the need for trailing thermocouples. Industry leading, simple powerful software provides comprehensive analysis options for process optimization, problem solving and generation of AMS2750G and CQI-9 compliant TUS reports. A two-way RF telemetry option offers real time monitoring and logger control allowing live process monitoring and TUS management.

phoenixtm.com — Booth 1625

Polycontrols: We Boost Cold Spray Additive Manufacturing into Full-Scale Production



Thanks to our PolyCSAM industrial hub we offer cutting-edge CSAM services for coatings, repairs, and 3D metallic parts. We also design, manufacture, install, and support turnkey CSAM cells tailored to your specific needs. Visit us at IMAT and Heat Treat in Detroit or contact us!

polycsam.ca — Booth 1505

Quaker Houghton is the worldwide leader in heat treatment, supplying quenching fluids and associated products, technology, and application expertise across a wide range of industries. In addition to our product technology, we provide process modeling, filtration, metering and monitoring devices, quenchant selection, customized proactive maintenance programs, as well as complete technical service and training. Our team of chemists, metallurgists, and industry experts work closely with our customers to determine the right quenchant to meet the requirements for each application.



quakerhoughton.com — Booths 2006/2007

Stack Metallurgical Group consists of commercial heat treating, metal processing, and hot isostatic press (HIP) facilities in Portland, Ore., Spokane, Wash., Salt Lake City, Utah, and Albany, Ore. Stack specializes in advanced processes for the most demanding industries including aerospace, medical implant, power generation, and many more! With Nadcap, ISO 13485, a wide range of OEM approvals, and a team of industry experts, make Stack your partner for all your metal processing needs.



stackmet.com — Booth 2229

Surface Combustion is your source and heat treat expert. For over 100 years, Surface Combustion has been the leader in industrial heat treatment solutions. From our signature Allcase Batch Integral Quench Furnace to tried and proven vacuum furnace options and customized engineered products, we are your source for all heat treat and thermal processing needs.



surfacecombustion.com — Booth 1801

Ted Pella, Inc. is a premier supplier of consumables and specimen preparation tools and accessories for optical light microscopy and electron microscopy applications. We carry a wide range of sample preparation supplies, SEM mounts and sample holders, TEM grids and support films, calibration standards, as well as Cressington sample coating systems for electron microscopy. We manufacture and distribute many of our own instruments, accessories, and tools for sample preparation under the PELCO brand name.



tedpella.com — Booth 1405



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FACES IN THE CROWD

Motor City

Detroit earned the nickname 'Motor City' due to its pivotal role in revolutionizing the automotive industry. Nicknamed the "Tin Lizzie", the Model T became so popular that Ford invented the first assembly line, making production more efficient and creating roughly 13,000 new jobs.

With the invention of the first assembly line in Detroit, the ability to mass-produce cars changed the auto industry forever! By the 1920s, three of the biggest car companies were based in Detroit — Ford, General Motors, and Chrysler. As the center of the American motor industry, Detroit became a haven for people who had recently lost their jobs to flock to and easily earn a livable wage.

- **What four-wheeled masterpiece marked your debut into the world of driving?**

Coney Dogs

In 1917, Gust Keros, a Greek immigrant, opened American Coney Island on West Lafayette Street in downtown Detroit. A few years later, in 1924, he brought his brother William to Detroit to help. Keros's brother opened Lafayette Coney Island when space opened up next door. The businesses have operated continuously in the same locations ever since.

Both of these Detroit Coney Islands are incredibly popular to this day, where there is an on-going argument over which establishment serves the best Coney dog. The chili recipes, key to the Coney dog, differ: American makes its own chili which is said to be spicier than the beefier chili of Lafayette, made from a family recipe. The dispute has been featured on several food television shows, including Food Wars and Man v. Food

- **Is a hot dog just a sandwich that decided to roll with a different crowd?**

Motown

In 1960, the famous record label Motown was created by Berry Gordy, which he named after Detroit's nickname "Motor Town". Motown was a pioneer in releasing music in the rock, soul, and blues genres. Dominating the charts for the majority of the '60s, Motown Records was an impressive powerhouse that gave Detroit another reason to be famous. While Motown Records has locations elsewhere now, the stamp it left on Detroit is ever present through the city's soul, the production of musicians, and so much more.

- **What artist or band gets your feet moving and your soul grooving?**

Meet the ASM BOARD



PRESIDENT AND CHAIR OF THE BOARD

Dr. David B. Williams, FASM,
Emeritus Dean and Professor of Materials Science and Engineering
The Ohio State University
Center for Electron Microscopy and Analysis

Four-wheeled masterpiece? Triumph Spitfire
Hotdog? The Earl of Sandwich never ate a hotdog!
Feet moving, soul grooving? The Four Tops; Don't Walk Away Renee



SENIOR VICE PRESIDENT AND TRUSTEE

Mr. Pradeep Goyal, FASM
Chairman and Managing Director
Pradeep Metals Limited

Four-wheeled masterpiece? Toyota Corolla
Hotdog? NO
Feet moving, soul grooving? The Supremes with Diana Ross



VICE PRESIDENT AND TRUSTEE

Dr. Navin J. Manjooran, FASM
Chairman
Solve

Four-wheeled masterpiece? Dacia
Hotdog? NO
Feet moving, soul grooving? Ain't No Mountain High Enough



IMMEDIATE PAST PRESIDENT & TRUSTEE

Dr. Judith A. Todd, FASM
Professor and Department Head Emerita of Engineering Science and Mechanics
The Pennsylvania State University

Four-wheeled masterpiece? MGB GT Convertible
Hotdog? YES
Feet moving, soul grooving? Diana Ross and the Supremes



TREASURER AND TRUSTEE

Mr. John C. Kuli
Technology & Innovation Consultant
Materion Corporation

Four-wheeled masterpiece? A 1976 Plymouth Duster, (same car that safe drivers Doug and LiMu Emu drive)
Hotdog? Absolutely
Feet moving, soul grooving? Temptations; My Girl



Executive Director

Sandy Robert, CAE
ASM International

Four-wheeled masterpiece? Ford Grenada (rusty one)
Hotdog? NO
Feet moving, soul grooving? Marvin Gaye

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FACES IN THE CROWD

ASM BOARD TRUSTEES



Dr. Toni Marechaux, FASM
Senior Analyst
Booz Allen Hamilton

Four-wheeled masterpiece? Pontiac 1200
Hotdog? YES
Feet moving, soul grooving? Marvin Gaye



Mr. Burak Akyuz – IMAT Conference Co-Chair
Metallurgy, Failure Analysis, Polymers Mechanical Department
Applied Technical Services, Inc.

Four-wheeled masterpiece? Honda Accord
Hotdog? NO, definitely not
Feet moving, soul grooving? Stevie Wonder



Dr. Elizabeth N. Hoffman, FASM
Director, Innovation and University Engagement
Savannah River National Laboratory
Savannah River Site

Four-wheeled masterpiece? Nissan Sentra
Hotdog? No
Feet moving, soul grooving? I have no idea. I listen to it all, but do not pay attention to artist names or song titles.



Dr. James E. Saal
Manager-External Research Programs
Citrine Informatics

Four-wheeled masterpiece? Honda Civic
Hotdog? YES
Feet moving, soul grooving? Stevie Wonder



Prof. Pierpaolo Carlone
Full Professor – Manufacturing
Department of Industrial Engineering
University of Salerno

Four-wheeled masterpiece? Fiat Punto
Hotdog? Technically speaking ..YES, even if I always say: "let's go for a sandwich OR a hot dog"!
Feet moving, soul grooving? Stevie Wonder



Prof. André McDonald, PEng, CEng, PE, FASM, FIMMM, FIMechE
Associate Vice President (Strategic Research Initiatives and Performance) and Professor
University of Alberta

Four-wheeled masterpiece? 1990 Mazda 626
Hotdog? YES
Feet moving, soul grooving? Smokey Robinson and the Miracles



Mr. Larry Somrack
Retired President and Owner
NSL Analytical

Four-wheeled masterpiece? Rambler then BMW
Hotdog? No a sausage or beef in a tube
Feet moving, soul grooving? Diana Ross



Mr. Christopher J. Misorski, FASM
Technical Advisor – Materials
Mercury Marine

Four-wheeled masterpiece? 1966 Volkswagon Beetle
Hotdog? NO
Feet moving, soul grooving? 4 Tops



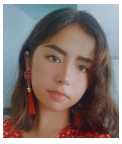
Dr. Dehua Yang, FASM
President
Exponential Business and Technologies Companies

Four-wheeled masterpiece? Nissan Maxima
Hotdog? NO, it's a long bun wrapped over a meat sausage
Feet moving, soul grooving? Ray Charles



Ms. Nicole M. Hudak
Student
Materials Science and Engineering
The Ohio State University

Four-wheeled masterpiece? Pontiac G6
Hotdog? NO
Feet moving, soul grooving? Stevie Wonder; My Cherie Amour



Ms. Denise Torres
Student
Department of Materials Engineering
Instituto Tecnologico de Morelia

Four-wheeled masterpiece? VW Sweden
Hotdog? No, I wouldn't say so
Feet moving, soul grooving? Michael Jackson

Meet the HTS BOARD



President
Lesley Frame
Assistant Professor
University of Connecticut

Four-wheeled masterpiece? A Saturn (it was bright teal and I called it a "Barbie car" because it was so ridiculous looking)
Hotdog? Nope
Feet moving, soul grooving? Oooh. . .tough one. Either the Marvellettes or Marvin Gaye



Vice President
Mr. Benjamin Bernard
VP International Sales
Surface Combustion Inc

Four-wheeled masterpiece? 92 Pontiac Grand AM
Hotdog? YES
Feet moving, soul grooving? Stevie Wonder



Secretary
Deidra Minerd
Operations Manger
Euclid Heat Treating Company

Four-wheeled masterpiece? Buick Skylark
Hotdog? NO
Feet moving, soul grooving? Stevie Wonder, "Signed, Sealed, Delivered, I'm Yours"

FACES IN THE CROWD



Immediate Past President and Treasurer
Eric Hutton
Vice President of Operations – Aerospace/Defense East
Bodycote Thermal Processing Inc.

Four-wheeled masterpiece? Ford Escort
Hotdog? Nope
Feet moving, soul grooving? Jackson 5

HTS Officers:



Chuck Faulkner
Commercial Development Manager - Heat Treatment
Quaker Houghton

Four-wheeled masterpiece? Dodge Charger
Hotdog? NO
Feet moving, soul grooving? Marvin Gaye



Steven Ferdon
Director Engineering Technology
Cummins Engine Components

Four-wheeled masterpiece? Ford LTD.
Hotdog? NO
Feet moving, soul grooving? Smokey Robinson



Hannah Noll
Senior Manager, Quality
ATI Specialty Materials

Four-wheeled masterpiece? Sorry, Detroit, it was a Kia Optima
Hotdog? Absolutely not, hot dogs are an entire genre of their own!
Feet moving, soul grooving? Stevie Wonder



Rob Madeira
Grp Mgr Heat Treat
Inductotherm Group

Four-wheeled masterpiece? 1969 Buick Rivera GS-430 with a slap stick automatic
Hotdog? NO, a hot dog needs water
Feet moving, soul grooving? Bob Seagar, wasn't exactly Motown, he is from Detroit and my favorite song is "old time rock and roll"



Doug Puerta
CEO
Stack Metallurgical Group

Four-wheeled masterpiece? Plymouth Neon
Hotdog? Yep
Feet moving, soul grooving? Stevie Wonder



Liang He
Application Engineer
Air Products and Chemicals

Four-wheeled masterpiece? Ford Taurus
Hotdog? NO
Feet moving, soul grooving? Boyz II Men (the only Motown band I know)



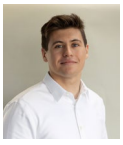
Michael Nappi
Program Manager, Additive Manufacturing
Bodycote Thermal Processing

Four-wheeled masterpiece? Ford Escort
Hotdog? NO
Feet moving, soul grooving? Michael McDonald



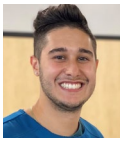
Trisha Rouse - Heat Treating Conference Chair
Sr Materials Engineer
General Motors

Four-wheeled masterpiece? Chevrolet Celebrity
Hotdog? NO
Feet moving, soul grooving? Aretha Franklin – Respect



Nicholas Hicks
Applications Engineer
Rolled Alloys

Four-wheeled masterpiece? Chrysler 300
Hotdog? YES
Feet moving, soul grooving? Four Tops



Kiran Judd
Graduate Research Assistant
Worcester Polytechnic Institute

Four-wheeled masterpiece? 2004 Honda Civic
Hotdog? NO
Feet moving, soul grooving? Michael Jackson

FACES IN THE CROWD

Bowling capital of the World

Detroit holds the record for most registered bowlers in the country. Detroit, specifically, Metro Detroit, claims the moniker "Bowling Capital of the World". This is supported by the fact that in the tri-county Detroit area there are over 80 bowling centers and over 50,000 regular league bowlers. The Garden Bowl located in downtown Detroit is the oldest, continuously operating bowling alley not only in Michigan, but also in the United States. Opened in 1913, and was named to the National Register of Historic Paces in 2008.

- **What activity do you like to do in your SPARE time?**

Potato Chips

It's reported that the people of Detroit consume, on average, an annual 7 pounds of potato chips compared to the rest of the country's 4 pounds. At one point, there were roughly 22 potato chip manufacturing companies in the city alone. Better Made chips have been noted as tasting like Michigan; the home-grown potato flavor shines through

- **When it comes to spud-tacular snacking, which potato chip flavor takes the top spot?**

Theater and arts

Unofficially, Detroit has the second largest theater district in the country to New York City. Detroit's theaters are architecturally incredible with the best original and Broadway plays in the country. Detroit's Fox Theatre was originally billed as "the most magnificent Temple of Amusement in the World"

- **What theater production or concert left you shouting 'Encore!'**

Heat Treat Conference 2023 – Co-Chair



Andrew L. Banka, P.E
Airflow Sciences Corporation

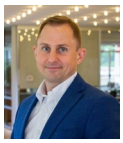
SPARE time? Mountain Biking - Favorite trail riding location is the DTE Foundation Trail in Chelsea, about an hour west of downtown Detroit. Development of the trails was funded by DTE Energy.
Potato chip? Sea Salt & Vinegar
Encore production? Hamilton - We saw Hamilton at the Fisher Theater in Detroit

IMAT Conference 2023 – Co-Chair



Andrzej Wojcieszynski
Wingens Consulting LLC
Potato chip? Sour Cream & Onion
Encore production? Celtic Women" Concert

Meet the ASM COO



Ryan Milosh
ASM International

SPARE time? Golf if I ever had time to play
Potato chip? Salt and Vinegar
Encore production? Audioslave

Meet the IMS BOARD

Outgoing President



Mike Keeble
US Labs & Technology Manager
Buehler

SPARE time? Boats (of all sorts)
Potato chip? Salt and Vinegar
Encore production? Cirque de Soleil in Las Vegas

Incoming President



Laura Moyer
Lab Manager
Lehigh University

SPARE time? Football (American Style), Leisure – Reading
Potato chip? Salt and Vinegar
Encore production? Wicked Concert – too many good ones to choose from!

Outgoing Immediate Past President



Dan Dennies
Principal and CEO
DMS, LLC.

SPARE time? Chasing my two boys
Potato chip? Hint of Lime
Encore production? Chicago Musical

Outgoing Secretary



Gee Abrahams
STEM Writer / Editor
Gee Abraham Edits

SPARE time? Tabletop Gaming
Potato chip? Anything Spicy!
Encore production? Red Hot Chili Peppers Californication Tour



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FACES IN THE CROWD



Incoming Vice President
Mike Connelly
Consultant
Connelly Consulting

SPARE time? I grew up on the South Side of Chicago, so my favorite sport was 16" softball (its played mostly in Chicago), I still follow the Chicago White Sox. My favorite leisure activity is the Eisenman Materials Camp.
Potato chip? Jalapeno Cheddar Kettle Chips
Encore production? Birthday present from my daughter – the Lion King on Broadway
Best concert – 1974, opening group was the Pointer Sisters and the headline act was Chicago



Incoming Secretary
Andrew Kitahara
Materials Engineer
Analytical Mechanics Associates
National Institute of Aerospace

SPARE time? Baseball
Potato chip? Jalapeno Kettle Chips
Encore production? Hadestown (Patrick Page as Hades)

Meet the FAS BOARD



Outgoing President
Tony Havics
pH2,LLC.

SPARE time? Rock Climbing
Potato chip? BBQ
Encore production? Mikado



Incoming Vice President
Margaret Flury
Principal Materials Engineer
Medtronic

SPARE time? Detroit Tigers Baseball (I'm a Michigan native)
Potato chip? Better Made dark chocolate covered potato chips – a Detroit company
Encore production? Dave Matthews Band (unfortunately it was in Soldier Field in Chicago)



Incoming Secretary
Joseph Lemberg
Senior Managing Engineer
Exponent

SPARE time? Soccer. Vamos A-T-L!
Potato chip? All Dressed or Old Bay
Encore production? Rolling Rock Town Fair, 2001

Meet the EDFAS BOARD



President
Felix Beaudoin
PMTS Yield Engineer
Global Foundries

SPARE time? Playing ice hockey
Potato chip? Dill Pickle
Encore production? Pink Floyd A Momentary Lapse of Reason Tour (it left a long-lasting impact on my 15-year-old- brain)



Vice President
Renee Parente
Technology & Product Engineering Operations Director
Advanced Micro Devices (AMD)

SPARE time? I can do all sorts of fun arm balances
Potato chip? Oh, by far, Jalapeno. My favorite brand is Cape Cod and their jalapeño potato chips!
Encore production? Sinead O'Connor at City Gardens, Trenton NJ in 1988



Immediate Past President
James Demarest
Senior Engineer
IBM

SPARE time? Ice Hockey
Potato chip? BBQ
Encore production? Lion King



Secretary
Chris Richardson
Manager X Prep Products and Applications
Allied High Tech Products

SPARE time? Favorite sport to watch is Ice Hockey, leisure activity was/is Karate (2nd degree black belt)
Potato chip? Miss Vickie's Jalapeño Chips
Encore production? It's a toss up, either Garth Brooks (amazing entertainer) or Papa Roach (report writing music)

FACES IN THE CROWD

Meet the SMST BOARD



President

Ashley Bucsek
Assistant Professor
University of Michigan

SPARE time? Long walks with the dogs
Potato chip? Lime or Red Hot
Encore production? My very first concert was the Rolling Stones' Bridges to Babylon tour, and it's still the best I've ever been to!



Vice President

Srinidhi Nagaraja
Technical Fellow
G. Rau Inc.

SPARE time? Playing ice hockey (Go Red Wings!!) and running
Potato chip? Kettle cooked Lay's Jalapeno Chips because I love spicy food!
Encore production? My kids aren't much into theatre, yet, so I will say The Book of Mormon. It was the funniest show I have ever been too.



Immediate Past President

Othmane Benafan
Materials Research Engineer
NASA Glenn Research Center

SPARE time? Real Football - soccer that is of course.
Potato chip? Baked Lay's Oven Original Potato Crisps
Encore production? Soraya & Salma theatre in the woods (my kids shows are the best)

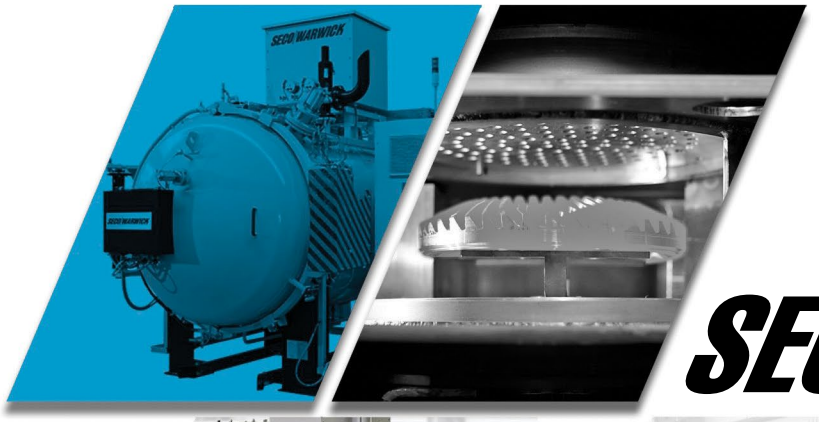
Meet the TSS BOARD



Immediate Past President

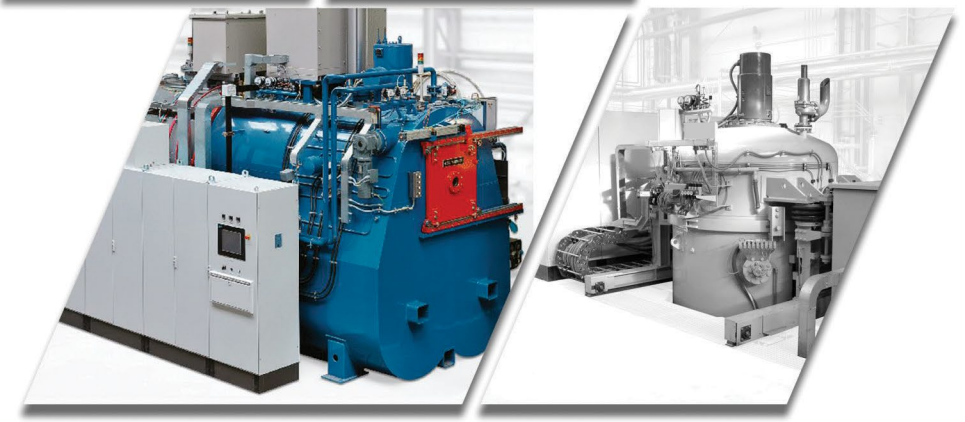
Bill Lenling
Sr. Distinguished Engineer
Thermal Spray Technologies

SPARE time? Downhill skiing
Potato chip? Homemade
Encore production? The Eagles



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FACES IN THE CROWD: STUDENTS

Fuel Your Competitive Spirit: Watch Tomorrow's Innovators Unleash their Brilliance in Student Competitions!

The Future of Materials Engineering

The future workforce for materials engineers will be characterized by innovation, adaptability, and a strong foundation in materials science principles. These engineers will contribute to a wide range of industries, driving technological progress and addressing global challenges.

Current trends for the future of materials engineers:

- Advanced Materials Development
- Nanotechnology and Nanomaterials
- Sustainable and Green Materials
- Energy and Aerospace Industries
- Biomedical Applications
- Additive Manufacturing (3D Printing)
- Data-Driven Materials Design
- Collaboration and Interdisciplinary Work
- Globalization and International Collaboration

As technology evolves rapidly, materials engineers will need to engage in lifelong learning to stay updated on the latest advancements and tools in the field.

Shaping Future Innovators: Igniting the Spark of Materials Engineering Through Inspiring Teachers!

STEM high school teachers play a crucial role in introducing students to the foundational concepts of materials engineering and inspiring them to explore this field further. While high school teachers might not directly teach advanced materials engineering topics, they can lay the groundwork by fostering interest, curiosity, and a strong foundation in science and engineering.
Materials engineering professors play a critical role in college by shaping the education, research, and future careers of students in the field of materials science and engineering. Materials engineering professors play a multifaceted role that involves teaching, research, mentorship, and leadership. Their dedication to education and advancing the field is essential for preparing the next generation of materials engineers and researchers.

Detroit Pizza

Detroit pizza is known for its distinctive style characterized by a thick, rectangular crust that's crispy on the outside and airy on the inside. The pizza is typically baked in rectangular steel pans originally used as automotive parts trays in Detroit's factories. It has a generous amount of cheese that goes all the way to the edges, creating caramelized, crispy cheese edges known as "frico." The sauce is often applied on top of the cheese, giving it a unique flavor profile. This style of pizza is also known for its hearty toppings and its popularity in the Detroit area.

- **Let's Settle the Great Pizza Debate: Thick Crust or Thin Crust – Which One Takes the Slice?**
- **What should be taught in schools that is currently not covered?**
- **Is a hot dog just a sandwich that rolls with a different crowd?**
- **What teacher has had the biggest impact on you and why?**

HTS Strong Bar Competition

Sponsored by: MTS

Tuesday, October 17, 4:00 – 5:30 pm
Phase 1, Poster Presentation, Hall A - Student Poster area

Wednesday, October 18, 11:45 am – 12:30 pm
Phase 2, Bent Test. Exhibit Hall A – Strong Bar Competition area

Teams Flex their metallurgical muscle by participating in the Strong Bar Competition, organized by the ASM Heat Treating Society! Student teams will heat treat steel bar to achieve the highest combination of bending strength and bend deflection. This is a two-phase competition that begins with a poster competition, describing the team's heat treatment method, the hardness profile, and microstructure. During phase two, teams will heat treat the specimen according to their best choice. The bars will be tested on the exhibit show floor to determine the winners.

Team: PSMRC EAGLES, Missouri University of Science and Technology, Rolla

Professor: Viraj Athavale
Students: Kingsley Amatanweze, Barshan Saha, Edward Mueller



Kingsley Amatanweze

Thick or Thin? Chicken pizza with pineapple
Taught in schools? Volunteerism
Hotdog? No, it's not.
Impact teacher? My grade 4 teacher, Mrs. Angela Aniude. She motivated and always encouraged us to study. She would celebrate every of my little academic progress then. I would say my chemistry teacher too, Mr. Ekweoba. He made me enjoy chemistry as a subject and didn't hesitate to admonish us at every given time to aim for greatness. He has one of the best teaching skills I have ever come across.

Barshan Saha

Thick or Thin? Thin crust
Taught in schools? High school should teach musical instrument
Hotdog? Yeah, hot dog is a type of sandwich
Impact teacher? Dr. Shahnawaz Ali has the biggest impact on me because he is the reason I started to love chemistry and pursuit my career on material science

Team: Huskies Bar, University of Connecticut

Professor: Lesley Frame
Students: Benjamin Gwinnell, Justin Coe, Jaclyn Grace, Leena Alam

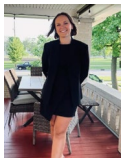


Thick or Thin? Everyone but Jaclyn prefers thick crust.
Taught in schools? Sign language, personal finance, general first aid, and African-American history should be taught in school.
Hotdog? A hot dog is NOT a sandwich.
Impact teacher? Justin's calculus teacher taught him good work ethic. Ben's English teacher taught him the importance of a mental health day. Jaclyn's physics teacher challenged her to reach for the stars. Leena's physics teacher showed her that she has what it takes to be an engineer.

FACES IN THE CROWD: STUDENTS

Team: THE Strong Bar Team, The Ohio State University

Professor: Elvin Beach
Students: Justin Smith, Jacob Shell, Samantha McArdle, Nicole Hudak



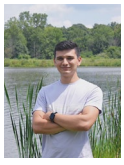
Nicole Hudak

Thick or Thin? Thick

Taught in schools? How to handle everyday personal finances.

Hotdog? No, you hold it differently.

Impact teacher? My high school robotics teacher, Mr. Sedlak, taught me how to be a lifelong learner and never take the opportunities I am awarded for granted. He taught me to pursue my passions and most importantly he taught me to never let anyone tell me that I am not enough.



Jacob Shell (Also competing in DomesDay, Team: Dome Money, Dome Problems)

Thick or Thin? Thick for sure

Taught in schools? Information about taxes and rights, but also life skills such as financial literacy and career planning.

Hotdog? Yes, it's meat in between sliced bread. A poor sandwich, but one, nonetheless.

Impact teacher? I think Dr. Beach (Elvin Beach) at Ohio State has made a large impact. He makes it very easy to be passionate about the program while also helping students get involved in valuable programs. He also offers some of the best hands-on education and is very willing to take the time to help a student with a subject, or simply allow a student to interact with and learn about equipment/devices in the department.



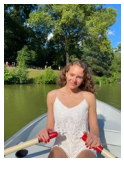
Justin Smith

Thick or Thin? Thin crust pizza

Taught in schools? How to do your taxes.

Hotdog? A hot dog is definitely a sandwich.

Impact teacher? Dr. Elvin Beach had the biggest impact on me. He encouraged me to pursue opportunities I didn't have the confidence to do before including participating in the Strong Bar Competition and joining the Heat Treating Society Board.



Samantha McArdle

Thick or Thin? Thin crust pizza is always the best!!

Taught in schools? Everything regarding filing taxes and tax returns should definitely be taught

Hotdog? I do not think hot dogs are a sandwich

Impact teacher? Professor Elvin Beach has had a large impact on my education. He has been a great mentor and guide since the start of my MSE education. He has introduced me to possibilities in Materials Science that I had never thought about before.

Team: TEAMMAT, Instituto Tecnológico de Morelia

Professor: Monserrat Sofía López-Cornejo
Students: Valeria Elide Villagomez Lopez, Monserrat Arias Rico, Marco Sebastian Silverio Morales, Karla Viviana Marquez Piñon, Maria Fernanda Ortiz Alcantara



Monserrat Arias Rico

Thick or Thin? Always thick!

Taught in schools? Schools should teach a little more soft skills, such as effective communication, critical thinking, and personnel management, and subjects such as finance and entrepreneurship would be good tools in the lives of students.

Hotdog? No

Impact teacher? The teacher who has impacted me the most is PhD. Monserrat Sofia Lopez, because she is a dedicated and passionate woman for her work, she has a long career in the industry and in teaching, and she is a person who always cares and encourages her students to excel, but above all, she is an exceptional woman who inspires many students, but especially women who are studying an engineering career.

Valeria Elide Villagomez Lopez

Thick or Thin? Thin pizza is the best.

Taught in schools? how to work in a team, administration and finance issues, on soft skills

Hotdog? It's not

Impact teacher? Monserrat Cornejo, he is a very empathetic and kind human being, he always shares his wisdom and his love with his students, he always provides support and help.

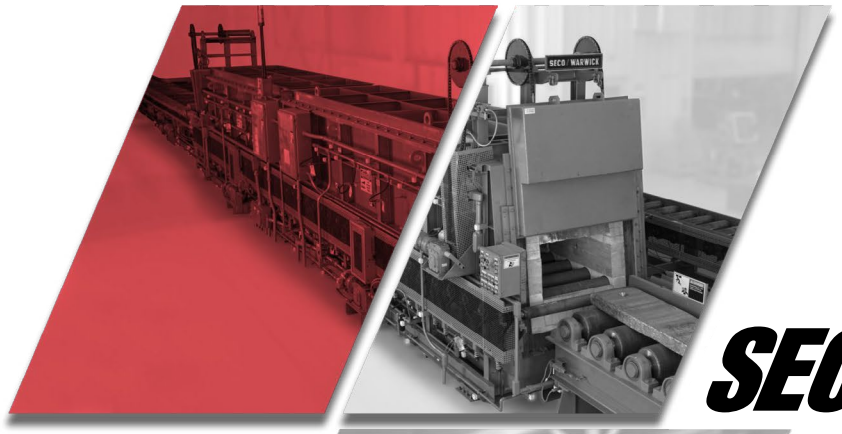
Karla Viviana Marquez Piñon

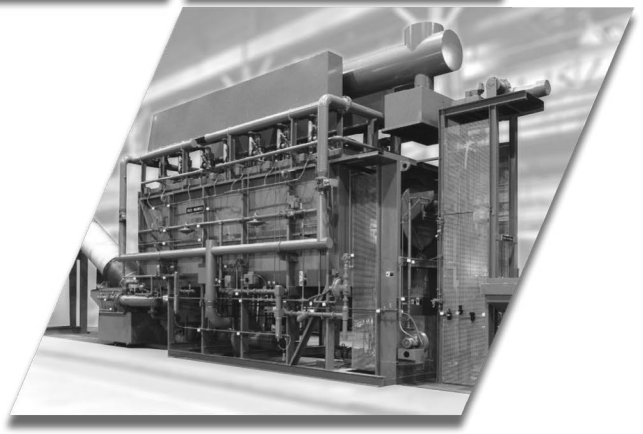
Thick or Thin? For me the thick crust pizza is much softer

Taught in schools? We should be taught what is necessary to reach the industry. I believe that programs always have a reason to have a certain structure and we should be taught how not to use our time well.

Hotdog? Sandwich to me, I like more when we accompany them with Ham, cheese, spinach, cucumber, olives and tomato

Impact teacher? Dr. Monserrat López, she is the first woman I know who loves steel and she knows how to spread that passion and involves as much as possible to make a better world and that is very admirable. Someday I want to have the opportunity to be close to inspiring others as she inspired me





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FACES IN THE CROWD: STUDENTS

Team: The Strong-diggers, Colorado School of Mines

Professor: Gerald Bourne
Students: Kelsey Ferro, Micah Sweezey, Jaime De Mora, Travis McDonald, Brent Dillard



Kelsey Ferro

Thick or Thin? Thin Crust

Hotdog? Hot Dogs are absolutely a sandwich, especially when loaded with all the fixin's!

Impact Teacher? My engineering teacher in high school, Mr. Zattiero, had the biggest impact on my education.



Micah Sweezey

Thick or Thin? I think thick crust pizza is way better than thin crust.

. **Hotdog?** A hot dog is not a sandwich. It is a fold, just like a taco and a sub sandwich are folds.

Impact Teacher? The teacher that had the biggest impact on me was my 7th grade science teacher. He is the one that inspired my love for science and curiosity to learn with his genuine excitement about everything he taught.

Jaime De Mora

Thick or Thin? Thin crust is much better! You can eat more sauce and meaty toppings with a thin crust.

Hotdog? Yes, it is meat between buns.

Impact Teacher? Dr. De moor, he has been providing me help with schoolwork, course counseling and professional advice since my first semester at Mines. He has written many recommendations for me that have resulted in undergraduate research opportunities, fellowships, scholarships and a job.

Team: Saudi Falcons, King Fahd University of Petroleum and Minerals

Professor: Dr. Abduljabar Alsayoud
Students: Khalid Alfaleh, Ali Hazazi, Bader Alghamdi, Nawaf Alharbi, Osama Alali

Thick or Thin? Thin

Taught in schools? Coping mechanisms and emotional regulation

Hotdog? Yes

Impact Teacher? Our materials science teacher has had a big impact on us because he encouraged us to participate in such a competition.

Fluxtrol Student Research Competition

FLUXTROL

Tuesday, October 17, 4:00 – 5:30 pm

Phase 1 – Poster Presentation, Hall A - Student Poster area

Wednesday, October 18, 10:30 – 11:30 am

Phase 2 – Oral Presentations, 313AB

Heat Treat 2023 offers a platform for aspiring young scientists/ professionals to participate in a competitive awards program (and win prizes!) The goal is to inspire the next generation's engagement with the ASM Heat Treating Society. With an exciting two-phase structure, including a poster competition and oral presentations for semi-finalists, this event offers a gateway to their success in the world of heat treating.



Ashlyn Orr, Colorado School of Mines

Thick or Thin? I personally think thick crust is best

Taught in schools? I think stress management is something that should be taught in schools but isn't

Hotdog? I do not think a hot dog is a sandwich

Impact teacher? The teacher who has had the biggest impact on me was my physics teacher during my senior year of high school because he always tried to challenge you while also trying to instill the desire to learn



Benjamin Tanous, Colorado School of Mines

Thick or Thin? Thin crust all the way! Thin crust gives the pizza a nice crispy texture that isn't achievable with thick crust

Taught in schools? Money management should be part of the standardized public-school curriculum! Budgeting, controlling your spending habits, and saving for and building an investment portfolio are all crucial skills that are never too early to start.

Hotdog? I'd say technically yes because it's a meat surrounded on majority sides by bread and condiments, but my heart really wants to say no! If I had to choose, I would say yes.

Impact teacher? The teacher that has had the biggest impact on me is Dr. Spurlin, the Director of Athletic bands at Auburn University where I got my undergraduate degree. Dr. Spurlin is such a great educator and is very gifted at what he does, but he also held the band to a very high standard and many of those standards I still apply to myself to this day. One of my favorite quotes he would always say at the beginning of marching band season is "Don't be a thermometer, be a thermostat. Thermometers are controlled by their surroundings, while thermostats control themselves and don't let things out of their control alter their path."



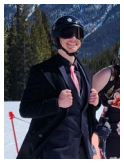
Lun (Ho Lun Chan), Colorado School of Mines

Thick or Thin? Thin Crust

Taught in schools? Personal finance, relationship & mental health management

Hotdog? No

Impact teacher? Mr. William Choi. He introduced me to his science projects in high school, which started my career in science.

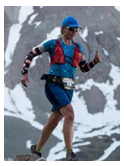


James Gruich, Colorado School of Mines

Thick or Thin? Thin Crust

Taught in schools? Coping mechanisms and emotional regulation

Hotdog? No



Michelle Kent, Colorado School of Mines

Impact teacher? Ms. Ney had the biggest impact on me because she taught me to love challenging literature

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FACES IN THE CROWD: STUDENTS



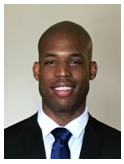
Jide Oyerinde, Clarkson University

Thick or Thin? Thick

Taught in schools? Hands-on current industrial equipment and softwares

Hotdog? Yes

Impact teacher? Prof. Samson Adeosun



Kenneth Looby, University of Connecticut

Thick or Thin? Thin crust, I am originally from NYC so I'm biased:)

Taught in schools? Financial Management, Laws that are practical for everyday life, How to study properly for liberal arts and STEM classes, How to build teams, Basic Car Maintenance, How to start a business, -Social skills and networking

Hotdog? A hot dog is not a sandwich

Impact teacher? My machine design professor was a manufacturing engineer and licensed mechanical engineer. He taught me that engineering is simple but working with people is complicated. He taught me the impact engineers have on the world and our responsibility to exercise integrity in our work. He inspired me to become a manufacturing engineer and a licensed mechanical engineer. These experiences led me to pursue my Ph.D. in material science & engineering as no other field addresses the structure-property-process paradigm that is needed to fully understand manufacturing processes.



M Nabil Bhuiyan, University of Connecticut

Thick or Thin? Thin Crust

Taught in schools? How to catch fish and which fish need to be focused on. School shouldn't focus only on academics world

Hotdog? Yes, it is a Sandwich

Impact teacher? Lesley D Frame. I have the ground to discuss with her outside of my research and academics. During my personal crisis, she helped me a lot.



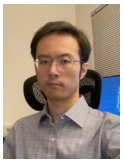
Alyssa Stubbers, University of Kentucky

Thick or Thin? Larosa's deep dish thick crust all the way. Cincinnati forever.

Taught in schools? I think that schools should embrace the individuality of their students and teach them that there are many ways to success, rather than overemphasizing traditional "book smart" success. Students can be boisterous and energetic without being labelled disruptive or a nuisance in a classroom, and students can be smart and successful through their critical reasoning skills despite having poor memorization skills. There are ways to channel energy and learning onto a path that is inclusive rather than a single narrow definition of a "good student" that we live with today.

Hotdog? No

Impact teacher? They weren't a teacher in a formal sense, but I had a lab tech that I worked with as a co-op in undergrad and I think I learned just as much from him as I did in my formal education classes. He taught me how individuals can influence the lab space and make it a welcoming, productive space and that the people working in the lab are its most valuable resource. He showed me that I should take the opportunity to learn whenever I can, especially when people have experiences that are different than my own.



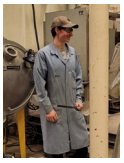
Haoxing You, Worcester Polytechnic Institute

Thick or Thin? Thin!

Taught in schools? Poster design

Hotdog? Yes!

Impact teacher? My advisor-Prof. Richard Sisson



Matthew Carragher, University of Connecticut

Thick or Thin? I think thin crust pizza is definitely better

Taught in schools? I think all students should be required to take a shop class that teaches you how to do really basic home improvement project, fixing drywall, replacing an outlet etc.

Hotdog? A hot dog is definitely not a sandwich.

Impact teacher? My high school physics teacher Mr. Michealson. He taught me how to think more critically about problems and apply theory to real life.

ASM DomesDay Competition

NSL ANALYTICAL MTS

Tuesday, October 17, 10:00 am - 1:30 pm

Exhibit Hall A - DomesDay area

Can these domes take the weight? Established by the ASM Student Board Members, DomesDay is intended to familiarize Material Advantage students with a piece of ASM culture, the Geodesic Dome, by involving them in a design and materials selection competition. Swing by the DomesDay booth on Tuesday AM to cheer on the student teams and see them in action as they compete for cash prizes and bragging rights. The highlight of the competition will be the destruction of the teams via compression testing.

School: Technological Institute of Morelia

Team Name: Domelicious Crew ITM
Students: Bryan Oliver Hernández, Ortiz Monserrat Torres, Sierra Fátima Paola, Soto Jaimes Sergio, Andres Morales Molina, Pedro Cortes Lachino



Thick or Thin?

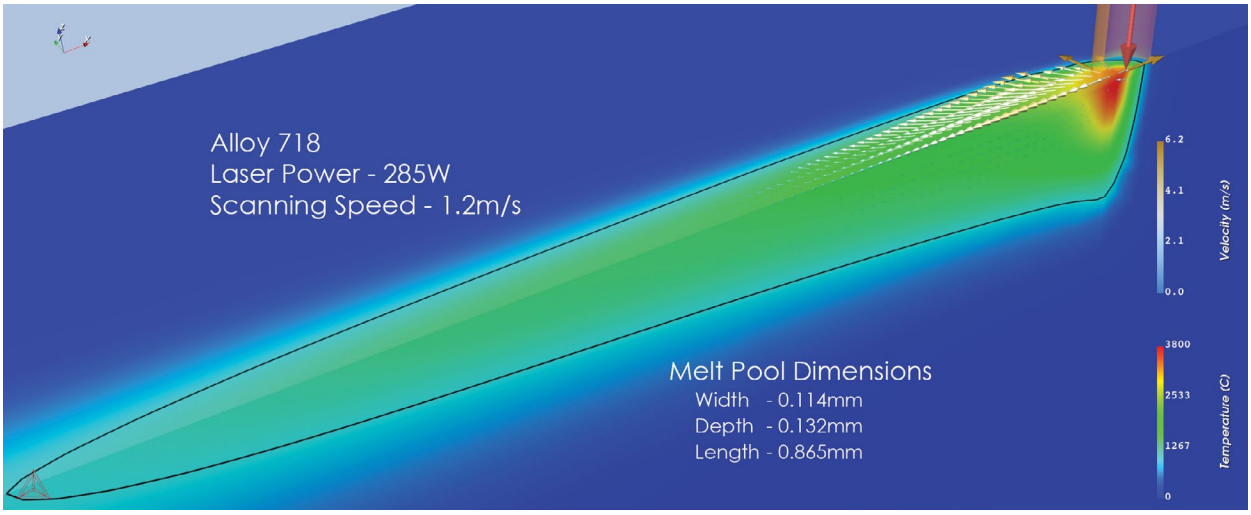
- Pedro: I think that thick crust pizza is better because the taste in the mouth is more delicious.
- Bryan: I think that it depends, maybe thick crust pizza would be better if it´s filled with a super cremous cheese, but I like thin crust better, it looks more aesthetic.
- Monse: Thin crust pizza because you can taste the cheese and sauc more, plus it makes you feel less stuffed.

Thermo-Calc Software

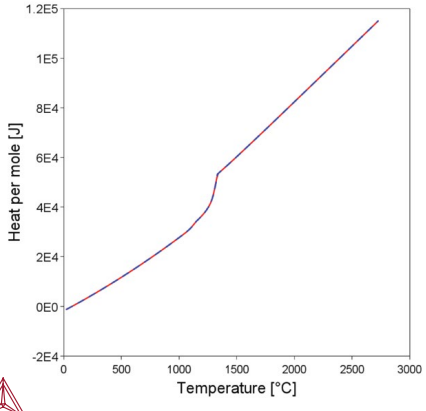
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New Additive Manufacturing Module

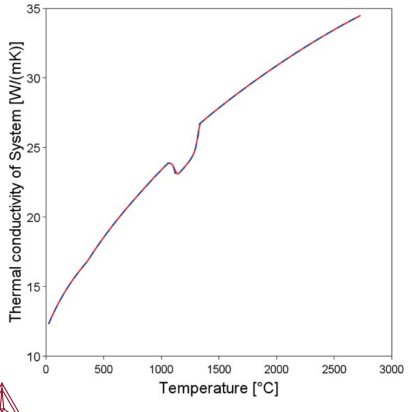
New in 2023b: Thermo-Calc Finite Element add-on module that takes a unified treatment of process parameters and alloy dependent thermophysical properties



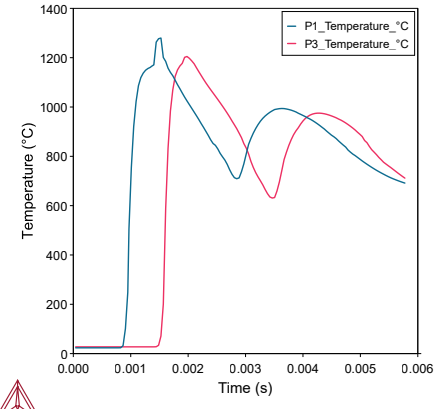
Steady state simulation of alloy 718 using the below calculated Thermophysical Properties calculated using Scheil with freeze in model for a specific 718 chemistry



Heat per Mole vs Temperature



Thermal Conductivity vs Temperature



Temp history for two nodes in a multi-pass transient simulation of 718

The Additive Manufacturing Module Allows You to Calculate:

Steady-State

- Size of melt pool
- Peak temperature
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Transient and Transient with Heat Source from Steady State

- Temperature vs. Time response at selected positions of the build and how this changes with process parameters
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Visit us at booth 1601

FACES IN THE CROWD: STUDENTS

- Sergio: Thin crust pizza because you can taste the cheese and sauce more, plus it makes you feel less stuffed.
- Fatima: I think thin crust pizza is better, I don't like to feel just bread in my mouth, I love when I get a bite and feel the cheese and all the ingredients together.

Taught in schools?

- Pedro: Negotiation skills. Everything in life is negotiation, from opening a bank account to deciding whether to go to the gym today or not you're always in some form of a negotiation with others or yourself.
- Bryan: Effective communications skills, how to be healthy (Nutrition, exercise, but more important mentally health) and how to be an adult like how to pay taxes, how to ask for help and how to help others.
- Monse: Financially, people could aspire to better living conditions if they know how to manage their money.
- Sergio: I would say that something very important to learn is self-confident, another thing they should teach us is about financial education.
- Fatima: Leadership and self-confidence. Around all my career I learnt how to solve my own problems and how to carry on a team. Teachers never teach us how to lead a team or how to feel confident with our work, they usually focus on teaching about theory about the industry, but they never teach us what we need to do when we finally will be there.

Hotdog?

- •Pedro: Yes, It is. A sandwich is two or more slices of bread or a split roll having a filling in between.
- Bryan: For sureeee, that`s what I think, hotdogs are sausage sandwiches, but no one want to admit it.
- Monse: It may depend on how hungry you are.
- Sergio: Mmm, I wouldn't say so, for me a hot dog it's closer to be a taco
- Fatima: I disagree, I think a hot dog is like a taco, the way you fill a taco and a hot dog it's the same, you put the toppings and then salsas haha.

Impact teacher?

- Pedro: His name is Pedro Garnica Gonzalez, is teacher that impacts me because is an exemplary person; his capacity to pass on knowledge, personal values, honor, and excellence make him the best teacher I have ever had.
- Bryan: It should be my middle school math teacher Nathan, he transmitted passion around how math can make the things better if we know how to use it, he might be the reason why I'm studying to be an engineer. Also, he taught me a lot of values like honesty, respect, and resilience.
- Monse: She is PhD, she is a mother and her name is the same as mine. Monserrat López has always encouraged me to move forward, she has supported me with advice, and she inspires me to be a great professional.
- Sergio: I couldn't say one in specific but throughout my studies I have come across excellent teachers who in some way, each of them have had a positive impact on my life.
- Fatima: Alberto Ramón. He wasn't precisely my teacher, but he gave me tutorials and he taught me how to love Materials engineering and how to solve my own problems. He always wants to share his passion about his career.

School: The Ohio State University

Team Name: Dome Money, Dome Problems
Students: Jacob Shell, Caroline Min, Ashley Ohmstede. Liz Kuebel

Caroline Min



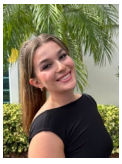
Thick or Thin? Thick

Taught in schools? How to change a flat tire

Hotdog? No

Impact teacher? My high school physics teacher. He really inspired me to learn and pursue

Liz Kuebel



Thick or Thin? Thick crust

Taught in schools? How to manage, budget, and save money

Hotdog? No, but I would consider is a branch of a sandwhich like a sub

Impact teacher? Professor Elvin Beach because he genuinely cares about each one of his students' successes and has been such a big help in school and with career advice.

Ashley Ohmstede



Thick or Thin? Thin

Taught in schools? How to clean the microwave

Hotdog? Absolutely not!

Impact teacher? My high school engineering teacher because she taught me that women are capable of anything!

School: University of Connecticut

Team Name: Trampled Gampel
Students: Jaclyn Grace, Christian Sabatini, Morgan Xu, Carter Densk

Thick or Thin? Jaclyn and Morgan prefer thin crust while Carter prefers thick crust.

Taught in schools? History/culture of minority groups in America, how to pay taxes, and CPR should be taught in school.

Hotdog? Morgan and Carter think a hot dog is a sandwich, while Jaclyn does not.

Impact teacher?

- Morgan's economics teacher showed her that kindness helps students more than anything else while learning.
- Carter's algebra teacher taught him how to make the most of every day, both academically and in life.
- Jaclyn's Spanish teacher showed her the balance between fun and focus in life.

School: University of Tennessee



Team Name: Lil' Domey III
Students: Raymond Wysmierski, Jack Fredrick, Marlena Alexander, Charles Brush, Madeline Maben

Thick or Thin? Thick crust

Taught in schools? How to do taxes and invest/budget personal savings

Hotdog? No, it only becomes a sandwich if the bun separates into two distinct halves.

Impact teacher? All of us were greatly impacted by our high school science teachers. We share similar experiences to having science teachers with fun/interesting classes. Also, most of us ended up in the engineering field because of these key instructor's classes and encouragement.

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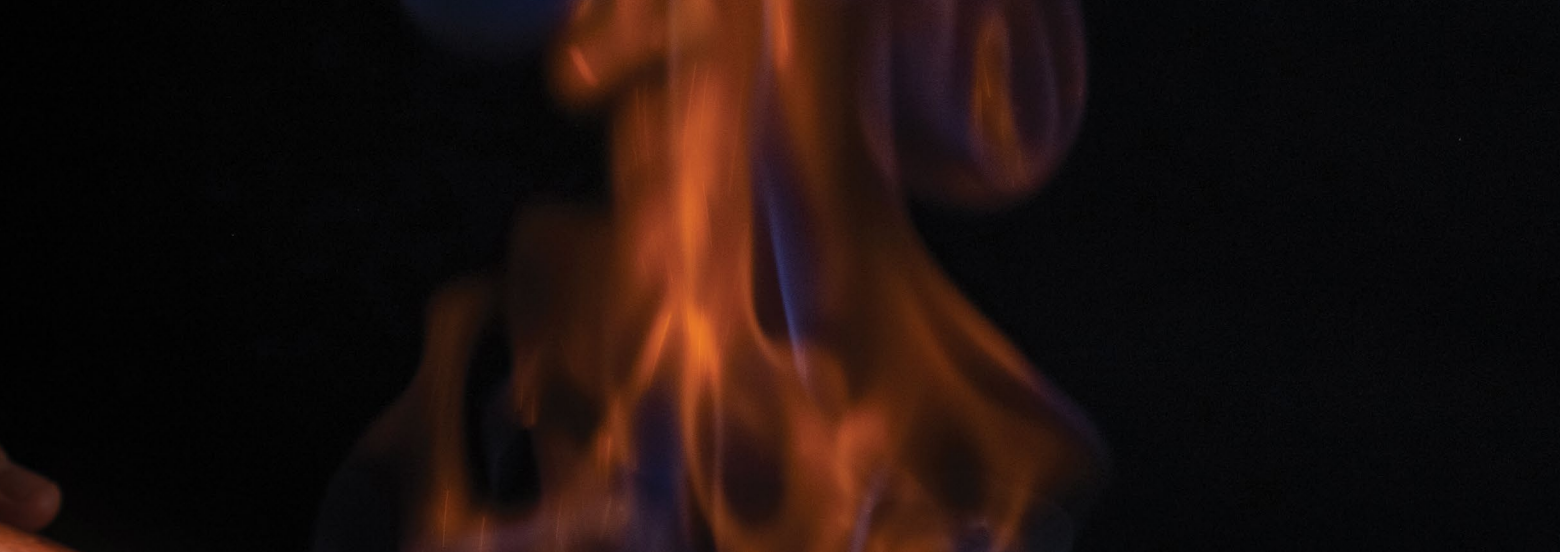
Bluewater Thermal Solutions....2045
AFC Holcroft....2219
C3 Data, LLC....1637
Can-Eng Furnaces International Ltd.....2207
Gasbarre Thermal Processing Systems....1928
Graphite Machining, Inc.....1724
Heat Treat Furnaces (a TTX Company)....2244
Ipsen....2200
ITC - International Technical Ceramics....1809
L&L Special Furnace Co., Inc....2031
LINDBERG/MPH....1827
McLaughlin Services LLC....1919
Premier Furnace Specialists / Beavermatic....1736
PVA TePla America LLC....1732
SCHWING Technologies....1708
SECO/WARWICK Corp....1918
Surface Combustion....1801
Tenova Inc....1923
Thermcraft, Inc.....1527
Williams Industrial Service....2127
Wisconsin Oven....1825

Cryogenic Processing Systems

Graphite Materials GmbH....1841
Linde....2239
Williams Industrial Service....2127

Exact Temperature Controlled Heating Systems

AFC Holcroft....2219
AJAX TOCCO....2137
Furnacare Inc....2131
GEFRAN, Inc.....2032
Ipsen....2200
L&L Special Furnace Co., Inc....2031



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PRODUCT CATEGORIES

Optris Infrared Sensing, LLC 1824
Rübig GmbH & Co KG 2206
SCHWING Technologies 1708
SECO/WARWICK Corp. 1918
Williams Industrial Service 2127
Wisconsin Oven 1825

Fluidized Bed Systems

Carbon Composites, Inc. 1913
PVA TePla America LLC 1732
SCHWING Technologies 1708

Heat Treating Ovens

AFC Holcroft 2219
AJAX TOCCO 2137
ALD Vacuum Technologies North America, Inc. 1725
Can-Eng Furnaces International Ltd. 2207
Gasbarre Thermal Processing Systems 1928
Graphite Machining, Inc. 1724
Heat Treat Furnaces (a TTX Company) 2244
Ipsen 2200
ITC - International Technical Ceramics 1809
L&L Special Furnace Co., Inc. 2031
McLaughlin Services LLC 1919
Nitrex 2138
Optris Infrared Sensing, LLC 1824
PhoenixTM 1625
Premier Furnace Specialists / Beavermatic 1736
PVA TePla America LLC 1732
SCHWING Technologies 1708
SECO/VACUUM Technologies 2101
Surface Combustion 1801
Upton Industries, a Kolene company 1617
Verder Scientific, Inc. 1818
Wisconsin Oven 1825

Induction Heating Systems

AJAX TOCCO 2137
ECM USA Inc. 1717
Fluxtrol Inc. 2117
Graphite Machining, Inc. 1724
Induction Tooling 1734
Inductotherm Group 1701
Ipsen 2200
PVA TePla America LLC 1732
SMS-Elotherm 2021
Tucker Induction Systems 1845

Industrial Ovens

AJAX TOCCO 2137
Can-Eng Furnaces International Ltd. 2207
Gasbarre Thermal Processing Systems 1928
Graphite Machining, Inc. 1724
Heat Treat Furnaces (a TTX Company) 2244
Ipsen 2200
ITC - International Technical Ceramics 1809
L&L Special Furnace Co., Inc. 2031
PhoenixTM 1625
Premier Furnace Specialists / Beavermatic 1736
Rübig GmbH & Co KG 2206
SCHWING Technologies 1708
Surface Combustion 1801
Verder Scientific, Inc. 1818
Wisconsin Oven 1825

Ion/Plasma Nitriding/Carburizing Furnaces

ALD Vacuum Technologies North America, Inc. 1725
Carbon Composites, Inc. 1913
ECM USA Inc. 1717
Ion Heat S.A.S 2128
Ipsen 2200
McLaughlin Services LLC 1919
Nitrex 2138
Premier Furnace Specialists / Beavermatic 1736
PVA TePla America LLC 1732
Rübig GmbH & Co KG 2206
SECO/WARWICK Corp. 1918
Surface Combustion 1801

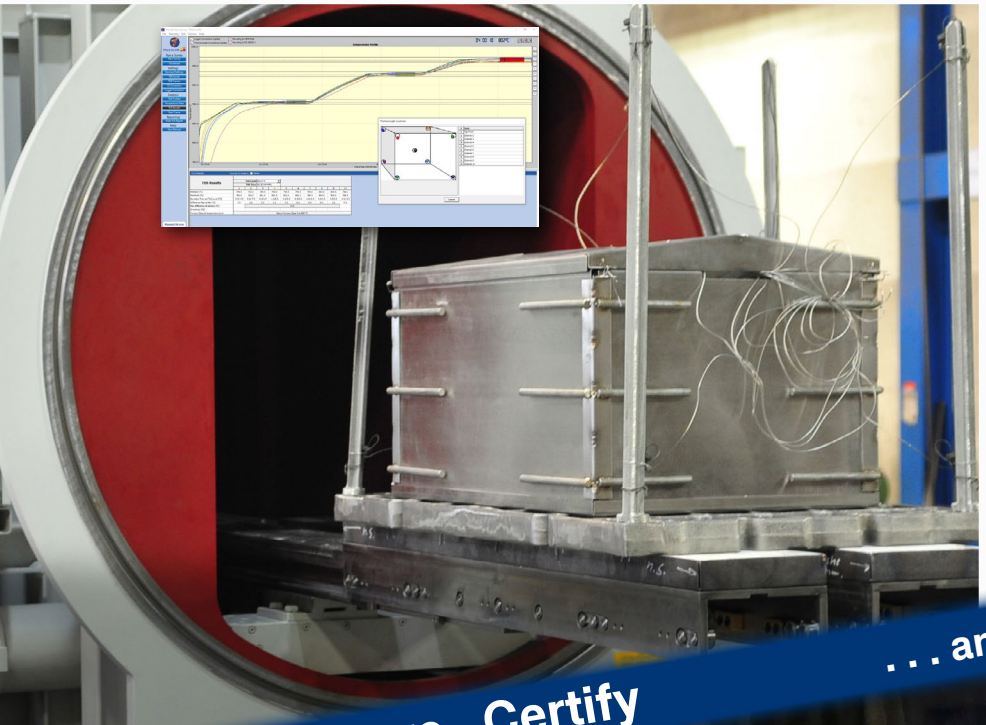
Laboratory Furnaces

ECM USA Inc. 1717
Furnacare Inc. 2131
Ipsen 2200
ITC - International Technical Ceramics 1809
L&L Special Furnace Co., Inc. 2031
LINDBERG/MPH 1827
SCHWING Technologies 1708
SECO/WARWICK Corp. 1918
Solar Manufacturing 2213
Thermcraft, Inc. 1527

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- Keep your furnace operational and productive

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info@phoenixtm.com

PhoenixTM Ltd UK
sales@phoenixtm.com

PhoenixTM GmbH Germany
info@phoenixtm.de

PRODUCT CATEGORIES

Verder Scientific, Inc. 1818
Wisconsin Oven 1825

Salt Bath Systems

AFC Holcroft....2219
Can-Eng Furnaces International Ltd. 2207
ITC - International Technical Ceramics 1809
PhoenixTM....1625
Upton Industries, a Kolene company....1617

Sintering Furnaces

AFC Holcroft....2219
Carbon Composites, Inc....1913
ECM USA Inc....1717
Furnacare Inc....2131
Gasbarre Thermal Processing Systems....1928
Graphite Machining, Inc. 1724
Ipsen 2200
ITC - International Technical Ceramics 1809
L&L Special Furnace Co., Inc....2031
LINDBERG/MPH....1827
Nitrex 2138
Premier Furnace Specialists / Beavermatic....1736
PVA TePla America LLC 1732
SECO/VACUUM Technologies....2101
Solar Manufacturing 2213
Thermcraft, Inc. 1527
Vac Aero International Inc. 2130
Verder Scientific, Inc. 1818

Tool Hardening/Tool Room

Furnacare Inc....2131
Ipsen 2200
L&L Special Furnace Co., Inc....2031
LINDBERG/MPH....1827
Premier Furnace Specialists / Beavermatic....1736
Rübig GmbH & Co KG 2206
SCHWING Technologies 1708
SECO/WARWICK Corp....1918
Thermcraft, Inc. 1527
Vac Aero International Inc. 2130
Wisconsin Oven 1825

Vacuum Furnaces

AFC Holcroft....2219
AJAX TOCCO....2137
ALD Vacuum Technologies North America, Inc....1725
C3 Data, LLC....1637
Carbon Composites, Inc....1913
ECM USA Inc....1717
Furnacare Inc....2131
Gasbarre Thermal Processing Systems....1928
Graphite Machining, Inc. 1724
Ipsen 2200
LINDBERG/MPH....1827
Mersen USA Greenville-MI Corp. 1916
Metallurgical High Vacuum Corp 1835
Nitrex 2138
PhoenixTM....1625
PVA TePla America LLC 1732
Rübig GmbH & Co KG 2206
SECO/VACUUM Technologies....2101
Solar Manufacturing 2213
Surface Combustion....1801
Vac Aero International Inc. 2130
Verder Scientific, Inc. 1818

HEAT PROCESSING ATMOSPHERES & GENERATORS

Atmospheres

AFC Holcroft....2219
Air Products and Chemicals, Inc....2020
AJAX TOCCO....2137
Can-Eng Furnaces International Ltd. 2207
Linde 2239
McLaughlin Services LLC....1919
Nel Hydrogen....1816
PVA TePla America LLC 1732
Surface Combustion....1801
Tenova Inc....1923
Williams Industrial Service 2127

Gas Generators

AFC Holcroft....2219
Air Products and Chemicals, Inc....2020
Can-Eng Furnaces International Ltd. 2207
Gasbarre Thermal Processing Systems....1928
LINDBERG/MPH....1827
Linde 2239

ECCO

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PRODUCT CATEGORIES

McLaughlin Services LLC....1919
Nel Hydrogen....1816
Nitrex....2138
Premier Furnace Specialists / Beavermatic....1736
SECO/WARWICK Corp....1918
Surface Combustion....1801
Tenova Inc....1923
Williams Industrial Service....2127

Industrial Gases

Air Products and Chemicals, Inc....2020
Linde....2239
Nel Hydrogen....1816

Nitrogen/Nitrogen-Methanol

AFC Holcroft....2219
Air Products and Chemicals, Inc....2020
Can-Eng Furnaces International Ltd....2207
Linde....2239

On-site Gas Generators

Air Products and Chemicals, Inc....2020
Linde....2239
Nel Hydrogen....1816
Williams Industrial Service....2127

Safety Services

Linde....2239
Williams Industrial Service....2127

HEAT PROCESSING AUXILIARY EQUIPMENT & SALES

Alloys, Heat Resistant

Cast Alloy Products....2044
Cooley Wire Products....1927
Hebei Shinning Metals Co., Ltd....1832
North American Cronite....1631
Rolled Alloys....1621
Simplex Metals LTD....1706

Baskets, Boxes, etc.

Across USA....2024
Can-Eng Furnaces International Ltd....2207
Carbon Composites, Inc....1913
Cast Alloy Products....2044
Cooley Wire Products....1927
Furnacare Inc....2131
Graphite Materials GmbH....1841
Hebei Shinning Metals Co., Ltd....1832
High Temperature Concept....1833
ITC - International Technical Ceramics....1809
Nippon Kornmeyer Carbon Group....2123
North American Cronite....1631
Qual-Fab, Inc....1627
Schunk Carbon Technology, LLC....2040
Simplex Metals LTD....1706
Upton Industries, a Kolene company....1617

Belts

Across USA....2024
Can-Eng Furnaces International Ltd....2207
Carbon Composites, Inc....1913
Cast Alloy Products....2044
Gasbarre Thermal Processing Systems....1928
Hebei Shinning Metals Co., Ltd....1832
North American Cronite....1631
Premier Furnace Specialists / Beavermatic....1736
Simplex Metals LTD....1706
Wisconsin Oven....1825

Fixtures

Across USA....2024
AJAX TOCCO....2137
Carbon Composites, Inc....1913
Cast Alloy Products....2044
Cooley Wire Products....1927
Furnacare Inc....2131
Graphite Machining, Inc....1724
Graphite Materials GmbH....1841
Hebei Shinning Metals Co., Ltd....1832
High Temperature Concept....1833
Nippon Kornmeyer Carbon Group....2123
North American Cronite....1631
Qual-Fab, Inc....1627
Schunk Carbon Technology, LLC....2040
Simplex Metals LTD....1706

Freezers, Chillers

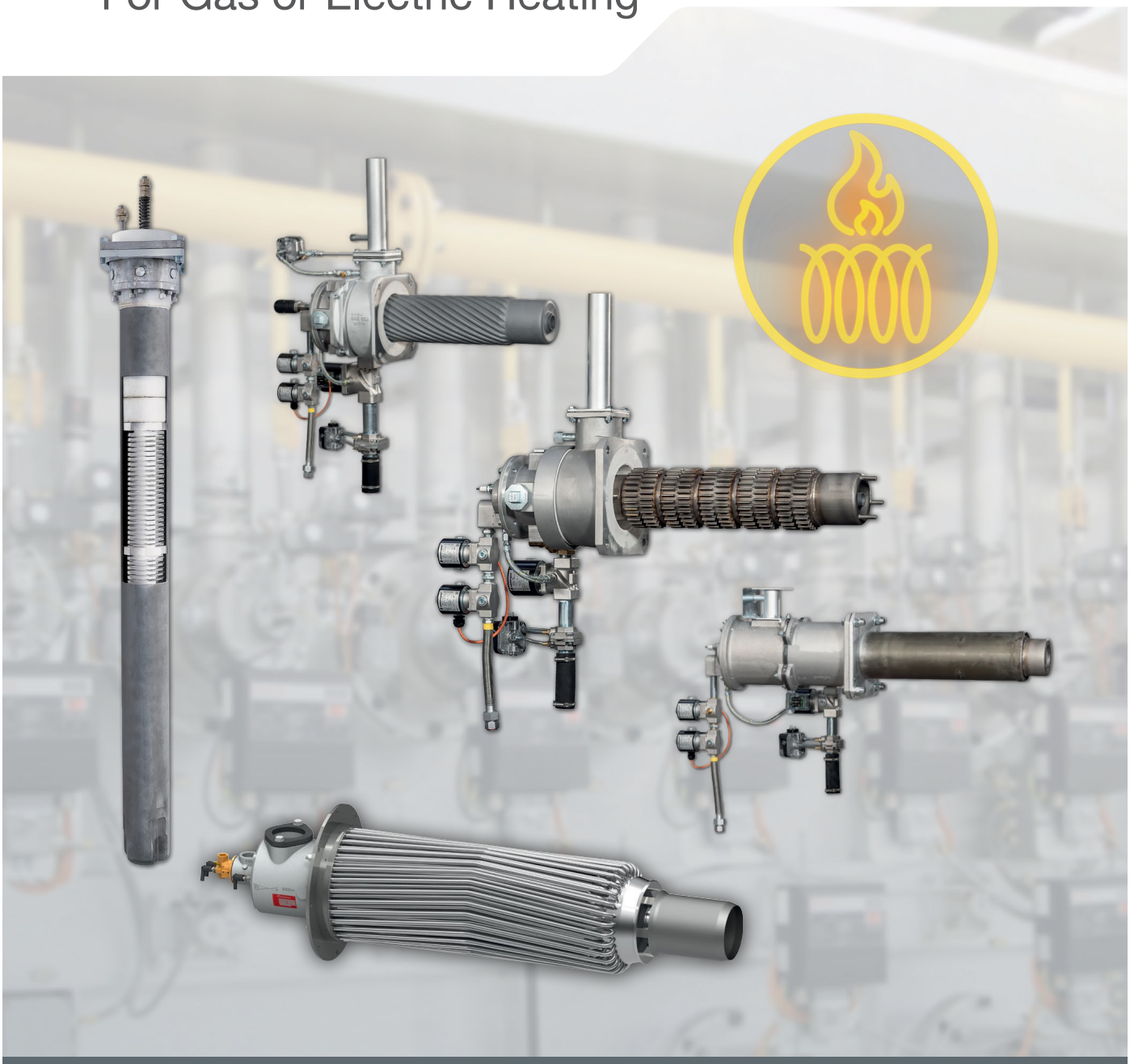
Dry Coolers Inc....1613
JUMO Process Control, Inc....1940

Furnace Parts (Fans, Radiant Tubes)

Across USA....2024

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PRODUCT CATEGORIES

AFC Holcroft....2219
ALD Vacuum Technologies North America, Inc....1725
Can-Eng Furnaces International Ltd. 2207
Carbon Composites, Inc....1913
Cast Alloy Products 2044
Furnacare Inc....2131
Gasbarre Thermal Processing Systems....1928
Graphite Materials GmbH 1841
Hebei Shinning Metals Co., Ltd. 1832
ITC - International Technical Ceramics 1809
LINDBERG/MPH 1827
McLaughlin Services LLC....1919
Nippon Kornmeyer Carbon Group 2123
North American Cronite 1631
Combustion 911 1603
Olstrad Engineering Corporation 1840
Optris Infrared Sensing, LLC 1824
Qual-Fab, Inc. 1627
Schunk Carbon Technology, LLC 2040
SECO/WARWICK Corp. 1918
Simplex Metals LTD 1706
Surface Combustion....1801
Tenova Inc....1923
Upton Industries, a Kolene company....1617
Williams Industrial Service 2127
Wisconsin Oven 1825

Heating Elements

Across USA....2024
ALD Vacuum Technologies North America, Inc....1725
Carbon Composites, Inc....1913
Cast Alloy Products 2044
Furnacare Inc....2131
Gasbarre Thermal Processing Systems....1928
Graphite Machining, Inc. 1724
Graphite Materials GmbH 1841
Hebei Shinning Metals Co., Ltd. 1832
LINDBERG/MPH 1827
McLaughlin Services LLC....1919
Noxmat Industrial Heating Technology 1935
Combustion 911 1603
Olstrad Engineering Corporation 1840
Schunk Carbon Technology, LLC 2040
SECO/WARWICK Corp. 1918
Thermcraft, Inc. 1527
Upton Industries, a Kolene company....1617
Verder Scientific, Inc. 1818
Wisconsin Oven 1825

Recuperators

Cast Alloy Products 2044
Combustion 911 1603
Hebei Shinning Metals Co., Ltd. 1832
LINDBERG/MPH 1827
Olstrad Engineering Corporation 1840
Qual-Fab, Inc. 1627

Vacuum Pumps

ALD Vacuum Technologies North America, Inc....1725
Edwards Vacuum....2132
Furnacare Inc....2131
JUMO Process Control, Inc. 1940
Leybold USA, Inc....2204
Metallurgical High Vacuum Corp 1835
Pfeiffer Vacuum Inc. 1922
Thermcraft, Inc. 1527

Burners

Air Products and Chemicals, Inc....2020
Combustion 911 1603
Gasbarre Thermal Processing Systems....1928
Honeywell....1936
McLaughlin Services LLC....1919
North American Cronite 1631
Noxmat Industrial Heating Technology 1935
Olstrad Engineering Corporation 1840
Premier Furnace Specialists / Beavermatic 1736
Rockford Systems, LLC....1829
Selas Heat Technology....1937
Tenova Inc....1923
Upton Industries, a Kolene company....1617
Wisconsin Oven 1825
WS Thermal Process Technology Inc. 1925

HEAT PROCESSING COMPOUNDS & SOLUTIONS

Cleaning Solutions/Compounds

DuBois Chemicals....1837
HEMO GmbH / SAFECHEM 2228

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PRODUCT CATEGORIES

Hubbard-Hall....2135
Quaker Houghton....2006
SAFECHEM Europe GmbH....2232
Upton Industries, a Kolene company....1617

Quenchants, Synthetic

DuBois Chemicals....1837
Idemitsu Lubricants America....2025
Quaker Houghton....2006
Upton Industries, a Kolene company....1617

Quenching Oils

DuBois Chemicals....1837
Hubbard-Hall....2135
Idemitsu Lubricants America....2025
Quaker Houghton....2006

Salts, Heat Treating

DuBois Chemicals....1837
Hubbard-Hall....2135
PhoenixTM....1625
Quaker Houghton....2006
Upton Industries, a Kolene company....1617

HEAT TREAT PROCESS CONTROLS & INSTRUMENTATION

Carbon Sensors/Oxygen Probes

Air Products and Chemicals, Inc.....2020
Combustion 911....1603
JUMO Process Control, Inc. 1940
Nitrex....2138
Olstrad Engineering Corporation....1840
Super Systems....1817

Controllers

C3 Data, LLC....1637
Combustion 911....1603
Control Concepts Inc....1828
Eurotherm USA....1609
Future Design Controls....2019
GEFRAN, Inc.....2032
JUMO Process Control, Inc. 1940
Nitrex....2138
Olstrad Engineering Corporation....1840
Protection Controls, Inc.....2037
Super Systems....1817
Televac/The Fredericks Company....1807

Controls, Computerized

C3 Data, LLC....1637
Combustion 911....1603
Eurotherm USA....1609
Future Design Controls....2019
GEFRAN, Inc.....2032
Nitrex....2138
Olstrad Engineering Corporation....1840
Premier Furnace Specialists / Beavermatic....1736
Super Systems....1817
Surface Combustion....1801
Televac/The Fredericks Company....1807
Tenova Inc....1923
Williams Industrial Service....2127

Controls, Fuel/Air Ratio

Combustion 911....1603
Future Design Controls....2019
GEFRAN, Inc.....2032
Honeywell....1936
Olstrad Engineering Corporation....1840
Rockford Systems, LLC....1829
Super Systems....1817

Controls, Furnace Atmosphere

Air Products and Chemicals, Inc.....2020
BASF Temperature Sensing....2030
Eurotherm USA....1609
Future Design Controls....2019
GEFRAN, Inc.....2032
Linde....2239
McLaughlin Services LLC....1919
SECO/WARWICK Corp.....1918
Super Systems....1817

Controls, Temperature

BASF Temperature Sensing....2030
Combustion 911....1603
Control Concepts Inc....1828
Eurotherm USA....1609
Future Design Controls....2019
GEFRAN, Inc.....2032
JUMO Process Control, Inc. 1940
Linde....2239

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  - ✓ work instructions
  - ✓ pyrometry records and
  - ✓ other calibration records
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  - AC7102/1
  - AC7102/2
  - AC7102/3
  - ⋮
  - AC7102/10
- **NDT**
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- **MMM**
- **CHEMICAL PROCESSING**
- **COATINGS**
- **ALL OTHER PROCESSES**

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BOOTH #1637 ASM INTERNATIONAL 2023

P6: PROPER PRIOR PLANNING PREVENTS POOR PERFORMANCE

PRODUCT CATEGORIES

Olstrad Engineering Corporation 1840
Optris Infrared Sensing, LLC 1824
Super Systems 1817
Thermcraft, Inc. 1527
Verder Scientific, Inc. 1818

Dew Pointers

Air Products and Chemicals, Inc. 2020
JUMO Process Control, Inc. 1940
Super Systems 1817

Flow Meters

JUMO Process Control, Inc. 1940
Nitrex 2138
Super Systems 1817

Infrared Instruments

BASF Temperature Sensing 2030
GEFRAN, Inc. 2032
Optris Infrared Sensing, LLC 1824
Palmer Wahl Instruments, Inc 1839
Super Systems 1817

Recorders

C3 Data, LLC 1637
Combustion 911 1603
Eurotherm USA 1609
Future Design Controls 2019
GEFRAN, Inc. 2032
JUMO Process Control, Inc. 1940
Olstrad Engineering Corporation 1840
Palmer Wahl Instruments, Inc 1839
PhoenixTM 1625
Super Systems 1817

Thermocouples

BASF Temperature Sensing 2030
C3 Data, LLC 1637
Cleveland Electric Laboratories, Inc. 1728
GEFRAN, Inc. 2032
JUMO Process Control, Inc. 1940
Palmer Wahl Instruments, Inc 1839
PhoenixTM 1625
SMS-Elotherm 2021
Televac/The Fredericks Company 1807
Thermcraft, Inc. 1527
Verder Scientific, Inc. 1818

MACHINING & METAL CUTTING EQUIPMENT

Cutting Tools

Allied High Tech Products, Inc. 1506

MATERIALS TESTING/CHARACTERIZATION EQUIPMENT & SUPPLIES

Chemical / Surface Analysis Equipment

Hubbard-Hall 2135
SciAps Inc. 1504

Hardness Testing Equipment

AFFRI, Inc. 1830
Allied High Tech Products, Inc. 1506
LECO Corporation 1541

Image Analyzers

AFFRI, Inc. 1830
LECO Corporation 1541
Optris Infrared Sensing, LLC 1824

Impact Testers

AFFRI, Inc. 1830

Metallographic Specimen Preparation Equipment / Supplies

Allied High Tech Products, Inc. 1506
LECO Corporation 1541

Metallographs

Allied High Tech Products, Inc. 1506
Ebatco 1926
LECO Corporation 1541

Microscopes

Allied High Tech Products, Inc. 1506
LECO Corporation 1541

Residual Stress Analyzers / Testers

SciAps Inc. 1504

Software, Materials Testing

AFFRI, Inc. 1830
Allied High Tech Products, Inc. 1506
C3 Data, LLC 1637
PhoenixTM 1625
Thermo-Calc Software Inc. 1601

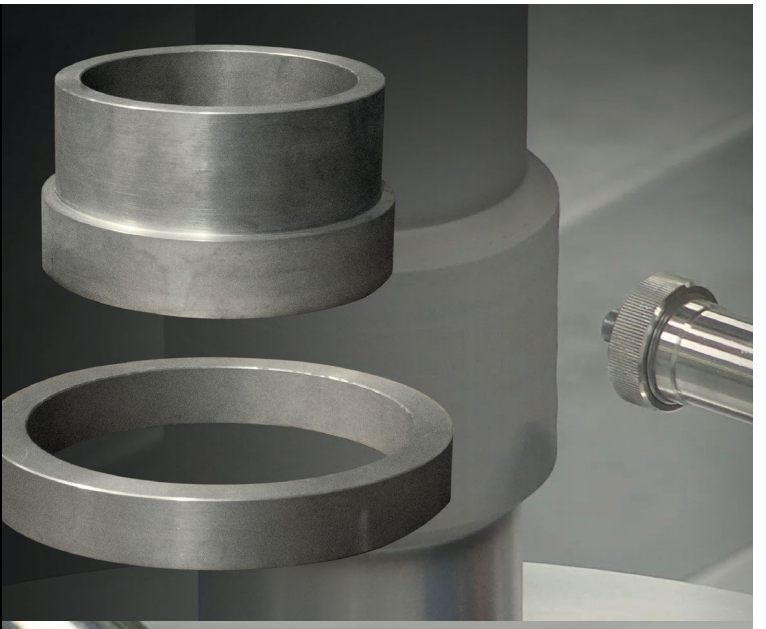
Sorters, Alloy

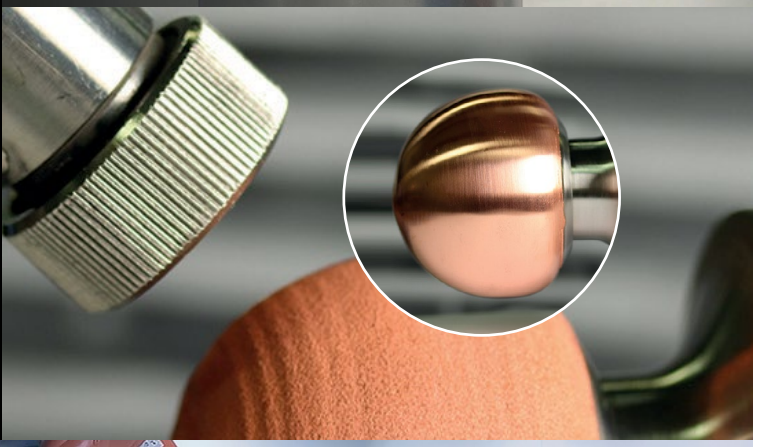
SciAps Inc. 1504

Tensile Testers

AFFRI, Inc. 1830
Verder Scientific, Inc. 1818

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POLYCONTROLS

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PRODUCT CATEGORIES

Test / Lab Furnaces / Environmental Chambers
LINDBERG/MPH 1827
Optris Infrared Sensing, LLC 1824
Thermcraft, Inc. 1527
Verder Scientific, Inc. 1818

Universal (Tension / Compression) Testing Machines
AFFRI, Inc. 1830

METAL FORMING EQUIPMENT

Billet & Bar Heaters
AJAX TOCCO 2137
Inductotherm Group 1701
SMS-Elotherm 2021
Tucker Induction Systems 1845

Forging/Forming Presses
SMS-Elotherm 2021

Lubricants
DuBois Chemicals 1837
Quaker Houghton 2006

METALS & ALLOYS - Ferrous Metals

Other Ferrous Materials
Alloy Engineering Co 1619
North American Cronite 1631
Thermo-Calc Software Inc. 1601

Stainless Steels
Alloy Engineering Co 1619
Cast Alloy Products 2044
Fort Wayne Metals 1524
Rolled Alloys 1621
Simplex Metals LTD 1706
Thermo-Calc Software Inc. 1601

Steels, Carbon and Alloy
Alloy Engineering Co 1619
Ebatco 1926
North American Cronite 1631
Thermo-Calc Software Inc. 1601

Tool Steels
Simplex Metals LTD 1706
Thermo-Calc Software Inc. 1601

METALS & ALLOYS - Nonferrous Metals

Aluminium Alloys
Ebatco 1926
Thermo-Calc Software Inc. 1601

Copper Alloys
Ebatco 1926

Magnesium Alloys
Fort Wayne Metals 1524

Metal-Matrix Composites (MMCs)
Across USA 2024
Ebatco 1926

Nickel-, Nickel-Iron-, and Cobalt-Base High-Performance Alloys
Alloy Engineering Co 1619
Cast Alloy Products 2044
Ebatco 1926
Fort Wayne Metals 1524
North American Cronite 1631
Rolled Alloys 1621
Thermo-Calc Software Inc. 1601

Other Nonferrous Metals
Mersen USA Greenville-MI Corp. 1916

Refractory Metals
Fort Wayne Metals 1524
North American Cronite 1631
Thermo-Calc Software Inc. 1601

Titanium Alloys
Ebatco 1926
Fort Wayne Metals 1524
Rolled Alloys 1621
Thermo-Calc Software Inc. 1601

PLASTICS

Advanced Composites
Across USA 2024
Fluxtrol Inc. 2117
Graphite Materials GmbH 1841
High Temperature Concept 1833
Mersen USA Greenville-MI Corp. 1916
Zircar Refractory Composites, Inc. 2034

Engineering Plastics
Ebatco 1926

Surface Combustion



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PRODUCT CATEGORIES

Zircar Refractory Composites, Inc. 2034

Fibers & Filters

QINGAO HEATECH INSULATION MATERIALS CO.,LTD ... 1416

Zircar Refractory Composites, Inc. 2034

Reinforced Plastics

Ebatco 1926

Zircar Refractory Composites, Inc. 2034

PUBLICATIONS (JOURNALS, BUSINESS MAGAZINES)

Publications

Thermal Processing 2238

SERVICES - Materials Information Resources

Document Delivery Services

QINGAO HEATECH INSULATION MATERIALS CO.,LTD 1416

Engineering Software

C3 Data, LLC 1637

DANTE Solutions, Inc. 1722

Future Design Controls 2019

QINGAO HEATECH INSULATION MATERIALS CO.,LTD 1416

Scientific Forming Technologies Corp. 2019

Thermo-Calc Software Inc. 1601

Engineering/Scientific Journals

Nippon Kornmeyer Carbon Group 2123

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On-Line/Off-Line Databases

Future Design Controls 2019

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Thermal Processing 2238

Trade Association/Professional Society

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Trade/Business Magazines

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Thermal Processing 2238

Translation Services

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SERVICES - Partsmaking/Materials Processing

CVD, PVD Coating

Bodycote 1513

Graphite Materials GmbH 1841

HZO 1518

Nippon Kornmeyer Carbon Group 2123

PVA TePla America LLC 1732

Forging (Hot, Cold, Warm)

Tucker Induction Systems 1845

Hot Isostatic Pressing

Bodycote 1513

Graphite Materials GmbH 1841

Ion Implantation

Bodycote 1513

Machining, Grinding, Cutting, Drilling

Across USA 2024

Graphite Machining, Inc. 1724

Mersen USA Greenville-MI Corp. 1916

Metal Casting

Cast Alloy Products 2044

P/M Sintering

Graphite Materials GmbH 1841

Rapid Prototyping

Fort Wayne Metals 1524

SURFACE TREATING/COATING EQUIPMENT

CVD/PVD Systems

ALD Vacuum Technologies North America, Inc. 1725

ECM USA Inc. 1717

Graphite Materials GmbH 1841

HZO 1518

Rübig GmbH & Co KG 2206

Hard Surfacing Equipment & Systems

Inductotherm Group 1701

Rübig GmbH & Co KG 2206

Thermal Spray Systems

Air Products and Chemicals, Inc. 2020

WELDING AND JOINING EQUIPMENT

Adhesives / Sealants

Across USA 2024

Electron Beam Welders

ALD Vacuum Technologies North America, Inc. 1725

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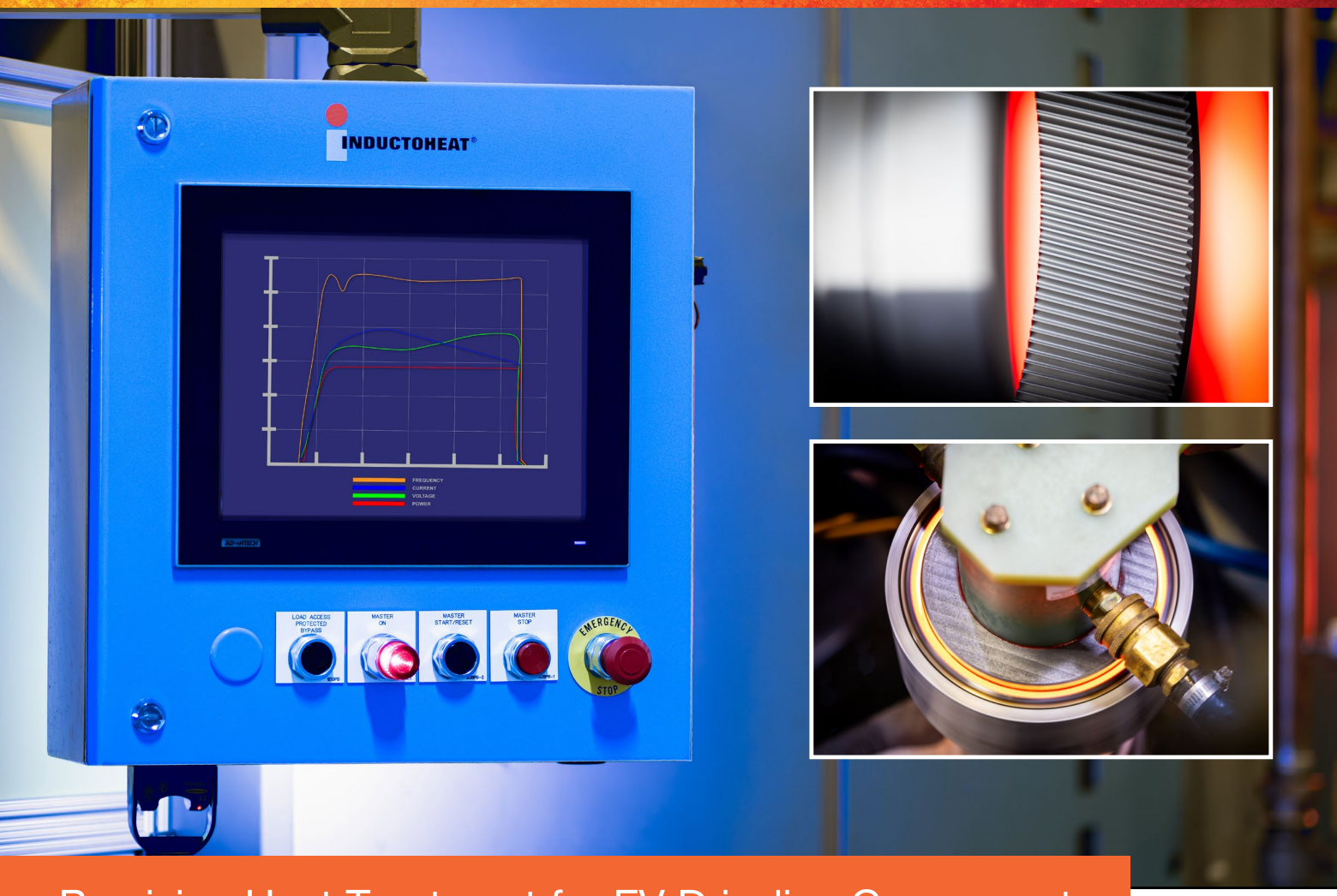
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