

MPT Expo is all about Learning

OCTOBER 15–17, 2019, COBO CENTER, DETROIT, MI

The Motion + Power Technology Expo

(formerly Gear Expo)

connects manufacturers, suppliers, buyers, and experts in the mechanical power, electric power, and fluid power industries.

No matter which industry you represent, you will gain best practices and new ideas from like-minded colleagues as well as cross-sector collaboration.



Show Floor

Visitors will see more than 300 exhibitors from across the supply chain, including all the usual gear industry suppliers, from the major machine tool manufacturers to suppliers of workholding, inspection equipment, cutting tools, lubrication and more. Of course, there will also be plenty of gear manufacturing companies, including open gear manufacturers as well as suppliers of custom and standard gearboxes. In addition, visitors will see the new fluid power pavilion (provided in conjunction with the National Fluid Power Association).

For a full listing of exhibitors at MPT Expo, visit motionpowerexpo.com. But also, stay tuned! Our comprehensive coverage will continue in the September/October issue, including booth previews of many top exhibitors!

OFFICIAL SHOW HOURS

Tuesday, October 15

9:00 am – 6:00 pm

Wednesday, October 16

9:00 am – 5:00 pm

Thursday, October 17

9:00 am – 4:00 pm

HOW TO REGISTER

ONLINE

Visit MotionPowerExpo.com and enter your guest pass registration code (at right) to pre-register for an expo-only admission.

OR

IN PERSON

Present this pass at the Motion + Power Technology Expo registration counter in the Cobo Center. This guest pass saves you \$50 in on-site registration fees.

When issued by an exhibitor at Motion + Power Technology Expo, this Guest Pass entitles the bearer to one complimentary expo-only admission, good during the official show hours.



FREE GUEST PASS

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COURTESY OF: Gear Technology and Power Transmission Engineering Magazines

BOOTH #: 3826

GUEST PASS REGISTRATION CODE: MEX210

With the latest demands for efficiency and power density, often the solution is a choice combining power transmission technologies. At MPT Expo, you'll see the entire power transmission supply chain – with mechanical, fluid power, electric, and hybrid solutions.

Owned by:  American Gear Manufacturers Association

Sponsoring organization: 

Co-located with:  HTS INTERNATIONAL

OCTOBER 15–17, 2019 | DETROIT, MICHIGAN | COBO CENTER | MotionPowerExpo.com

A Learning Experience

In addition to learning from the exhibitors all about the latest technologies related to gears, gear manufacturing, fluid power and more, the show has a lot to offer in terms of seminars, classes and organized educational sessions.

Ask the Expert LIVE! Booth #3826

Gear Technology and *Power Transmission Engineering* will be hosting live sessions of our popular series “Ask the Expert LIVE!” throughout MPT Expo. Be a part of our engaging educational shows by joining our live audience. You can listen in and learn, or you can try to stump our experts with your toughest questions!

- **Gear Manufacturing – Tuesday, October 16, 10:30 a.m.** Our experts will answer your questions on hobbing, shaping, skiving, grinding, bevel gear manufacturing and much more. Whether your questions are about the machine, cutting tools, workholding or general troubleshooting, our experts will have the answers you need!
- **Gear Design – Tuesday, October 16, 2:30 p.m.** Have questions about software? Standards? Material specifications? This is the place to learn from our panel of experts!

- **Lubrication – Wednesday, October 17, 10:30 a.m.** Learn more about viscosity, EHL film thickness, synthetic lubricants and their effects on gearbox efficiency, micropitting resistance and more.
- **Bearings – Wednesday, October 17, 2:30 p.m.** We all know that gears operate as part of a system, and some of the most crucial components in those systems are the bearings. Learn more about bearing selection, why bearings fail and some of the critical issues facing gearbox designers and manufacturers today.

Do you have questions on any of these topics? You don't have to be present to get answers! Send your questions now to Jack McGuinn, Senior Editor, jmcguinn@geartechnology.com, and we'll submit them to our panel of experts for you!



gear

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www.geartechology.com/tv/

Education Courses

The education courses at the Motion + Power Technology Expo offer exclusive access to a wide-ranging series of technical seminars taught by industry leaders and insiders. From novice to expert, there are courses for all career-levels. Each course is conveniently situated just steps from the Expo floor — so you can combine classroom learning with hands-on experience with the equipment. Admission to the exhibit hall is included with your seminar registration. See motionpowerexpo.com for information on registration and pricing (but don't wait, because prices go up after Sept. 13).

Hydraulic Fluid Properties, Efficiency, and Contamination Control

8:00 am–12:00 pm, Tuesday, Oct. 15
Paul Michael, Research Chemist, MSOE

Supply Chain Management

8:00 am–12:00 pm, Tuesday, Oct. 15
Dr. Justin Jones and Keyvan Gerami,
Ranken Technical College

Technical Overview of Automotive Differentials

8:00 am–12:00 pm, Tuesday, Oct. 15
William Mark McVea, KBE+, Inc.

Overview of Fluid Power Components and Systems

1:00 pm–5:00 pm, Tuesday, Oct. 15
Thomas Wanke, CFPE Director, Fluid Power Industrial Consortium and Industry Relations, MSOE

Technical Overview of Automotive Powertrain Lubricants

1:00 pm–5:00 pm, Tuesday, Oct. 15
William Mark McVea, KBE+, Inc.

Why Bearings Are Damaged

1:00 pm–5:00 pm, Tuesday, Oct. 15
ABMA

Fundamental Understanding of Electro Fluid Power Technology

8:00 am–12:00 pm, Wednesday, Oct. 16

Gearbox Field Inspection – Load Distribution, Lubrication, and Condition Monitoring

8:00 am–12:00 pm, Wednesday, Oct. 16

Basics of Gearing

8:00 am–5:00 pm, Wednesday, Oct. 16
William Mark McVea, KBE+, Inc.

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Charles D. Schultz
chuck@beytagear.com
[630] 209-1652

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Reverse Gear System Engineering – Why, When, and How

8:00 am–5:00 pm, Wednesday, Oct. 16

Raymond Drago, P.E., Drive Systems Technology

Taming Tooth Deflections: The Case for Profile Modifications

8:00 am–12:00 pm, Thursday, Oct. 17

Raymond Drago, P.E., Drive Systems Technology

Basics of Gearing

8:00 am–5:00 pm, Thursday, Oct. 17

William Mark McVea, KBE+, Inc.

Materials Selection and Heat Treatment of Gears

8:00 am–5:00 pm, Thursday, Oct. 17

AGMA and ASM International

Loaded Tooth Contact

1:00 pm–5:00 pm, Thursday, Oct. 17

Terry Klaves

Fall Technical Meeting

Take a deep dive into the gear industry at AGMA's Fall Technical Meeting. This meeting brings together top researchers from across the globe who will provide the latest information on their peer-reviewed gear industry research. Network with the industry experts, academics, and engineers; ask your burning questions; and see what is in the future of this industry.

Fall Technical Meeting Networking and Events Schedule

Monday, October 14: 1:00 pm–8:00 pm

Tuesday, October 15: 7:00 am–5:00 pm

Wednesday, October 16: 7:00 am–5:00 pm

Presentation Sessions

Each session will showcase five to six presenters sharing their highly technical knowledge of specific topics within the following research areas:

Session 1 – Application, Design, and Rating

Monday, October 14, 1:00 pm–5:00 pm

- Design of a Double Spiral Bevel Gearset
- Electric Vehicle Transmissions with Hypoid Gearset
- Misalignment Compensation Splines Design
- Optimal Polymer Gear Design: Metal-to-Plastic Conversion
- Specific Dynamic Behavior of Planetary Gears
- Spline Centering, Piloting and Toggle: Torsional Stiffness, Shaft Bending, and Centering of Moment Loads

Session 2 – Efficiency, Lubrication, Noise, and Vibration

Tuesday, October 15, 8:00 am–12:00 pm

- Computing Gear Sliding Losses
- IPhase Management as a Strategy to Reduce Gear Whine in Idler Gear Sets
- Leveraging the Complementary Strengths of Orbitless and Planetary Drives
- Opportunities of Efficiency Improvement by the Use of Hydro Lubricants
- Reduction of the Tonality of Gear Noise by Application of Topography Scattering for Ground Bevel Gears

Session 3 – Materials and Heat Treatment

Tuesday, October 15, 1:30 pm–5:00 pm

- 4D High Pressure Gas Quenching: A Leap in Performance vs. Press Quenching
- Evaluation of Steel Cleanliness by Extreme Value Statistics and its Correlation with Fatigue Performance
- Material Properties and Tooth Root Bending Strength of Shot Blasted, Case Carburized Gears with Alternative Microstructures
- Performance and Properties of New, Alternative Gear Steel
- Tooth Root Testing of Steels with High Cleanliness

Session 4 – Manufacturing, Inspection, and Quality Control

Wednesday, October 16, 8:00 am–12:00 pm

- A Comparison of Surface Roughness Measurement Methods for Gear Tooth Working Surfaces
- Chamfering of Gears — New Innovative Cutting Solutions for Efficient Gear Production
- Influence of Manufacturing Variations of Spline Couplings on Gear Root and Contact Stress
- Micro Skiving — (r)evolution of a Known Production Process
- Rapid and Precise Manufacturing of Special Involute Gears for Prototype Testing

Session 5 – Optimization, Gear Wear, and Failure

Wednesday, October 16, 1:00 pm–5:00 pm

- Calculated Scuffing Risk: Correlating AGMA 925-BXX, AGMA 6011-J14, and Original MAAG Gear Predictions
- Effects of the Load-dependent Shift of Gear Center Distance on Calculated Load Capacity and Excitation Using Analytical Mesh Stiffness Approach
- Layout of Profile Modifications for Asymmetric Gears
- New Standardized Calculation Method of the Tooth Flank Fracture Load Capacity of Bevel and Hypoid Gears
- Optimum Carburized and Hardened Case Depth



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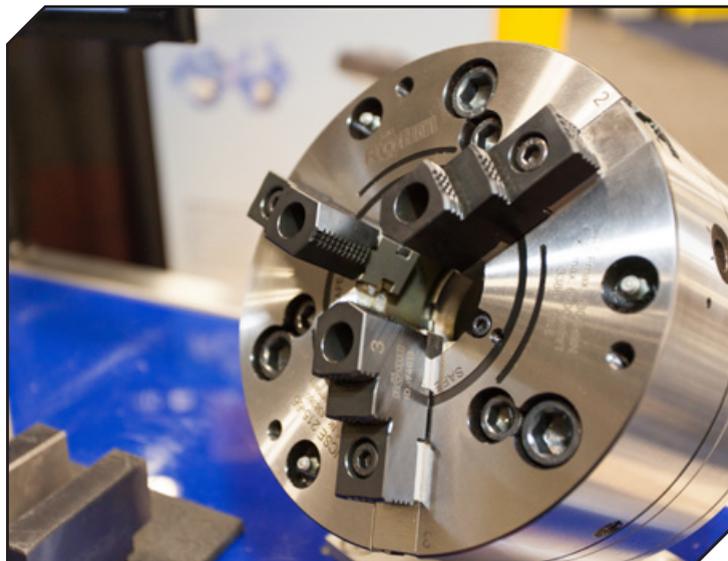
KISSsoft Highlights

- Intuitive concept design on system level with KISSdesign
- Rolling bearing calculation with connection to SKF cloud
- Contact analysis (LTCA) of asymmetric gears
- Crossed helical gear with rack
- Feasibility assessment for „Power Skiving“

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FTM Fun and Games Reception

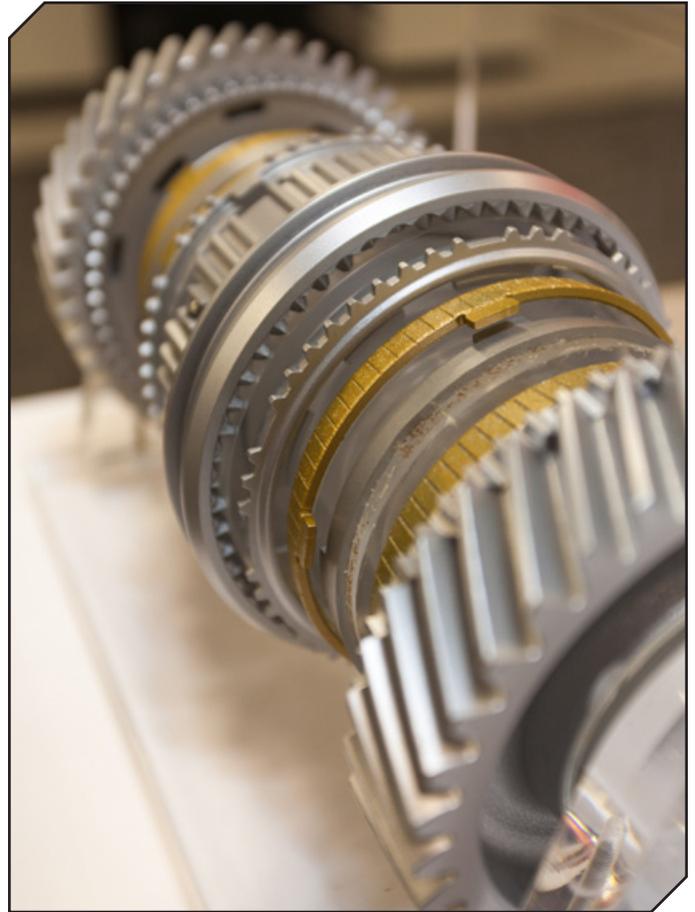
MPT Expo attendees are invited to join AGMA Fall Technical Meeting attendees at our FTM Fun and Games Reception at Punch Bowl Social Detroit. Enjoy food and drinks with your colleagues while participating in fun activities such as bowling, darts, karaoke, and arcade games. A great way to kick off a busy week at MPT Expo!

Fall Technical Meeting Pricing

Prices range from \$295 for a single session, up to \$1,395 for the full meeting, depending on AGMA membership status and whether you meet the early-bird pricing deadline (full details available at motionpowerexpo.com).

MPT CONFERENCE

Motion + Power Technology Expo gathers thinkers and doers in the power transmission industry. Our conference is designed for these thinkers and doers. We are bringing you speakers who will provide you current information in two tracks: Business and Emerging Technology. Each session has a 45-minute presentation with an additional 15-minute Q&A portion. The MPT Conference runs from 9:30 a.m. until 4:30 p.m. on Wednesday, October 16 and Thursday, October 17. The Price includes admission to all 16 presentations, plus admission to the Expo Hall. \$295 (\$395 after Sept. 13).

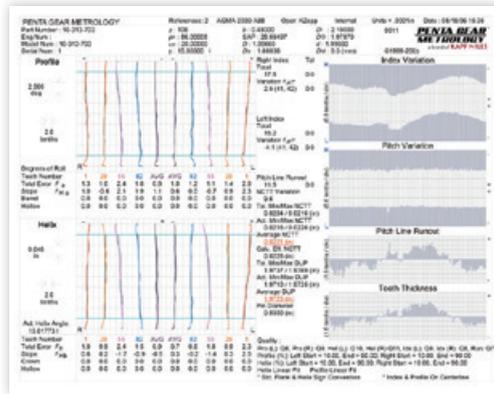


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IIoT — Simplifying Industrial IoT for Discrete Manufacturers

9:00 am–10:00 am, Wednesday, October 16
Stacy Pease, Director of Customer Success, MachineMetrics

Market Info — Economic Outlook and Trends within the Industrial Fluid Power Market

10:30 am–11:30 am, Wednesday, October 16
Chloe Parkins, Fluid Power Specialist, Oxford Economics

Electric Drive Technology — The Future of eMobility in the Commercial Vehicle Space

10:30 am–11:30 am, Wednesday, October 16
John Bennett, VP and CTO, Meritor

Blockchain — Blockchain: The Future of Manufacturing

2:00 pm–3:00 pm, Wednesday, October 16
Joel Neidig, CEO and Co-Founder, SIMBA Chain

3D Printing — Processes and New Machines for 3D Printing Metal

2:00 pm–3:00 pm, Wednesday, October 16
Kirk Rogers, PhD, Senior ADDvisorSM, The Barnes Group Advisors

Supply Chain — Effective Contract Negotiations: The Path to Commercial Success with Large OE Customers

3:30 pm–4:30 pm, Wednesday, October 16
Tom Rouse, Founder, Rouse Contract Consultants, LLC

Robotics — The End of Fear: How Collaborative Industrial Robots Will Change Durable Goods Manufacturing

3:30 pm–4:30 pm, Wednesday, October 16
Alberto Moel, PhD, VP, Business Development, Veo Robotics

Market Info — The Evolution of the Automotive Powertrain

9:00 am–10:00 am, Thursday, October 17
Casey Selecman, Director – Advisory Services, IHS Markit

IIoT — Standards for IIoT Interoperability

9:00 am–10:00 am, Thursday, October 17
Russ Waddell, Director, MTConnect

Workforce — Workforce Development Using a Farm Team Approach

10:30 am–11:30 am, Thursday, October 17
Tony Velotta, Organizational Development Leader, Scot Forge

All The Gear Cutting Tools You Will Ever Need Are Right Here DTR is one of the world's largest producers.

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FAX: +82.32.814.5381

Electric Drive Technology — Losing Teeth? The Future of Gear Trains in the Age of Electrification

10:30 am–11:30 am, Thursday, October 17

Jeff Hemphill, CTO, Schaeffler

For more information:
MotionPowerExpo.com

Cybersecurity — Cybersecurity Hygiene in Motion

2:00 pm–3:00 pm, Thursday, October 17

James McQuiggan, CISSP, Chapter President,
(ISC)2 Central Florida Chapter

3D Printing — Materials Challenges and Solutions in Additive Manufacturing

2:00 pm–3:00 pm, Thursday, October 17

Jeff Grabowski, Materials Specialist, QuesTek
Innovations, LLC

Workforce — Hire Like Nobody's Business

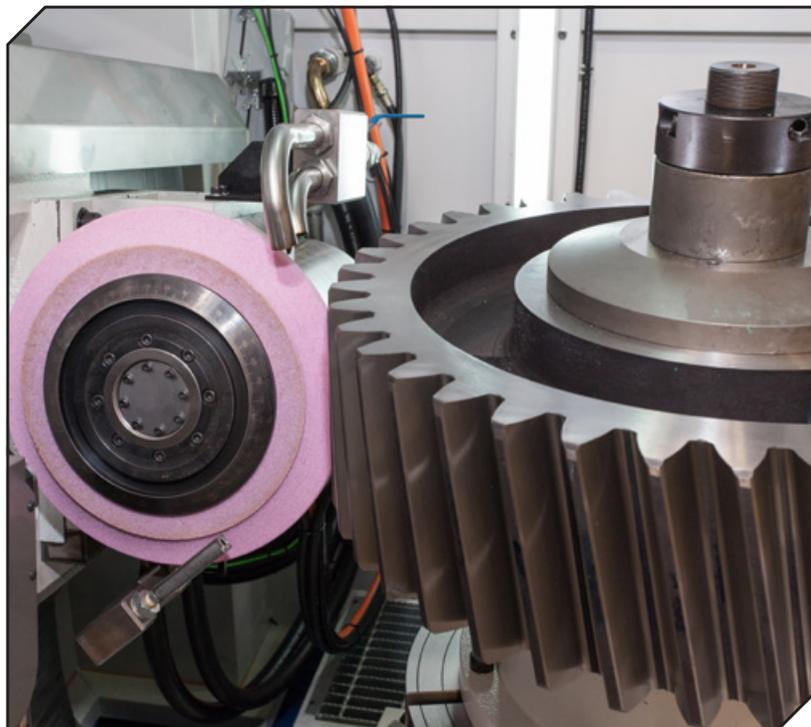
3:30 pm–4:30 pm, Thursday, October 17

Todd Palmer, Founder and President, Diversified
Industrial Staffing

Robotics — Collaborative Operation in Industry Today

3:30 pm–4:30 pm, Thursday, October 17

Rick Maxwell, Collaborative Robot Team, FANUC
America Corporation



a sneak peek



When you visit **Motion & Power Technology Expo** (aka Gear Expo) in Detroit, be sure you stop at **booth 4439** and see **GMTA**, a leader in gear machine technology, as well as laser joining and parts washing equipment for the industry.

Say hi to Walter Friedrich and ask him, "OK, Walter, what's the big secret?"

He might tell you.

If you do broaching, you might want to hear his answer.

See you in the Motor City!


MOTION+POWER
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booth # 4439

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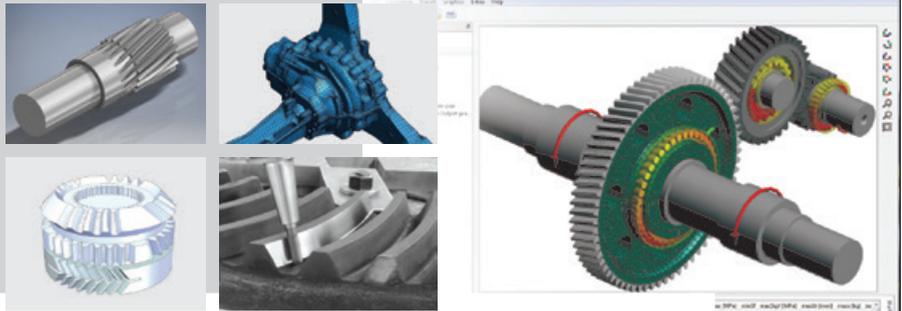
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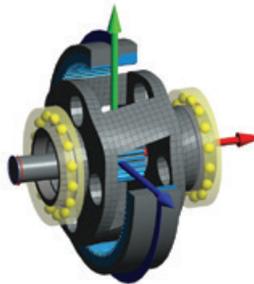
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ASK-THE-EXPERT LIVE!

ASK the EXPERT LIVE is coming to MPT Expo 2019 in Detroit, MI.

This is your chance to have your questions answered in person by our live panel of experts.

- Gear Manufacturing, Tuesday, Oct 15, 10:30 a.m.
- Gear Design, Tuesday, Oct 15, 2:30 p.m.
- Lubrication, Wednesday, Oct 16, 10:30 a.m.
- Bearings, Wednesday, Oct 16, 2:30 p.m.

Can't wait? Submit your question now! Send it by e-mail to Senior Editor Jack McGuinn (jmcguinn@geartechnology.com) and we'll submit it to our experts.

Power Transmission Engineering



VISIT US AT BOOTH #3826

Heat Treat 2019 Bigger and Better Than Ever

As the way things are manufactured continues to evolve, manufacturing trade shows are keeping pace with that evolution.

A perfect example of that can be found at this year's biennial Heat Treat 2019 (Oct. 15–Oct. 17, COBO Center, Detroit) — the 30,000-member ASM Heat Treating Society's (*asminternational.org*) signature event. The ASM's mission statement is summed up in just two words, i.e. — “Everything Material” — and the group is “dedicated to serving the materials science and engineering profession.” Through their network of 30,000 members worldwide, ASM “provides authoritative information and knowledge on materials and processes — from the structural to the nanoscale.”

These shows are no stranger to the Motor City; the city has a long history of hosting the event. And as technology advances, the city is keeping pace. How so?

As the ASM explains:

Technology. From automotive, to aviation, and defense, Detroit is changing the way the world moves. Their unmatched automotive research, design and advanced manufacturing resources make this region the leader in next-generation mobility and technology development.

Automobile capital of the word. Detroit is second-largest source of architectural and engineering job opportunities in the U.S., with the domestic auto industry primarily headquartered in Metro Detroit.

Global. Why do 1,300 firms from 38 countries call the Detroit region home? Detroit is the perfect location when you're looking to access U.S. and Canadian markets. The city is home to one of the world's most valuable border crossings and Detroit Metro Airport schedules non-stop flights to more than 160 destinations.

Sustainability. Michigan's business climate is stronger than ever. Nearly two-thirds of Michigan businesses surveyed describe the state as having a positive

business climate and would promote Michigan as a place to work, start and conduct business.

From automotive, to aviation, and defense, Detroit is changing.

With this year's 30-year anniversary show, the heat treating industry is co-exhibiting with what used to be AGMA's Gear Expo and is now that association's much more manufacturing-inclusive Motion + Power Technology Expo. The show is now a one-stop-shopping trifecta — heat treat, gear and motion technology — guaranteed to cast a wider net for attendees and dress a wider stage for exhibitors. And in practical terms, it is logistics-friendly — attendees now may need attend only one show for their needs — not three — saving time *and* money.

What hasn't changed is that, as with past shows, this year's event will be both technical conference and exhibition.

Heat Treat 2019 will feature:

- Three days of one-on-one networking opportunities with approximately 200 heat treat exhibitors/companies. That group includes the industry's top companies and biggest names in the heat treating industry.
- Latest industry research is provided by more than 125 technical sessions and technical papers, and presenting special symposiums on induction heat treating.
- The This is Heat Treat free college student program. (Given the complexity of heat treating, which easily rivals that of gear manufacture, there is little wonder that solid young talent is needed — yet lacking. The show is a perfect venue for programs like This is Heat Treat and other youth-oriented presentations intended to help address that need.)

Indeed, in co-locating with the newly expanded Motion + Power Technology Expo, HT 2019 attendees will now have access to an additional network of 4,000 attendees and 250 exhibiting companies. What's more, joint initiatives with Motion + Power Technology Expo 2019 include educational programming,

networking events and more.

Heat Treat 2019 will also host post-doctoral researchers, lecturers and professors for a competition-based award and recognition program, dedicated to encouraging increased participation of academic institutions in the ASM Heat Treating Society (HTS), and to provide attractive offers and opportunities in the worldwide materials and thermal processing communities. The winner will receive \$2,500 that can be used to support research activity at the academic researcher's institution. The award can also be used for travel expenses (researcher or student), conference fees, scholarship money, or laboratory equipment.

Presentation/technical paper topics include:

- Additive Manufacturing / 3-D Processing
- Applied Technology / Processes and Applications
- Atmosphere Technology and Surface Engineering
- Automotive Lightweighting
- Induction Heat Treating
- Internet of Things
- Low Temperature Surface Hardening of Stainless Steel
- Materials Durability / Mechanical Testing
- Microstructural Development / Characterization
- Powder Metallurgy
- Quenching and Cooling
- Residual Stress
- Thermal Mechanical Processing
- Thermal Processing of Non-Metals (ceramics, composites, polymers)
- Vacuum Processes and Technology
- Welding / Joining

And there's more — much more.

Of particular interest: Inductoheat Plant Tour Monday, October 14

Ford Rouge Factory Tour Monday, October 14

Women in Engineering Networking Breakfast:

"Don't Stop – Five Lessons I Have Learned, So You Don't Have To"

Thursday, October 17

The speaker for the event is Stacey M. DelVecchio, F. SWE, Additive Manufacturing Product Manager Innovation & Technology Development Division Caterpillar, and an advisor with the Society of Manufacturing's additive manufacturing community.

Some Education Courses

Details:

Tuesday, October 15: General Heat Treating

Wednesday, October 16: Introduction to Gear and Bearing Materials

Thursday, October 17: Basics of Non-Destructive Evaluation for Gears and Bearings

Thursday, October 17: Materials Selection and Heat Treatment of Gears Presented by ASM Heat Treating Society and AGMA

Of special interest to young attendees: Current college students studying materials science and engineering are entitled to completely free conference registration for the 29th ASM Heat Treating Society Conference and Exposition

Thursday, October 17 (am – 5pm): This Is Heat Treat

The This Is Heat Treat program includes a special student reception and opportunities to connect directly with companies that students might want to work for by spending one-on-one time with them in their booths. Students need only register as a student and bring their Student ID with them to the show.

More Student Activities, Awards and Competitions

ASM Heat Treating Society Emerging Professionals Reception in the Expo Hall
Tuesday, October 15

Young Professionals Reception (joint with Motion+ Power Technology Expo)
Tuesday, October 15
Cost: \$15

This special networking event, for young professionals age 35 and under,

will feature drinks, hors d'oeuvres and the opportunity to network with peers in the industry.

One-on-One Demos in Exhibitor Booths

Students can acquire relevant knowledge and insight directly from the major players in the heat treat world by signing up to shadow with them in their booth. See workshops, live demos, and learn about the companies first-hand from the people that work there. Beginners

can choose from the list of exhibiting companies that they'd like to learn more about and receive a date and time to meet with them on the floor.

Fluxtrol Student Research Competition

October 15th & 16th

Heat Treat 2019 will offer the young innovative scientists/professionals competition-based award and recognition program, seeking to encourage participation of young scientists in ASM



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HTS, and to provide attractive offers and opportunities in the worldwide thermal processing community.

Comprehensive Technical Programming

Learn the latest research and development in your field on such topics as advancements in heat treating, advanced processes, quenching and cooling, processes and applications, vacuum process and technology. Visit and network with more than 200 companies from the heat treating industry. Attendees

will once again have access to over 300 additional companies at Motion+ Power Technology Expo (formerly Gear Expo).

Special Keynote Presentations

Also available are important updates from an exciting line-up of well-known industry experts, including:

Dr. George Krauss, Professor Emeritus, Colorado School of Mines

Jack Harris, Chairman, IMS International

Prof. Marco Taisch, Vice President, World Manufacturing Foundation,

Politecnico di Milano

VIP Guided Industry Tour

Attendees can sign up for the 2nd VIP Guided Industry Tour at Heat Treat 2019. This tour is limited to the first 150 attendees. You'll have exclusive access to 10 companies showcasing their industry products and services. Pre-registration and prequalification are required to receive your ticket. Tours will be on Tuesday, October 15 from 3:30 p.m.–4:30 p.m.

SOLUTIONS CENTER

The Solutions Center in the Exhibit Hall provides opportunities to meet the product experts, get answers to your questions and discover the latest in heat treating innovations. Presentations will be 15–20 minutes in length and will be held all day Tuesday — Thursday.

“BASICS OF HEAT TREATING” / EDUCATION COURSES

Improve your knowledge by taking an ASM Education short course. Taught by industry experts, these interactive learning experiences will help you stay up-to-date and competitive. This year's courses will include Metallography Insights; General Heat Treating; Intro to Gear and Bearing Materials; Basics of Non-Destructive Evaluation for Gears and Bearings; as well as a special joint course offered with AGMA — Materials Selection and Heat Treatment of Gears.

“THIS IS HEAT TREAT” FREE STUDENT PROGRAM

If you have an intern or know a current college student studying materials science and engineering, let them know about the “THIS IS HEAT TREAT” program, where registration for Heat Treat 2019 is free. This special student registration includes access to the full technical program, a student/young professional networking reception, as well as the opportunity to meet major players in the heat treating world. ⚙️

For complete details visit

www.asminternational.org/web/heat-treat-2019/

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