October Meeting Notice: Spouses’ Night at Narcisi Winery

Day / Date: Thursday, October 20th 2016
Location: Narcisi Winery; Thomas Joseph is sponsoring the first glass of wine
Address: 4578 Gibsonia Rd, Gibsonia, PA 15044
Time: 06:00 PM – 08:30 PM
Speaker: Roy Matway, PhD
Topic: Steel Metaphysics: The Cosmic Partnership of Pittsburgh and Steel

RSVP by 10/18/2016 to: Piyamanee Komolwit: pkomolwit@uss.com

Abstract

Pittsburgh, known as the Steel City and home of the Steelers, has lost most of its steelmaking glow over the past few decades. Where did all of this steelmaking go, if anywhere? What is steel anyway, and how is it different from iron and cast iron? Are we going to keep using it? Why did we learn as children that you need coal and limestone to make steel? Do we still make it this way, and how will we make it in the future (if we need it)? This presentation will answer these burning questions and others (without chemistry or thermodynamics prerequisites), giving consideration to the sources of iron itself in early galactic history, local history and geology, the similarity between rocky planets and steelmaking, and other rarely-pondered but astounding facts. Steel yourself to the results!

(Continued on Page 3)
Welcome to the 2016-2017 ASM Pittsburgh year! I hope that your summer was filled with fun and success! We are off to a great start this year, recently hosting a joint meeting with AWS with more than 50 attendees and hope to continue this trend by offering exciting and meaningful talks throughout the year. Our Chapter has started a directed outreach to college students by offering a career panel (thanks to Betsy Clark and David Sapiro) and hope to increase student participation. With the support of our excellent executive committee and, in particular Michael Alexander, our chapter has won two prestigious awards from ASM International. We will have several opportunities to educate future engineers at both National Engineering and National Chemistry Week under the direction of Parag Bedekar. We are planning to have a great variety of talks and plant tours this year and along with AWS hope to introduce two new joint meetings to our agenda. Our successful Spouses’ Night last year at Narcisi Winery will be reprised this year with an excellent talk on Steel and Pittsburgh. Our Young Members’ Night in February will again be a great opportunity to connect with many of the future materials professionals. This great agenda, found throughout the newsletter, is thanks to the excellent work of our new Vice Chair Piyamanee "Nee" Komolwit.

Our goals for this year, beyond the monthly meeting (always on the third Thursday of the month!), outreach to younger materials professionals, and education of those too young to know what a materials professional is will be focused around our communication to you and trying our best to maximize the value you get from being not just an ASM member, but a member of our vibrant chapter.

On a personal level, I encourage people to participate in your chapter at any level. We are always looking for ideas on how to better involve you in our decisions so that you get the most from your chapter. As the father of two young kids, I know how precious time is and certainly hope that our chapter's program and our volunteering opportunities are worth your investment in time. Whether it is the ability to catch up with old colleagues, network with materials professionals, learn something unexpected from a technical talk, or just to try something new, I speak for the entire executive committee when I invite you to an upcoming meeting or event! If you are interested in directly shaping the future direction of our chapter, we are looking for new executive committee members for the upcoming year as well.

Call for Volunteers:

One of our greatest challenges is to spur interest in the next generation of engineers. We do this through outreach to high school, college, and even elementary school kids. National Chemistry Week is a great opportunity to reach the younger kids. The ASM Pittsburgh Chapter is looking for volunteers to demonstrate materials properties to children during 'National Chemistry Week' at the Carnegie Science Center. Our chapter has a booth with neat experiments involving magnetism, thermal expansion, density, and phase changes. We will be demonstrating on Saturday, October 22nd from 10:00 am until 4:00 pm.

This is a fun activity and a great chance to introduce kids to materials engineering. We are looking for volunteers to work at the booth in 2 hour shifts, 3 slots (10-12pm, 12-2pm, 2-4pm).

If you are available for this great outreach program, please contact Parag Bedekar, via email at parag_bedekar@comcast.net or by phone at 412-327-4091.
October Meeting Notice
(Continued from Page 1)

October 20, 2016  
Roy Matway, PhD  
Topic: Steel Metaphysics: The Cosmic Partnership of Pittsburgh and Steel

Registration Fee:  
ASM Members: $25 with RSVP, $30 without RSVP  
Non-Members: $30 with RSVP, $35 without RSVP  
Retirees: $15 with RSVP, $20 without RSVP  
Material Advantage student: Free with RSVP, $15 without RSVP

Register RSVP by 10/18/2016 to: Piyamanee Komolwit; pkomolwit@uss.com.  
Pay cash or check at the door. If you would like to pay ahead of time, the link below may be used.

Meal: Dinner Buffet

Online Registration Link:  
http://www.asminternational.org/search/-/journal_content/56/10192/20897079/PUBLICATION

Speaker Bio:
A native of Pittsburgh and son of a steelworker, Roy started his career in steelmaking over forty years ago while working as a co-op student in Midland, PA. After a stint in Texas producing nickel-based alloys for aerospace, he obtained his Ph.D. in Metallurgical Engineering and Materials Science from Carnegie Mellon, and subsequently worked at the Max Planck Institute for Iron and Steel Research in Düsseldorf. After returning to Pittsburgh, he has kept himself busy in a variety of steel industry-related jobs and currently works at ATI Flat-Rolled Product in Brackenridge as manager of a process engineering group in the melting and casting facility. Roy also serves on the Advisory Board for the Center of Iron and Steelmaking Research at Carnegie Mellon, sings in a professional a capella choir, is a Certified Beer Server™ and homebrewer, and is an avid runner and skier in spite of his advanced age.

Agenda:
6:00 – 6:45 PM – Registration, Wine Tasting (cash option)  
6:45 – 7:15 PM – Dinner  
7:15 – 8:15 PM – Presentation by Dr. Roy Matway  
8:15 – 8:30 PM – Announcements and Wrap-up

Thanks to intellectual property attorney Tom Joseph, former chair of ASM Pittsburgh and graduate of the MSE Department at CMU, for sponsoring the Spouse's Night meeting at Narcisi Winery!

Everyone can enjoy their first glass of wine free of charge!

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American Stress Technologies
May Meeting Summary:
Andrew Carnegie Lecture, Awards Night, Past Chairs Night

ASM Pittsburgh Chapter held their final meeting of the 2015-2016 year on May 19, 2016 at Gaetano’s Banquet Center in the South Hills. As this meeting was the Andrew Carnegie Lecture, ASM Pittsburgh Chapter’s Awards Night, and Past Chairs Night, the Banquet Center was a packed house!

Mr. Riad Asfahani, FASM was selected to deliver the 2015-16 Andrew Carnegie Lecture. The Andrew Carnegie Lectureship honors a nationally prominent metallurgist or materials engineer who has ties to the Pittsburgh Chapter. Mr. Asfahani, who began his career at Cabot Corporation developing processing routes for refractory (Ta, Ta-W, Nb-Ti, Ni-Mo) metals after earning his master’s degree in metallurgical engineering from Notre Dame University, has made substantial contributions to the field of metallurgy, particularly in steels. After his time at Cabot, Mr. Asfahani subsequently worked at US Steel developing new grades and processing for civil infrastructure and oil & gas industries. He developed many new steel grades including X80 for line pipe, C125 casing, X100 seamless liners, heavy wall X70 line pipe, P110 casing with improved toughness, and low carbon weathering grades with a low yield to tensile ratio for bridge development. In addition, Mr. Asfahani developed processes to manufacture heavy gauge plates with excellent internal soundness, high strength steels with controlled, accelerated cooling and other thermomechanical techniques to improve or enable processing. Mr. Asfahani has strong ties to the Pittsburgh Chapter, having been active within ASM, serving as both a chairman of the Pittsburgh Chapter and a trustee for ASM International.

In his lecture, Mr. Asfahani talked about how the development of High Pressure-High Temperature (HPHT) oil fields has increased the demand for high strength, sulfide stress cracking (SSC) resistant steel casings. He discussed the development of a microalloyed high strength casing for mild sour SSC performance. The SSC resistance was evaluated using TM 0177 Methods A & D. Results of the development efforts and pipe mill trials showed that the newly developed C125 chemistry exhibited excellent toughness and exceeded the current requirements for mild SSC performance.

Prior to Mr. Asfahani’s lecture, the Pittsburgh Chapter was delighted to again have a short technical talk presented by a graduate student. Ms. Samikshya Subedi, a PhD candidate at CMU studying under Professor Anthony Rollett, discussed her project on 3-D printing of materials for heat exchanger applications. In her talk, Ms. Subedi talked about the challenges and benefits of 3-D printing Inconel 718 for heat exchangers. While 3-D printing allowed for more intricate designs, there were also limits to the resolution of the 3-D printed part. Ms. Subedi passed around some sample material printed on an EOS printer, and the members were impressed by the capabilities! Ms. Subedi received her B.Sc. in mechanical engineering at Brigham Young University and is working on her doctorate in MSE at CMU. At the end of her talk, her advisor, Professor Rollett, mentioned that she would soon complete her PhD and be on the job hunt!

The Edgar C. Bain Award for the year 2015-16 was given to Professor Anthony Rollett, FASM. The Bain Award is given to honor an outstanding member of the chapter for valuable contributions to the metallurgical and materials professions. The award is given to those who have devoted their life to the same high ideals exemplified by Dr. Bain.

Professor Anthony Rollett is currently a professor in the Department of Materials Science and Engineering at Carnegie Mellon University. Professor Rollett has served in the department since 1995 and was the Department Head from 1995-2000. Prior to CMU, he worked at the University of California at the Los Alamos National Laboratory. During this time, he spent ten years in management with five years as a group leader, then as Deputy Division Director at Los Alamos. The main focus of his research is on the measurement and computational prediction of
microstructural evolution, particularly in three dimensions. He is the co-author of the texture analysis package popLA and the polycrystal plasticity code LApp. He is also a contributor to the Dream.3D software package. Professor Rollett is a past Chair of the Pittsburgh Chapter. He received his M.A. from Cambridge University and his Ph.D. from Drexel University.

The Owen Katz Scholarship for the 2015-16 year was awarded to Samuel Lindsay. The Owen Katz Scholarship, formerly the Gilbert Solder Scholarship, is given in honor of Dr. Katz to an outstanding high school senior attending a high school within the Pittsburgh region who intends to pursue a college education in metallurgy or materials science and engineering at an accredited engineering program. The scholarship is awarded at $1,500. The Owen Katz Scholarship was established in 2009 in memory of Dr. Katz, who was an active member of ASM, serving as secretary and chair and was elected an ASM Fellow in 1983. He passed away in 2007 but is remembered for his many contributions by his friends, family and community.

Samuel Lindsay of Peters Township High School plans to attend the University of Pittsburgh. Mr. Lindsay’s interest in materials science and engineering began at an EMT class when a gas cylinder caught his eye and his mind wandered from CPR to how was this cylinder made? How did the materials contribute to the ability of this cylinder to contain gas at such a high pressure? As he began to explore the field of materials science and engineering, he realized that everything is made of something, and that the performance of most objects are limited by the materials that compose them. Excited by the breadth of this field—polymers, semiconductors, metals—Mr. Lindsay hopes to one day be able to contribute as well.

The ASM Pittsburgh Chapter selected Dr. Elizabeth (Betsy) Clark to receive the Young Member Award. Dr. Clark was chosen for this award because of her efforts to arrange a tour of Elliott Company for the March meeting and for her assistance with Young Members’ Night. She currently is a materials characterization facilities specialist at CMU.

May’s meeting was also the Past Chairs’ Night where all the past Chairs of the ASM Pittsburgh Chapter were recognized and thanked for their service to the chapter. This year had especially good turnout, with over 10 past chairs in attendance! Thank you again for your time and commitment, and we look forward to continuing to have an active and vibrant chapter!
Undergraduate Career Panel

On September 12, 2016, the ASM Pittsburgh Chapter hosted its first ever career panel aimed towards undergraduate students looking for answers to questions like “what can I do with a degree in MSE?” and “how do I start my job search?”. Undergraduate students from both the University of Pittsburgh and Carnegie Mellon University attended the event. The panel consisted of four volunteers from the ASM Pittsburgh Chapter. Michael Alexander, patent attorney at Alexander IP discussed his first experiences as a patent examiner that fueled his passion for IP law. Joe Brennan, who currently designs industrial furnaces, provided students with a break down of the general job sectors—government, industry and academia, along with a discussion of his experiences in government and industry. Charles Fryman, Director of Metallurgy and New Product Development at Ellwood Crankshaft Group, talked about his passion for working with steel, and how he weathered the ups and downs of the industry and eventually landed in a job that fulfilled that passion at Ellwood. And last, but not least, Jeremy St. Pierre, Director of Business Development—Earth Cutting Tools at Kennametal, offered some straightforward advice, “The world needs materials engineers—you will find a job” before relating his experiences finding jobs after his first job and navigating through industry. Students asked many probing questions and a few were jotting down notes.

We would like to thank students David Sapiro and Heather Bowman from CMU and Katerina Klimes from Pitt who helped to organize and spread the word about this event. The Pittsburgh Chapter hopes to continue to build ties with local students and was pleased to learn that Pitt has revived their Material Advantage Chapter, an umbrella group which includes ASM, TMS, ACerS and AIST. We also would like to remind local university students that they can attend our monthly meetings for free with RSVP (free food!), and we hope to see them at Young Members’ Night in February—presenting a poster, serving on the committee, or taking advantage of a great networking opportunity!

We would like to again thank the panelists for their time and advice for this event. The Pittsburgh Chapter received many volunteers for this event, and while we couldn’t accommodate so many volunteers (a nice problem to have!), we thank them for their generous spirit and hope that they join us for Young Members’ Night for another opportunity to interact with college students looking to start their careers in materials science and engineering!
June Social Event Summary

Good weather prevailed for the end-of-year social event which, this year, was a grand cookout in South Park. Many of the spouses have been at various ASM meetings and functions over the years, including Spouses Night and the annual social event, and it was good to see so many familiar folks. It was also great to welcome some of the newer people in the chapter. While the adults gathered in the pavilion, several members brought younger children who took full advantage of the playground (some of these future materials people were overheard discussing the probable metallurgy of the equipment).

Instead of the proverbial “passing of the baton,” then Vice Chair Nate Eisinger, who is now Pittsburgh Chapter Chair for 2016-2017, appeared to have instead been passed the spatula, lording over the grill while demonstrating his skill with this heat treating apparatus. So successful was Nate that he convinced one of the members to have a bratwurst for the first time after a seven-year abstinence! Another highlight was the experiment with the “biscuits and gravy” flavored potato chips which temptingly said “NEW” on the bag. Of course, if one can control the microstructure, one can control the properties and, phase diagrams notwithstanding, the consensus was that these were a novelty but probably would not reach the popularity and acceptance of other potato chip chemistries.

Conversations varied from plants, to road repair, to Chapter events, to materials, to recipes, to travel. One could write a book with just the travel tips that were shared during the afternoon. We learned that one of the Chapter’s Past Chairs, for example, is so familiar with Niagara Falls that he could be a tour guide!

There was plenty of good food to complement the good company, and a big thanks goes out to Nate Eisinger and Michael Alexander for their efforts in arranging the afternoon.
I had the honor of attending ASM Leadership Days from August 11 to August 14 on behalf of the Pittsburgh Chapter. ASM Leadership Days is a training and development conference for ASM chapter officers held every summer. Attendees from ASM chapters around the world participate in a variety of topical roundtable discussions, seminars and workshops.

This year, about forty members from half of the various chapters attended Leadership Days, along with more than six members of the Chapter Council, outgoing ASM president Jon Tirpak, and a number of staff from ASM International. Thanks to Nicole Hale from ASM International for her efforts in organizing the event. As the recent officers of the Pittsburgh Chapter know, we have relied upon Nicole for almost all the Pittsburgh Chapter’s interactions with ASM International.

ASM President Jon Tirpak opened Leadership Days with a short speech that included two related points. The first was a quote, "many hands make light work" which stresses the importance of spreading around the tasks to be performed by the Chapter in order to not overburden the Chapter's volunteers, and the second was that new volunteers should be given small tasks (rather than intimidating job titles) to get them engaged into the Chapter's activities.

Beyond the prepared speeches and discussion, Leadership Days was a great opportunity to compare ideas and challenges with leaders from other chapters. -Michael Alexander, Treasurer

Mr. Thomas Wingens

ASM Leadership Days

Thomas holds his engineering degree (Dipl.Ing.) in material science at the University of Applied Science in Dortmund/Germany and holds a MBA from the University of Economy and Management in Stuttgart/Germany. He started his professional career in 1987 as metallurgist and heat treater in the Thyssen Specialty Steel mill in Germany and has worked in management and executive positions at leading companies in the Metal and Heat Treat Industry such as Bodycote, Ipsen, Tenova Group, Seco/Warwick, IHI Group and executed research projects with ThyssenKrupp Germany, Volvo Corporate Research Sweden, and Böhler Voestalpine Steel Austria. He lives with his wife Anderea and their two children in Sewickley, PA.
November Meeting Preview

Day / Date: Thursday, Nov 17, 2016
Location: Lombardozi’s Restaurant
Address: 4786 Liberty Ave, Pittsburgh
Time: 06:00 p.m. - 08:30 p.m.
Speaker: Kirk Rogers, PhD, GE Center For Additive Technology Advancement
Topic: Powder Metallurgy for Extreme Performance Materials
Register: RSVP by 11/15/2016 to: Piyamanee Komolwit: pkomolwit@uss.com. Pay cash or check at the door, or pay ahead of time by online registration.
Meal: Dinner Buffet

Abstract
Materials for extreme performance applications such as aerospace blisks and medical CT Targets are enabled by metal alloys not producible by means other than Powder metallurgy. The basics of the powder metallurgy process, some methods of obtaining and alloying metal powders will be discussed along with some example extreme performance parts.

Speaker Bio
Kirk is Technology Leader, Additive Manufacturing at the GE Center for Additive Technology Advancement (CATA), in Pittsburgh, PA. He has used additive technology to solve manufacturing and supply chain problems since 2010. Prior to CATA, Kirk spent a short time outside of GE, proceeded by 15+ years at GE Healthcare in Refractory Process Innovations. His responsibilities there included designing manufacturing processes for and launching new products; analyzing new business opportunities; identifying, investigating and applying new process methodologies and inspection techniques; and developing patent and technology strategy.

Dr. Rogers has 25 years of experience in materials processing, primarily powder metallurgy, with more than 15 years spent focusing on P/M of refractory metals. He has also carried out research on novel joining methods, novel molybdenum and tungsten alloys, recycling and sustainable manufacturing.

Kirk obtained his B.S. Materials Engineering from Case Western Reserve University, and masters and Ph.D in Materials Science and Engineering from Purdue University. He completed postdoctoral work at Ohio State University, and is a certified Six Sigma Blackbelt.

Dr. Kirk Rogers

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Dharma Maddala Joins ASM Chapter Council

We are pleased to announce that ASM Pittsburgh Chapter’s past Chair Dr. Dharma Maddala (Senior Leader, Alcoa Technical Center) has accepted an appointment to the ASM International’s Chapter Council. This will be a three-year term. He will be representative of District 10 which encompasses eight chapters (Cleveland, Canton-Massillon, Wabash Valley, Northwestern Pennsylvania, Akron, Warren, Pittsburgh, SCTE Pittsburgh). The role of ASM Chapter Council is to serve as main interface between the ASM Board of Trustees and all ASM Chapters. In his new role, Dr. Maddala will be developing strategies to connect the chapters within District 10, so that ideas may be shared between chapters to improve the operations and to connect with international.

Dharma joined Alcoa in February 2012 after graduating with PhD in Materials Science and Engineering at University of Connecticut in December 2011. He has a Masters and Bachelors’ degree in Chemical Engineering from the University of Rhode Island and Osmania University College of Technology (Hyderabad, India) respectively. Dr. Maddala has authored 9 peer reviewed journal articles and filed for three non-provisional patent applications. He received the ASM Internationals’ Emerging Professional Award in 2015. He has been a member of ASM, TMS and MRS since 2008, serving as Chair for the 2014-2015 year of the ASM Pittsburgh Chapter.

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**Dr. Dharma Maddala**
December Meeting
AllClad Plant Tour

Day / Date: Thursday, Dec 15, 2016
Location: AllClad Metalcrafters LLC
Address: 424 Morganza Rd, Canonsburg, PA 15317
Time: 05:00 p.m. – 07:30 p.m.

Speaker: Matt Trigona, Director of Manufacturing Operations
Curt James, Environmental Health and Safety Manager

Topic: AllClad: Environmentally Friendly – Hand Crafted Quality

Register: RSVP by 12/12/2016 to: Piyamanee Komolwit: pkomolwit@uss.com. Pay cash or check at the door, or pay ahead of time by online registration.

ONLY 50 SPOTS AVAILABLE!
NO PICTURES

Meal: Dinner Box

Agenda:
5:00 – 5:25 PM – Registration
5:30 – 5:50 PM – Dinner box and presentation
6:00 – 7:30 PM – Plant tour

Safety: 10 MPH in the Parking Lot
Long Pants and CLOSED Toed Shoes Required
Safety Glasses and Reflective Vests will be provided.
Must stay with tour guide during plant tour (Headsets will be provided). Plant Tour will consist of 2 groups of 25 attendees.

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Decembe Meeting  
(Continued from Page 11)

Abstract

All-Clad: Environmentally Friendly – Hand Crafted Quality

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ASM Pittsburgh Chapter Awards for Outstanding Young Professional Engagement and Outstanding Communications

ASM International Chapter Awards Program awards its chapters for outstanding accomplishments in the areas of Individual Membership Retention & Recruitment, Sustaining Member Retention & Recruitment, Student Outreach, Young Professional Engagement, Innovating Programming, and Communications. ASM Pittsburgh won an overall prize of $500 for Category IV chapters (301+ members) for achievements in actively engaging the young professional demographic within the chapter’s boundaries, and/or successfully increasing the volunteer involvement of young professionals in chapter events or

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Chapter Awards
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Chapter operations. Also, ASM Pittsburgh won an overall prize of $500 for Category IV chapters for achievements in promoting active communication both to and within the chapter membership, or successfully implementing a new or creative communication strategy that has proven effective for chapter membership.

Young Professional Engagement

In winning the Young Professional Engagement award of $500, the ASM Pittsburgh Chapter recognized that an important aspect of growing its membership was to engage young professionals, and ASM International awarded the Pittsburgh Chapter due to: (i) the Chapter meetings on contemporary topics that had the effect of drawing in and engaging young professionals; (ii) the Pittsburgh Night Lecture that recognizes a young member of the Pittsburgh Chapter who has made significant contributions in metallurgy or materials; (iii) the ASM Young Member Award that is intended to recognize and encourage the young member (no more than 35 years of age on January 1 of the year in which the award is to be presented) who has demonstrated high character and ethics in his/her actions, promoted the field of materials or metallurgy and promoted the goals and objectives of ASM by serving the chapter; and (iv) Young Members' Night (YMN), which actively involves students by inviting them to serve on the YMN committee.

Communications

For the communications award, the ASM Pittsburgh Chapter won a $500 prize by utilizing a multifaceted approach to communications, including timely and appropriate integration of several communication vehicles to keep the membership informed of events as well as documenting the Chapter history. The key communication vehicles include the ASM Pittsburgh Materials Matrix newsletter, the ASM Pittsburgh web page, and improved distribution of chapter email communications.

The Chapter also showed a commitment to communications by creating a new Communications Officer position. Our Chapter feels that improved communication to members is a key driver enabling deeper penetration into new emerging professionals. Accordingly, an executive committee meeting was held to focus on improving communications. The result was an agreement to establish a new officer-level communications position. The Communications officer will ensure that meeting notices and other content from the Chapter are effectively communicated to our membership.

The communications function will include coordinating mail, email, and website communications efforts and will also consist of compiling and updating a list of at least email addresses of members, former members, and non-members in the materials industry who would be interested in Chapter events, so that meeting announcements and newsletters get the wide distribution needed to increase membership and attendance. This position will keep information of local organizations that would be interested in our events.
The ASM Pittsburgh Chapter's New Year began under the stewardship of Mr. Nathan (Nate) Eisinger with a well-attended meeting on 15th September at Lombardozzi’s Restaurant that flaunts the best tasting Italian food in town! (and let me just say that we were not disappointed!). The meeting was a joint meeting between ASM Pittsburgh Chapter and the American Welding Society (AWS). The talk was given by Mr. Mike Kowatch entitled “The relationship between arc strikes and premature failure of metals”. Mr. Kowatch explained that arc strikes occur due to two main reasons: (1) during the start of the welding process (TIG, MIG, stick welding), and (2) during nondestructive testing such as magnetic particle inspection when test pieces are charged with high current of the order 1,500 amps or more. In his talk, he mainly discussed the damage to the metal caused by arc strikes during non-destructive testing (NDT) that uses magnetic particle inspection.

Mr. Kowatch presented a case where AISI 4130 forged chain links broke prematurely during tension testing. The location of failure of the links was unusual and the breaking load was almost half of what was specified. On further inspection of the fracture surface it was discovered that some copper had infiltrated within the grain boundaries! Discussing this matter with the manufacturer of the chain links revealed that the chain links were magnetic particle tested subsequent to their manufacturing and prior to mechanical testing. The magnetic particle testing involved copper pods to hold the chain links within the jaws of the testing machine. Thus it was proposed that the arc strikes occurred during mag particle testing causing rapid heating of the metal, causing localized melting of the chain links and thus getting copper from the pods infiltrated into the steel. Metallographic analysis was performed across the fracture surface that revealed extremely hard material at the arc strike zone. The hardness of the affected zone was found to be around 56 HRC while the general hardness of the chain links was about 31 HRC. The copper in the arc strike zone diffused rapidly along the grain boundaries of the steel causing embrittlement of the metal and subsequently to the very low tensile strength of the chain links. Further, it was determined that the chain links were held in the jaw of the mag particle testing machine exactly at the same locations where the failure occurred subsequently in the mechanical testing. Mike’s talk was followed by some lively discussion about the magnetic particle testing and what precautions should be taken to avoid the arc strikes and what remedial actions should be taken to alleviate this problem if the arc strikes do occur during mag particle testing.

Mike Kowatch is QC manager at Product Evaluation System, Inc. (PES), an independent laboratory that conducts mechanical testing, chemical analysis, metallography and NDT inspection. He is a certified welding inspector (CWI) and currently holds an ANST/NAS 410/NS 250-1500-1 Level III certification. He was previously certified as Level III for Ultrasonic testing, Level II for Radiographic Testing. He began his career in non-destructive testing, NDT while enlisted in the U.S. Navy 30 years ago. His early experience as NDT inspector with U.S. Navy, he performed NDT examining various repairs aboard Navy submarines and surface ships. Following his time in the Navy, he attended Old Dominion University in Norfolk, VA. He has been working at PES for the past 11 years as NDT Level III and NDT specialist.
Call for Volunteers

We are requesting ASM Pittsburgh Chapter members, representatives of Pittsburgh Chapters’ sustaining member companies, students & faculty members of the local universities to come forward as soon as they can and join the chapters’ executive committee. The volunteers are a key factor in the success and longevity of this materials society! We need your support and involvement to serve this professional community. There are many committee chair positions as yet unfulfilled this year. You can help in any capacity, small or large, that you feel you are interested in. For example you could help:

- develop, test and deliver educational products and services such as individual or company-wide
- training programs that provide opportunities for professional development / continuing
- education of members
- organize seminar series on topics of interest to the members to deepen their technical expertise
- to grow and retain membership
- to improve communications with membership
- foster the development of excellence in technical areas
- suggest topics and speakers for regular monthly meetings
- reach out to the local high school students and introduce them to materials science and engineering
- organize plant tours
- elicit applications for college scholarships
- act as judges in Pittsburgh Regional Science and Engineering Fair (PRSEF), volunteer for National Engineers Week and Materials Minicamps

There is certainly a value in being a volunteer. The regular monthly meetings are a wonderful resource to increase your professional network, broaden your horizons and stay current in technical knowledge. You also receive professional development points. Employers usually view these activities as a hallmark of high-achieving employees. This is also a great opportunity to hone your leadership skills! Hope you will join the ASM Pittsburgh Chapter executive committee in the near future. Thank you!
Visit our ASM International hosted website. Register for chapter meetings, view our newsletter, and more. Do we have your email?
http://www.asminternational.org/web/pittsburgh-chapter/home

Thank you to all our Sustaining Member Companies

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