Light Alloys Processing
Revolutionizing the
Automotive Industry

The relationship between vehicle weight and fuel consumption is well-established. It is estimated that a 10% decrease in vehicle weight leads to a 5-7% decrease in fuel consumption. This also means that for every kilogram of weight reduced in a vehicle, there is about 20 kg of carbon dioxide reduction during the operating life of the vehicle. Aluminum (Al) alloys are 65% lighter than steel and magnesium (Mg) alloys are 35% lighter than Al alloys. Thus, reducing the vehicle weight by using automotive parts made of lighter Al alloy and Mg alloy should result in a significant decrease in fuel consumption, leading to a reduction of greenhouse and harmful exhaust gas emissions. This presentation describes some of the challenges impeding increased use of these alloys in the automotive industry. More specifically, challenges related to high integrity castings (melt cleanliness, grain refinement, hot tearing), manufacturing of engine blocks and welding of aluminum and magnesium alloys will be covered.

Prof. Ravi Ravindran, FASM is Professor of Advanced Materials and Manufacturing Processes at Ryerson University and Director of the Centre for Near-net-shape Processing of Materials (CNPM).

Ravi has been involved with metal casting for more than 40 years, a unique combination of industrial (16 years) and academic experience (20+ years). Prior to his academic career, he was the Group Vice President of a multinational corporation manufacturing automotive castings and stampings with direct responsibility for Research and Development, Quality and Engineering at three major companies in USA and Canada (1985-89). This was preceded by senior administrative management position in steelmaking, continuous casting and rolling (1973-1984). His focused interest is in light alloy castings for automotive applications, and he has won accolades from AFS for outstanding contributions.

Ravi is widely recognized for excellence in collaborative research and technology transfer. He is a Fellow of ASM International (1994) “for innovative research in the areas of aluminum alloys and continuous casting of steels.” He is a Fellow of several societies including Canadian Academy of Engineering, AAAS, Indian National Academy of Engineering, Canadian Institute of Mining, Metallurgy and Petroleum and Engineers Canada in recognition of innovative research in steel making, continuous casting, near-net-shape casting processes for cast irons, aluminum and magnesium alloys and professional leadership. Professor Ravindran is the recipient of the Ryerson University Chancellor’s Award of Distinction. He was awarded 2012 Engineering Research and Development Medal of Professional continued on page 3

Meeting: Monday, October 14, 2013
Venue: Vladimir’s, 28125 Grand River Ave, Farmington Hills
For reservations contact the Chapter Office at: 586-944-5656 or email to asmdeetroitchapter@gmail.com before Friday, October 11th.
$25 with Reservation; $30 Non-members/No Reservation;
$20 Retirees/Unemployed; $5 Students
5:45 p.m. Social Hour • 6:30 p.m. Dinner • 7:00 p.m. Speaker
Welcome to another ASM Detroit Chapter Season. We will begin on Monday, October 14 2013 with Professor Ravi Ravindran, FASM, and ASM International President for 2013-2014. We are excited to have the incoming ASM International President kick-off our Technical Meeting year for this 100th Anniversary of ASM. Ravi will speak about the use of lightweight metals in the automotive industry, a subject important to many of us here in the Detroit area. I hope to see you there.

As you may or may not have heard, Caryn Ruzich is retiring. We have invited Caryn to the October 14 meeting so we can recognize her for 17 years of service with the chapter.

Tom Mackie will also be retiring from the Treasurer position. We will also recognize Tom at the October 14 meeting for many years of service with the chapter. If any of you are interested in the Treasurer position, please contact me at asmdetroit.chapter@gmail.com.

We had a successful joint ASM/AFS golf outing this year on a beautiful August Day. Thanks to Mike Blazewiecki and the rest of the committee for organizing a fantastic event. Many thanks as well to our hole sponsors and beverage cart sponsor for contributing to the event. Money raised in this event will be used to fund our scholarships and for Teachers Camp.

Please bear with your Executive Committee as we struggle through the next several weeks without an Administrator. We plan to replace Caryn, but we are still working through the process. Many thanks to Eric McCarty for taking the lead to get this newsletter published this month.

Please note that we are changing the phone number. The other contact information remains the same.:

- **NEW ASM Detroit phone number:** 586-944-5656
- e-mail address: [asmdetroitchapter@gmail.com](mailto:asmdetroitchapter@gmail.com)
- Paper mail address: P.O. Box 1398, Warren, MI 48090-1398

Thank you for your patience and we hope to see you on October 14.

**ASM 100th Anniversary Gala**

**October 27, 2013, 5:00 p.m. EST**

**Montreal, Quebec**

An exceptional line up of events awaits you at ASM’s 100th Anniversary gala. Taking place the evening prior to MS&T 13, in the very same location, this is also your greatest opportunity to make valuable connections with international experts and decision makers, gain extra exposure and grow your business.

The ASM Anniversary gala will feature a cocktail reception, Gala Jubilee dinner; President’s Afterglow Reception, distinguished awards ceremony, historical tributes, live entertainment, keynote speaker Dr. Peter Diamandis, mementos and much more. Tickets are $125 per person. You must buy your tickets in advance. No tickets will be sold on-site. Register online at [asminternational.org](http://asminternational.org).
Thixomat and its subsidiary nanoMAG are entrepreneurial companies, located in Livonia, MI, specializing in new technology and products in lightweight Mg alloys. Thixomat was launched in 1990, based on Thixomolding® semi-solid technology licensed from Dow Chemical. Thixomolding® was propagated around the globe with 50 licensees using more than 400 machines. Commercial products were developed in electronic/communication, automobile, hand tool and sports equipment markets, as illustrated in Figure 1. The most intense activities emerged in Asia on electronic parts; however, there are six producers in North America, including Michigan Molded Products (MMP) in Jackson, MI.

nanoMAG was founded in 2009, based on wrought Mg alloys derived from fine-grained Thixomolded® precursor stock. Thermomechanical processing (TTMP) rendered this precursor to even finer microstructure while doubling the strength and improving ductility—still attaining low texture. These microstructural features were revealed in a National Science Foundation funded STTR project with Dr. Wayne Jones and PhD candidate Tracy Berman of The University of Michigan MSE Department.

The first commercial success with this nanoMAG TTMP Mg alloy was won in 2012 on the ultra lightweight “Ortho nano” DonJoy orthopaedic knee brace pictured in Figure 2. Now nanoMAG has turned its attention to another biomedical application under National Science Foundation funding – the invention of bioabsorbable Mg alloy implants that will fix broken bones; but then dissolve. This will save the pain, cost, mental strain and possible infections of secondary operations that are now needed to remove non-absorbable Ti, Co or stainless steel implants. Target markets are in craniofacial, small bone and ligament repairs. Our new BioMg®250 Mg alloy has now entered in vivo tests in animals, with promising results to date. Again, The University of Michigan is supporting this adventure with the skills of Dr. Steve Goldstein, Dr. Steve Buchman and Dr. Ken Kozloff of the UM Medical School.

For more information, please contact Steve LeBeau at slebeau@thixomat.com or Ray Decker at rdecker@thixomat.com. Both are proud members of the Detroit Chapter, ASM International.

Prof. Ravi Ravindran, FASM (continued from page 1)

Engineers Ontario. Professor Ravindran is a Past President of the Canadian Academy of Engineering. He was was Co-Chair, 2008 International Convocation of the Council of the Academies of Engineering and Technological Sciences (CAETS).

Ravi is a Past President of ASM Canada Council, and received the 1995 G. MacDonald Young and the 2004 M. Brian Ives Lectureship Awards. ASM honoured him with the Allan Ray Putnam Service Award. He is a Distinguished Life Member of Alpha Sigma Mu, the International Honor Society for Materials Science and Engineering. He is the founding chair of ASM Materials Camps Canada.
Leadership Days

ASM International held its annual Leadership Days event in Cleveland, Ohio from July 18-21, 2013. Three ASM-Detroit members, including incoming Chair Dr. Susan Hartfield-Wünsch, incoming Vice Chair, Dr. Manish Mehta, and immediate Past Chair and Chapter Council Representative, Jason Coryell. The Leadership Days included interaction with ASM International leadership, with the event coinciding with the ASM International Board of Trustees meetings. The program consisted of seminars focused on chapter operations, volunteerism, membership recruitment and retention, programming, emerging professional engagement, leadership soft-skills training, and strategic planning. The attendees also learned of new website features, information on the ASM awards program, materials camps, student activities, and education. The goal of the 4-day Leadership Days program is to provide resources for local chapter governance to better serve the membership.

ABOVE
Leadership Days: Manish Mehta-Vice Chair (left), Susan Hartfield Wiinsch-Chair (center, not standing), and Jason Coryell-immediate Past Chair (Right) standing inside the Materials Park Headquarters in front of a Yearbook reprint water color painting donated by the ASM-Detroit Chapter. The original water color was created by ASM Member and Woodside Lecture honoree, Dr. William Hosford.

LEFT
Leadership Days: (From Left-to-right) Current ASM International President Dr. Gernant Maurer stands with ASM-Detroit member and ASM International Trustee John (Chip) Keough-FASM, ASM-Detroit immediate Past Chair Jason Coryell, ASM-Detroit Vice Chair Dr. Manish Mehta, ASM International President-Elect Dr. Ravi Ravindran-FASM, and current ASM-Detroit Chair, Dr. Susan Hartfield-Wünsch under the Materials Park Headquarters dome.
The 2013 Joint ASM/AFS Golf Outing a Great Success

The 2013 Joint ASM / AFS golf outing held at Fellows Creek Golf Course in Canton, MI was a great success this past August. Sixty-six golfers spent the day hitting their best shots and winning some fantastic prizes. A “BIG” thanks goes out to the golf committee which included Eugene Kuo, Fred Durek, Greg Woycik, Jim Panasiewicz, Paul Jones, Caryn Ruzich and ASM Entertainment Chairman Mike Blazejewski for organizing the event. Kae Trojanowski and Mark Vance also deserve thanks for helping out by selling raffles tickets and working the Vegas Hole. A special thank you goes out to Caryn’s husband Frank for soliciting donations once again for this year’s event.

The banquet held after golf consisted of a delicious buffet dinner consisting of chicken and roast beef followed by the awards ceremony. Hole sponsors and the beverage cart sponsor were all recognized for the generous donations. Included in this Micro-Examiner is a complete list of sponsors for the golf outing. Many other companies brought additional prizes which were raffled off and made some happy participants multiple winners. A final thank you needs to go out to these companies for their contributions. The funds raised from the outing will be used by both ASM and AFS to better serve their respective programs and community activities. Hope to see everyone again next year!

Special Thanks
to all our Sponsors

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Waupaca Foundry
Wolverine Bronze
Frank Ruzich

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Mexican Fiesta Michigan Bar & Grill Garage

Beverage Sponsor
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Closest to the Pin Winner - Paul Jones (Right) with Mike Blazejewski, ASM Entertainment Chair (Left)

Longest Drive Contest Winner (Right) with Mike Blazejewski, ASM Entertainment Chair (Left).

Lowest Team Score – From left to right: Rod Capling, Greg Capling, Bob Storie, Jerry Young
Dear Friends,

How do you say goodbye to the best job in the world? The best people, the best organization, something that is so engrained in your very being that it has come to identify you; how do you say goodbye?

Well, it’s not easy. I never imagined it would happen so soon. It saddens me, but at the same time, I know, in my soul, that it is the right thing to do. The right thing for me and I believe ASM-Detroit as well.

I have always felt blessed to have found this position as administrator. At the beginning of 1996, I was a stay at home mom with a six year old daughter. My health has always been a problem for me, making it difficult to keep a full-time job. So I was content as a stay at home mom. But the job of a lifetime literally came to me. A dear friend of mine happened to work at a member company and called me one day and asked me if I wanted a job. I asked her what she had and she read me the description. I applied, interviewed and the rest is history. I felt the touch of God in my life, knowing this was his work. For me and ASM-Detroit, it became a perfect fit.

Working with all the wonderful colleagues I’ve had over the years, some who have become friends has been an incredible experience for me. I grew as a person as well as professionally. I treated your organization as if it was mine. My first and foremost concern was for ASM-Detroit Chapter and its ability to survive the recession we just experienced and prosper.

Things are different in 2013 than when I took over in 1996. We’re less than half the size of what we were back then. However, the leadership of our great chapter is as good as ever. We have had, and I believe, will continue to have the very best people leading us in the future. As with everything, we must adapt to economic change. We must try harder, stick together and make a commitment to make this organization survive. That is true for every single member of ASM-Detroit. This organization exists for you, the member. Volunteers give of their precious time to help direct ASM-Detroit and do what is in the best interests of their members. And as a whole, they do a wonderful job. But I’m sure they’d tell you, they need help. They need members for their committees who are willing to do what it takes to put on a seminar, organize a golf outing, or hold a student outreach function. Much of what ASM-Detroit does is for the future of materials engineering starting with today’s students; directing them in their career choices and hopefully to becoming active in ASM-Detroit after graduation.

ASM-Detroit Chapter IS different. We ARE the founding Chapter of ASM International. We ARE an organization that is built around the automotive industry. Some of the brightest talent in the automotive industry IS right here in Metro Detroit. The excellence of our past must be brought to our present and our future. That is my hope for ASM-Detroit.

I could never put into words the gratitude I feel for the opportunity I was given to serve ASM-Detroit. My love of people helped immensely in my position. I feel so lucky to have known and worked closely with 17 Chair’s and 18 Executive Committees. I’ve had the opportunity to get to know hundreds of members at the monthly technical meetings. But most of all, for me, this job made me a contributing member of society, despite my health issues. Nothing in the world can replace the feeling of knowing you’re part of something bigger than yourself. I lived and breathed ASM.

I will be, God willing, at the October meeting to say ‘farewell’ to my friends. I will miss all of you. But my life has changed, my health is not great, and now is the time for me to take care of myself. I will not say goodbye, but rather ‘farewell’ till the next time I see you again.

Caryn L. Ruzich
ASM-Detroit Chapter
2013-2014 Officers and Executive Committee

Sue Hartfield-Wünsch ............... Chair
Manish Mehta ............... Vice-Chair
Eric McCarty ............... Secretary
TBD ............... Treasurer

James Boileau ............... Attendance/Publicity
J.P. Singh ............... Education/MEI/Round Table
Jason Coryell ............... Awards/Recognition & National Affairs
Philip Huber ............... Finance/Council of Fellows
Roger W. Pryor ............... Membership/Sustaining Member
Bradley Hall ............... Papers/Programs
Meghan Oaks ............... Co-Chair Young Members/Student
 Affairs/Scholarships
Kae Trojanowski ............... Co-Chair Young Members/Student
 Affairs/Scholarships
Michael Blazejewski ............... Entertainment
Jen Garb ............... Student Representative (UoM)

ASM-Detroit Chapter Office
Administrator - TBD
asmdetroitchapter@gmail.com
www.asminternational.org/portal/site/detroit
NEW NUMBER: 586-944-5656

Education Chair Announcement

UPCOMING TRAINING EVENT:
GD&T Tolerance Stack-up Workshop hosted by Lawrence Technology University on September 25, 2013, 7:00 AM to 6:00 PM.

ORGANIZED BY:
Smart Manufacturing and Lean Systems Research Group

CO-CHAIRS:
Ahad Ali, Lawrence Tech University and Tom Miller, Ford Motor Company.

VENUE:
Lawrence Technological University, 21000 West Ten Mile Road, Southfield, MI
Room: Marburger Science and Engineering Auditorium (S100),

LOCATION MAP: www.ltu.edu/map/

WHAT:
Tolerance Stack-Up, training certificate will be provided, and 0.8 CEU is available

HOW:
Registration fee $50, Breakfast and Lunch will be provided.

WHO:
Subject matter industry experts

REGISTER: www.six_sigmaltu.eventbrite.com

CONTACT INFO:
Dr. Ahad Ali , Director, Smart Manufacturing and Lean Systems Research Group.
aali@ltu.edu; 248-204-2531.