



Philadelphia Liberty Bell Chapter Newsletter

www.asm-philadelphia.com

Thursday, April 16, 2009

Sustaining Member Night (Poster Contest)

Spouses and guests are invited and welcome. Williamson Restaurant, Easton Road, Horsham, PA



Speaker:
JOHN DUPONT, Lehigh University

TOPIC: Development of Gd Enriched Alloys for Long Storage of Spent Nuclear Fuel

The development of Gd-enriched austenitic alloys is currently being considered for nuclear criticality control for the Yucca Mountain spent nuclear fuel facility. In this research, the physical and welding metallurgy of Gd-enriched austenitic alloys has been investigated with a combination of differential thermal analysis, Varestraint and Gleeble tests, and various microstructural characterization techniques. Type 316L stainless steel alloys with up to 6 wt% Gd were observed to solidify in the primary ferrite mode and terminate solidification by a peritectic reaction involving a (Fe,Ni,Cr)₃Gd. Heating of the as-cast alloys leads to liquation of the (Fe,Ni,Cr)₃Gd intermetallic at approx. 1060°C. As a result, the solidification temperature range of these alloys is very large (360°C to 400°C). The large solidification temperature range leads to poor hot ductility and weldability, and limits production of Gd enriched stainless steels on a commercial basis. Subsequent work demonstrated that this difficulty can be surmounted by the addition of Gd to nickel base alloys. The Ni base alloys initiated solidification by formation of primary austenite and terminated solidification by a eutectic-type reaction at ~1270°C involving austenite and Ni₅Gd. As a result, the solidification temperature range of the Ni alloys was significantly lower (100° to 130°C). This is a substantial reduction compared to the solidification temperature range of Gd-enriched stainless steels. The reduced solidification temperature range led to significant improvements in hot ductility and weldability. The influence of Gd on the solidification cracking resistance and mechanical properties will also be described.

Dr. DuPont is currently the R.D. Stout Distinguished Professor of Materials Science & Engineering at Lehigh University. He is also Associate Director of Lehigh's Energy Research Center and holds a joint appointment in the Mechanical Engineering Department. His research activities cover areas of welding metallurgy, solidification, Laser Engineered Net Shaping, alloy development, and high temperature corrosion. He has published over 200 technical articles in these areas. He has won 10 best paper awards from the American Welding Society (AWS) and the AWS Prof. Koichi Masubuchi Award, which is sponsored by the Massachusetts Institute of Technology and made to "the outstanding scientist under the age of 40 who has made significant contributions to advance the science and technology of welding materials through research and development". He received a Young Investigator Award from the Office of Naval Research and a CAREER award from the National Science Foundation. In 2000, Dr. DuPont received the National Science Foundation Presidential Early Career Award for Scientist and Engineers (PECASE) from President Clinton, which is the highest honor bestowed by the US government on outstanding scientist and engineers. Dr. DuPont is a Fellow of AWS and the American Society for Materials. He was recently awarded the AWS Irrgang Award, which is presented to the individual who has done the most to enhance AWS's goal of advancing the science and technology of welding and joining over the last five years. He is currently a Principal Reviewer for the Welding Journal, on the editorial board for the Science & Technology of Welding and Joining, and a reviewer for the Journal of Materials Engineering and Performance.

Meeting Registration:

Register to attend our meeting on our web site www.asm-philadelphia.com. If you have a large group attending or do not have access to the web site, please contact Don Jordan at 215-721-1502 ext 206 to register.

Technical Chairperson

Jim Watters
Delaware Valley
Utility Advisors

Meeting Sponsors

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Dinner Menu

Fruit cup
Chicken Maryland
Potatoes au Gratin
Grilled Tomato Florentine
Ice Cream Croquette
with Chocolate Sauce

Social Hour -

5:30 - 7:00 p.m.

Open Bar: 5:30

Dinner - 7:00 p.m.

Prices: Members & Guests: \$28.00; Retirees: \$19.00; Students: \$16.00

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Best Wishes to the Philadelphia Chapter



Chairperson's Message

April, 2009

Spring has finally arrived as Major League Baseball's opening games began April 5th. It's also a time when we can implement the outdoor projects we have planned this past winter. So get out and enjoy this transitional time of year.

From our ASM Chapter standpoint, we have the opportunity to implement our plan for a very engaging and informative meeting this month. Traditionally, this meeting presents a higher level of interaction through exhibits by our sustaining member companies and the Chuck Burns Poster Contest for graduate students. Our guest speaker is Mr. John DuPont from Lehigh University and his topic is "Development of GD Enriched Alloys for Long Storage of Spent Nuclear Fuel." Also, Mr. Mitch Dorfman, President of ASM Thermal Spray Society, will present the TSS President's Award to our own and most deserving Dr. Richard Knight.

A hearty thank you to all the representatives of the Sustaining Member companies that attended our luncheon on Friday March 27th at Otto's. We sincerely appreciate your support as the foundation of the chapter. This support spawns growth by encouraging your team members to actively participate within the chapter. The venue provided an atmosphere to share personal and professional conversation and partake of Otto's German fare.

This month's meeting provides many networking opportunities so please make an effort to attend as you will not be disappointed.

Respectfully
Tim Steber
2008-2009 Chairperson

Upcoming Events...

4-16-09	Thursday	Sustaining Members Night/ Poster Contest Topic: Development of GD Enriched Alloys for Long Storage of Spent Nuclear Fuel
5-8-09	Friday	Limerick Nuclear Power Plant Tour
6-1-09	Monday	Golf Outing
6-22 thru 6-26		Materials Camp 2009 Drexel University

Limerick Nuclear Power Plant Tour - Friday May 8th - 9 AM

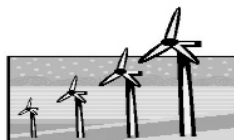
A current and highly publicized subject affecting our nation and peeking our interest is energy. Alternative energy utilization is a hot topic in the materials industry today, but nuclear will always have its place and is sure to expand. As a result, your Professional Development Committee has organized a facilities' tour of the Limerick Nuclear Power Plant located in Limerick Pa. This tour is scheduled to take place on Friday May 8th beginning at 9:00 AM. Due to security and limited tour guides, this tour will be limited to a 20 person maximum. As such, participants will be selected on a first come, first serve basis.

This will be a comprehensive tour lasting about 3.5 hrs. Plan to arrive before 9 AM as the tour will start promptly at 9 AM. More information, including directions, will be sent to the 20 individuals attending. Please contact Trevor Jones at Solar Atmospheres to book your reservation at tmj@solaratm.com or 215-721-1502 x 351. Limerick requires having a list of names at least one week before May 8th, so you must make your reservations with Trevor Jones prior to May 1st.

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The 22th Annual Golf Outing - Mark your calendars

Hosted By: The Greater Philadelphia Section of ASNT will be a joint outing with the Liberty Bell Chapter of ASM International

Closest to the Pin, Longest Drive, Putting Contest

Monday, June 1, 2009

Registration - 7:00 a.m. Golf - 8:00 a.m. (Shotgun Start)

Buffet - 1:30 p.m. at the LIMEKILN GOLF CLUB - 1776 Limekiln Pike, Ambler, PA

The 22th Annual Golf Tournament has been scheduled and reservations are now being taken. The cost of this outing is only \$95.00, if paid by May 27, 2009, \$100.00 if paid after May 27, 2009. Price includes golf fees, golf cart, buffet, refreshments, and prizes.

Hole Sponsors are being sought for this event at all holes. The cost of becoming a Hole Sponsor is only \$85.00. A "Sponsor Sign" is included in the cost and will be displayed at your hole.

Golf Outing Reservation, Limekiln Golf Club, Monday, June 1, 2009

RSVP: Golf/Hole Sponsor by Monday, May 28, 2009

Cost: \$95:00 - Golf & Buffet _____ (Number) \$85:00 - Hole Sponsor _____

Foursome:

Name: _____ Name: _____

Name: _____ Name: _____

Amount Enclosed: _____ Checks Payable to "Greater Philadelphia Section of ASNT"

NOTE: Payment required by May 27, 2009 for discount. No refunds for Golf & Buffet after May 29, 2009.

Return to:

Anthony Gatti- Kingsbury, Inc.
10385 Drummond Road
Philadelphia, PA 19154

Golf Committee:

Vince Roding (610) 461-6238
Fred Klock (215) 659-8424
Anthony Gatti (215) 824-4000

Directions to Limekiln Golf Club: Limekiln Golf Club is located in Horsham Township, Pennsylvania, on Limekiln Pike (Rt.#152), 1/2 mile north of Horsham Rd.(Rt.#463). Heading north, the driveway is on the right side of Limekiln Pike, across from Whitemarsh Memorial Park.

Welcome New Members...

David Albrecht, Jr. Fluid Power, Inc.
Ronald Bautista Synthes
John Eric Bukowski Student, Pennsbury HS
Robert Carlton GlaxoSmithKline
William Frazier III Student
Brian Gorney Laboratory Testing, Inc.

Kimberly Horrocks Solar Atmospheres, Inc.
Jerri Jefferies Struers Inc.
T. Scott Krelick Krelick Conservation LLC
Michael Maule Lenape Forged Products Corp.
John H. Mortimer Inductotherm Corp.
Calvin C. Stewart, III Synthes (USA)
John Throgmorton John Throgmorton
Buddy Yarnall Lenape Forged Products Corp.

Dr. Knight to Receive President's Pin

Mr. Mitch Dorfman, ASM-TSS President will be presenting Dr. Richard Knight with the TSS President's Award at our meeting this month. Congratulations, Dr. Knight!

C.F. Burns Memorial Poster Contest

The Liberty Bell Chapter will be holding its 8th annual poster contest for graduate students during our Sustaining Members Night on April 16, 2009. This will be the 5th year the contest is sponsored by Solar Atmospheres, Inc. Prize money will be \$500 for 1st Place, \$300 for 2nd Place and \$200 for 3rd Place. Due to limited space, we are asking students to pre-register. Space will be awarded on a first come, first serve basis. Please register your name and poster title with Mike Moyer at mikem@solaratm.com or call him at 215-721-1502 x207. Good luck to everyone!

Yearbook Advertising Campaign Begins!

The Liberty Bell Chapter advertising committee is putting together the advertisers' list for the 2009-2010 chapter yearbook. ***The Liberty Bell yearbook is seen by over 900 materials professionals and companies in the Delaware Valley and South Jersey.*** It has been consistently recognized by ASM International as one of the top chapter publications worldwide. Professionally put together and printed, the Liberty Bell yearbook provides a focused method of getting your company's products and services in front of the people who use them!

If you would like to reserve space or for more information including ad options and rates, please email the Advertising Committee at apollodgns@aol.com.

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For more info about the ASM Liberty Bell Chapter...

Contact Chapter Chairperson Tim Steber at 215-721-1502 x 216 or email him at tms@solaratm.com.

Changes To Your Membership Information

Any Chapter Member who needs to make a change to their membership listing or to their company affiliation listing must call Membership Service, ASM International at 1-800-336-5152 or use the ASMI website at www.asminternational.org. This will permanently update your information. We depend on ASM International to receive our updated e-mail list for this e-newsletter and company membership listing for the upcoming 2009-2010 yearbook.

Do you have news...

that should be shared with the other members of the "Liberty Bell" Chapter? If so, please send your info to Jim Watters at his email address:

dvua@verizon.net.

Be sure to add the phrase "Item to add to the ASM Chapter newsletter" in the subject line. We'll be sure to include it in the next monthly Chapter newsletter.

Materials Camp 2009

Our 5th annual Materials Camp will be held at Drexel University June 22 through 26. The Camp is available for high school students who will be entering their Senior, Junior, or Sophomore year in the Fall of 2009. It is a wonderful experience for anyone considering Materials Science or Engineering for a career. Information and applications can be found on the Chapter web site. Last year we had 60 applicants for 24 spots. The deadline for applications is April 30th. All applications must be received by the deadline. We still need the financial support of local companies for this very worthwhile program. If you have any questions regarding application, or providing financial support, please contact Tom Reid, Materials Camp Chairperson by email at ReiTmRd@aol.com, or by phone at 215-378-5997.

Chapter Members Help to Judge Science Fair

Once again this year, the Liberty Bell chapter supplied judges to the Delaware Valley Science Fair. This year, Frank Boyle, John Janiszewski, Ken Moyer, and Tom Reid spent Wednesday, April 1 reviewing projects and interviewing students at the fair. An added attraction this year was the presence of several local news organizations. Frank, John, and Tom actually were photographed during one of their interviews and the footage made it onto the Channel 6 newscast that evening!

This year's science fair featured almost 900 exhibits in grades 6-12. Although there were over 400 judges present, more are always welcome. If anyone is interested in judging, you can sign up on the Science Fair's website, www.dvsf.org. Any questions can be directed to any of the chapter members who judged this year.

ASM Foundation Winners Chosen at Local Science Fair

The annual Delaware Valley Science Fair was held in Oaks, PA the week of March 30, 2009. The ASM Foundation sponsors a medal award for each high school grade level for the most outstanding exhibits in materials science. This year's winners, selected by Chapter member judges, were:

- Grade 12:** "Role of Catalyst in Crystallographic Etching of Graphene Nanostructures"
Thomas Ly
 Central High School, Philadelphia, PA Teacher- Robert Farber
- Grade 11:** "A Statistical 2 Cubed 3 Factorial Design Study on the Effect of 3 Variables on Cement"
Gerald Bauldock
 Kids for Chemistry, Willingboro, NJ Sponsor- Gerald Bauldock
- Grade 10:** "Glass Bone Implants: Adhesion of Precursor Osteoblast Cells"
Raina Jain
 Freedom High School, Bethlehem, PA Teacher- Linda Frederick
- Grade 9:** "Auxetic Acoustics: A Novel Insulation for Naval Applications"
Andy Romine
 Unionville High School, Kennett Square, PA Teacher- William Anderson

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Mission Statement - ASM International, Philadelphia "Liberty Bell" Chapter

The Philadelphia "Liberty Bell" Chapter of ASM International supports the development and continuance of the materials industry in the Philadelphia area. Chapter activities strive to inform the local technical community of new developments in materials, raise the visibility of the materials industry, provide educational opportunities in materials technology, recruit new people and organizations into materials-related activities, and provide networking opportunities for members of the materials community. The Chapter works with ASM International to use our joint resources to accomplish this mission.