Advances in Steel Technology

At our March 12th ASM Detroit Chapter Dinner Meeting, Hitachi will present the current steel technology advances in two areas:

1) Clad products for Battery applications and variety of steel choices in the market. We will share our technology in the production of these materials and explain the metallurgical differences.

2) Lightweighting effects of Tooling material. Newly advanced Tool and Die Steels developed for structural Die Casting and Stamping (cold and hot). As automotive parts become thinner and higher strength, they also become more difficult to bend, form, punch, and pierce. Tooling materials have swiftly become the new solution for more efficient tools and dies.

Thomas Bell is currently the Executive Director of Tool Steels for Hitachi Metals America & has a Bachelor’s degree in Marketing from Ferris State University and MBA from Lake Forest.

Tom has been in the specialty steel and tool steel industry for over 25 years with concentration on stamping die steels, die casting steels & cutting tools. Tom maintains an Associate Board of Directors position with the Precision Metalworking Association as well as a seat on the Die Material committee of NADCA. He has presented Tool Steel technology developments for PMA Metalform & FabTech, PMA Tool & Die Conference and also Great Designs in Steel in 2016.

Thanks to our March Meeting Social Hour Sponsor, Hitachi Metals America

Hitachi Metals America produces specialty steels and component for automotive, energy, electronics and aerospace applications. In USA, HITACHI has offices in New York, Novi, Mi., Chicago & San Jose to support sales and engineering efforts for Castings, Automotive Cables & Magnets, Razor Blade steels, Electronics, Valve Steels, Piston Rings, Fuel Injector steels, & Tool Steels.
March 2018

ASM-Detroit Chapter Executive Board

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Manish Mehta, Awards/Recognition
Eric McCarty, Finance/Council of Fellows
Carlos Prado, Membership/Sustaining Members
Alex Preisser, Papers/Programs
Carli Huber, UoM MMS Representative
Kathy Hayrynen, ASM Teacher’s Camp
Peg Jones, ASM Teacher’s Camp

Opportunities to Serve

Succession planning is an important part of any organization. As a volunteer board it is important for the Detroit chapter to keep a good pulse on upcoming changes to the board. In the fall there will be several positions open that will allow us to add additional volunteers to the board. If you have been a supporter of the chapter and want to learn more about board responsibilities, please drop me an email. ktrojanowski@pridgeonandclay.com.

The Detroit chapter invites many guests to our meetings throughout the year. In September we have a student mixer and throughout the year we invite students to attend our meetings. We invite the Future Cities team that wins the ASM Award for Best Use of Materials, from the science fair we invite students that win the ASM Materials Awards, and we invite recipients of our college scholarships. We also have students from local colleges and universities attend to hear the various speakers. Over the course of the year, we can host up to 50 students at our meetings. We offer reduced pricing to these students. The student mixer has a long standing generous sponsorship from Joyworks and AFC-Holcroft. Recently the Detroit chapter was approached by Fluxtrol with an offer to support our organization at a local level. We are pleased to announce that Fluxtrol will be sponsoring the students that attend our monthly meetings. The sponsorship will allow us to provide more opportunities to these students going forward. Thanks Fluxtrol for your support of the Detroit chapter and the students that attend.

Our next meeting is March 12th at St. Johns Banquets center in Southfield. This is a new location for us to meet. See details on the location and the meeting on page 1. Thomas Bell from Hitachi Metals will be speaking. The evening will be a great opportunity to network and see old friends. We look forward to seeing you then.

See you on March 12th.
Kae Trojanowski

St. John’s Banquet & Conference
22001 Northwestern Hwy, Southfield, MI 48075
March 12th is Sustaining Membership Night

Of the Chapter membership, thirty-six are Sustaining Members. Although you don’t have to be a company to be a Sustaining Member, all of the Detroit Chapter Sustaining Members are companies. The companies range in size, which has been as small as one employee to the size of large OEM manufacturers. Sustaining Member companies designate one employee as a representative but most have multiple employees that attend chapter meetings.

The cost of general membership is $117 per year whereas Sustaining Membership is $225 per year. So what do you get for the additional cost? A Sustaining Membership enhances the value of your membership. The following benefits were extracted from the ASM Sustaining Membership Brochure:

• **Networking:** Meet local manufacturers, industry experts, peers, suppliers and prospects to share information, solve technical problems, get exposure for your products and services and build lasting friendships.

• **Visibility:** Make sure your company is always top-of-mind with listings on ASM Chapter communications including newsletters, meeting announcements, and websites.

• **Influence:** Guide the direction of local Chapters’ technical programming, student outreach, and social events.

• **Advertising & Sponsorship:** Promote your company to ASM members year-round.

• **Recognition:** Local awards and recognition show the materials science community you care and give back.

Sustaining Membership provides a mechanism in which some companies enable employees to fulfill professional and educational development, volunteerism, recognition, and community activism goals.

If not a Sustaining Member, we hope you will consider and/or encourage your company to consider being a Sustaining Member. For more information, please contact the ASM International Detroit Chapter Administrator or visit the ASM International website via asminternational.org/web/guest/membership/member-types/chapter-sustaining.
4-Day Seminar in Southfield, MI
Monday, April 16th - Thursday, April 19th, 2018
Failure and Fracture Analysis for Structural Components

Overview: The interaction between failure analysis and engineering design offer wonderful opportunities to challenge our understanding of how complex factors interact to make a more or less successful product. The concepts are applicable to all sizes of “structures” and all materials, although metals will make up most of the examples/case studies, and plastics/polymers most of the remainder. Also, a quick overview of critical and creative thinking skills as they apply to the subject engineering fields will be included in this seminar.

The purpose of this training is to build a foundation of mechanical and materials engineering concepts that allow the participant to be able to perform a basic visual inspection for failure analysis and specify appropriate tests for a given situation, and finally, evaluate failure analysis work performed by others.

This seminar is intended for Design Engineers, Failure Analysts of All Levels (technicians to PE’s), QA (professionals and technicians), Mid-Level Technical Managers, Maintenance Engineers and Technicians, Products Liability Attorneys, Forensic Engineers, FEA Engineers, Fracture Mechanics Specialists, Field Technicians and Warranty personnel for Industrial Equipment, Etc. Not sure? Call Debbie at 616-475-0059. The mixture of people in past seminars was one of the benefits. Bring your photos or parts for group discussion.

If you participate and pay attention, there’s a strong possibility that you might actually be able to contribute in a new way to any failure analysis project you participate in, starting from proper preservation of evidence and going on to interpreting the report. We address the hard questions related to industrial FA work. Learnings benefit all levels of FA experience. Some industrial experience is highly beneficial as a pre-requisite, especially if you are very early in your career.

Please see page 9 for a detailed flyer on this seminar.

Thanks to our 2017-18 Chapter Season STEM Outreach Sponsor Fluxtrol Inc.!

The ASM Detroit Chapter thanks Fluxtrol Inc.as our STEM Outreach Sponsor for the 2017-2018 Chapter Season. The purpose of this sponsorship is to offset the cost of dinners at our monthly dinner meeting for any STEM Outreach attendees. These attendees include: Teacher Scholarship Winners, University Scholarship Winners, Community College Scholarship Winners, Metro Detroit Science Fair Winners, and ESD Future City Winners. In addition, this includes any college and university students that wish to attend our meetings.

On February 12, we had a very successful dinner meeting in which we had 56 attendees. Of those 56, 7 were University Students, 4 were ESD Future Cities Winners, and 1 was Teacher scholar awardee. We are so grateful to Fluxtrol’s for their generous donation to encourage the next generation to attend an ASM meeting and see what ASM is all about.

Wednesday, March 14th
Chapter Members Needed To Judge “Best Materials” Projects

Come see the Materials Scientists of the future. The 61st annual Science and Engineering Fair of Metro Detroit will be held at Cobo Hall on Wednesday, March 14, 2018. Each year, our chapter has sponsored a “Best Materials Project” award for both the Junior (6th – 8th grade) and Senior (9th – 12th) categories. To choose the awardees, a team of chapter members are needed to visit and judge the projects. The judging begins with an orientation at 8 AM and will be finished by 11:30 AM. A complimentary breakfast is offered to each judge. Please take the time to be an ASM judge for this program; to do so, email Angella Sell (asell@appliedprocess.com) or Julie Nimer (asmdetroitchapter@gmail.com).

Marc Glasser to serve on the Heat Treating Society Board

We are pleased to announce Marc Glasser will serve on the Heat Treating Society Board for the 2017-2020 term. He is manager of metallurgical services and the laboratory at Rolled Alloys in Temperance, Michigan. With over 35 years of experience in materials engineering, he specializes in heat resistant alloys, applications, and welding. Mr. Glasser is a member of the ASM Detroit Chapter, HTS Technology and Programming Committee and has authored numerous papers as well as being an annual speaker at the ASM Heat Treat Conference.
February 12th Meeting & Membership Award Recognition Night

The ASM-Detroit Chapter presented membership anniversary awards to members present at the February 12th meeting in recognition of their support of the ASM International Society and the Materials Science and Engineering profession. Below is a list of all of the Detroit Chapter members who have sustained an ASM membership for 5-15-25 years, or if they met the qualifications of a life member (65 years of age, age +sustained membership duration> 100).

Contact Julie Nimer asm detroitchapter@gmail.com if you would like to receive your recognition award by mail.

5 YEARS
Arthur Mohr
Darryl Hammock
Gunter Connert
William Stomber
John Williams
Kayla Elder
Collin Russell
Lendon Crosby
Jason Mitchick
David Lee

Gregory Anderson
Alexander Hall
John Kubisch
Marilyn Drake
Michael Kirin
Arjaan Buijk
Christa Spurry
Jessica Owens-Mawson
Michael Lukitsch

15 YEARS
Steven Sumner
Walter Maruszczak
John Conway

Steve Cook
Tiejun Ma
Frank Buono

25 YEARS
David Myers
Joseph Desjardins

Keith Plibosian
Robert Shaw

LIFE
Stephen Lebeau
Kon-mei Ewing
John Tartaglia
Gregory Brown
Gary Was
David Sigler
Michael Wright

Dennis Laprairie
Joseph Kozma
Robert McCune
Edward Rolinski
Shiz Kassam
Mark White
John Khoury

February 12th Meeting

Kae Trojanowski (17-18 Chapter Chair) presents Laura Moore with an ASM Teacher Scholar Award at the February 12th Dinner Meeting.

Dr. Daniel Baker (Technical Chair) and Kae Trojanowski (17-18 Chapter Chair) present Dr. Steven Shaffer with a ASM Detroit Chapter Speaker Award at the February 12th Dinner Meeting

Angella Sell (17-18 Student Affairs/Young Members Chair) awarded the Future City Winners from Dearbon STEM Middle School at our February 12th Dinner Meeting. From LtoR: Angella Sell, Mark Struman, Jennifer Gleeson (Teacher) and Gene Dickerson (Mentor)
Future Cities Competition 2018

The Engineering Society of Detroit hosted the Michigan Regional Future City Competition January 22, 2018. The Future City Competition is an educational program where students in 6th, 7th, and 8th grades imagine, design, and build cities of the future. Over four months, students work as a team with an educator and volunteer mentor to design a virtual city using SimCity software; research and write an essay addressing this year’s theme; build a model of their city using recycled materials; complete a project plan, and present their city before a panel of judges at a Regional Competition in January. Regional winners go on to represent their region at the national competition in Washington DC in February.

Each year a group of volunteers from the ASM Detroit Chapter judges in the special awards category “Best Use of Materials” which goes to one group. The cities were judged for this award based on the thought put into the materials used to build the model and how materials would affect the future city. This year’s theme was “The Age-Friendly City” which challenged student teams to identify an age-related challenge that exists in today’s urban environments and engineer two innovative solutions that allow their future city’s senior citizens to be as active and independent as they want to be.

The team that won the “Best Use of Materials” award was STEM Middle School (Team 1) of Dearborn, Michigan. Their city cleverly used recycled materials such as plastic bottles, circuit boards, cotton, and cardboard to construct their city. Their future city theoretically included the high-tech material graphene which allowed their city to exist high above the Earth among the clouds. Graphene was used throughout their future city and, most notably, in the city supports that were both lightweight and strong, keeping their city suspended above the ground.

STEM Middle School student members include Mark Struman, Sara Moughni, and Hassan Eljafarri. Ms. Jennifer Gleason is the teacher and Gene Dickirson is the group mentor. We were fortunate to have representatives from the group at our February meeting. Ms. Gleason, Gene Dickirson, and Mark Struman were able to attend and bring the model to display.
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March 2018
asminternational.org/web/detroit-chapter/home | 586)944-5656 | asmdetroitchapter@gmail.com
Failure and Fracture Analysis for Structural Components
4 Day Seminar in Southfield, MI

Monday, April 16th - Thursday, April 19th, 2018
Location: ESD Building - 20700 Civic Center Dr #450, Southfield, MI 48076

Daily Schedule: Registration 8:30, Class Starts 9:00 am, Class Over 4:30 pm

Early Bird Registration Price: $995 member/ $1375 non-member (Before March 16th)
Regular Registration Price: $1325 member/ $1575 non-member (Between March 16th and April 9th)
Includes Printed Color Notebooks and Light Center, Boxed Lunch, and Afternoon Snack all four days

FINAL REGISTRATION DEADLINE FOR SEMINAR IS APRIL 9th, 2018!
We must have payment from at least 15 people by March 16th to run this class. Make check payable to ASM International Detroit Chapter or Credit cards can be processed by emailing Julie Nimer at asmdetroitchapter@gmail.com and she will send you a square invoice for payment. Credit card fee is $35.
TO REGISTER, or for more info: Contact Julie Nimer at asmdetroitchapter@gmail.com or call 586-944-5656

Basic Course Outline: (Note topics to be covered not necessarily in this order)
1) Introduction to problem definition and project scope negotiation; seeing beyond the obvious issues, framing the questions, “looking at” and “looking for.”
2) Brief introduction to how the process-structure-property relationship helps sort out materials issues from loading and other service issues when diagnosing failures
3) Introduction to failure analysis
   A) Evidence preservation, shipping of damaged components
   B) Damage classifications and descriptions
   C) Loading Geometries
   D) Reading fragment shapes to determine loading direction
   E) Distinguishing overload from fatigue and corrosion assisted fracture
   F) Fine details of interpreting data from damaged component appearance
   G) Dealing with post failure damaged fragments
   H) The basic steps of a failure analysis and examples of data
   I) Understanding / interpreting microscope images and magnification indicators
   J) Interpreting microstructures for failure analysis
   K) Evaluating the data from a failure analysis, self-consistency and data anomalies
   M) Preparation of a failure analysis test plan for an actual part (if time permits).

Instructors

Larry Hanke, P.E., FASM, is the principal engineer at Materials Evaluation and Engineering, Inc., an independent company specializing in failure analysis and advanced materials characterization. Larry has been a failure analyst for over 30 years and has conducted thousands of product evaluations on components from toys and recreational vehicles to medical devices and components from nuclear power plants. He holds a Bachelor of Science degree in metallurgical engineering from Iowa State University and professional engineering license. Larry has taught the Practical Fracture Analysis course for ASM International and presents frequently in the Failure Analysis Symposium at the annual MS&T Conference and at other technical conferences. He holds memberships in ASM International, ASTM, NACE, AWS, and SPE. He is currently a member of the ASTM Committee E58 on Forensic Engineering and is past chairman of the ASM Failure Analysis Committee and the ASM Handbook Committee.

Debbie Aliya has owned and operated Aliya Analytical, Inc., Grand Rapids, MI, since 1994. The company specializes in consulting for failure analysis and prevention. She has a BS in Metallurgy and Materials Science from Carnegie-Mellon University (Pittsburgh, PA) and an MS in Materials Science and Engineering from Northwestern University (Evanston, IL). She has served several terms as Chair of the ASM International Failure Analysis Committee, worked on the 2002 Metals Handbook volume on Failure Analysis. She has been on the local chapter boards of ASM International and SAE International for several years. She has taught multiple classes on Failure Analysis and Prevention and other materials and manufacturing related topics. She is currently chair of the ASM Affiliate Failure Analysis Society Education Committee.
2017-18 Season
ASM Detroit Chapter Schedule

March 12, 2018: Sustaining Members Night
Thomas Bell - Hitachi Metals
Southfield – St. John’s Banquet & Conference Center

April 19, 2018: ASM/AFS Joint Meeting
Chris Cogan - GM racing program
American Polish Cultural Center

May 14, 2018: Woodside Lecture
Susan Hartfield-Wünsch
Burton Manor, Livonia *please note location change

August 11, 2018: ASM/AFS Joint Golf Outing
Fellow Creek Golf Course - Canton

Volunteer Opportunities

Science Fair
Chapter Members Needed to Judge “Best Use of Materials”
Award on Wednesday, 3/14/2018