



Edmonton Chapter News

Last Month

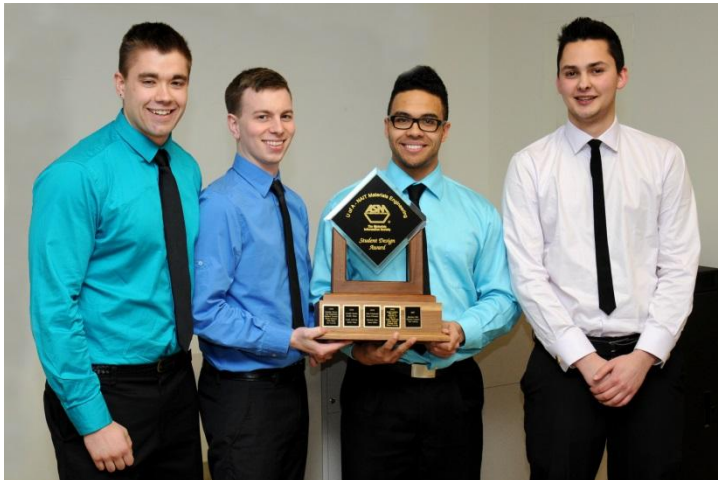
ASM Materials Design Award – University of Alberta Patrick Lysz

On Friday, April 12th, ASM Edmonton judged the top student teams in the University of Alberta materials engineering design project course. The winner of this competition receives the ASM Materials Design Award. The winning group is selected by a number of ASM judges based on the students' understanding of various materials selection challenges and process used to manufacture the part. Extra points are usually given to an innovative or difficult project that is successfully executed.

The three design groups chosen this year were each interesting projects. One was a water desalinization system for use in Africa, another was a high security bicycle lock, and one group designed an attachment to improve the performance of a Canadian staple, the ice chopper.

Each project had their strengths, but the winner chosen this year was the ice chopper attachment group. This group showed the various prototypes they had created and had the most cohesive plan from a materials and manufacturing standpoint.

Congratulations go to the winners of the 2012-2013 ASM Materials Design Award: Nairn Barnes, Michael Werner, Jeremy Fife, and Ryan Wilkes! They will be present this Thursday at the ASM Technical Dinner meeting to receive their award and present their design. We were impressed by all the projects we saw, and would like to congratulate all the students who presented on their achievement. We look forward to working with the graduates in the coming years!



ASM Materials Design Award Winners (from left to right):
Jeremy Fife, Michael Werner, Ryan Wilkes, and Nairn Barnes

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March Technical Dinner Meeting Recap

Patrick Lysz

ASM held a joint dinner meeting with AWS. Stuart Guest of the Canadian Centre for Welding and Joining presented on the Welding Tubular Ni-WC Hardfacing Wires and Recent Advancements in the Ni-WC Material System to an audience of 56 attendees. Stuart's topic was poignant as critical parts and tools used in the oil sands that are exposed to a harsh and abrasive environment are regularly coated or treated to lengthen their useful life. One of these methods is WC overlay. While it is commonly used, it is also one of the least understood systems applied by industry. Stuart's presentation gave us insight into some new developments in the Ni-WC application methods. He focused on the tubular wire-based application of Ni-WC as an alternative to the widely used plasma transferred arc method. With a wonderful presentation, fantastic information and a generally friendly demeanor, Stuart walked us through his research. After his talk, he was presented with a plaque from AWS and a hand-carved wooden magnifying glass and certificate from ASM.

If you have any ideas on topics or speakers you wish to see at the technical dinners, please feel free to let us know! You can contact myself Patrick.Lysz@Blackcatblades.com or ASM Edmonton at ASM.Edmonton@gmail.com. We would love to hear from you!



Stuart Guest speaking on Ni-WC Hardfacing Wires

This Month

Technical Dinner Meeting

For our final technical dinner meeting of the season ASM will be welcoming Dr. Vilupanu Ravi from California State Polytechnic University. Dr. Ravi will be speaking on *Engineered Coatings using Pack Cementation Processes*.

Abstract

Metallic surfaces can be altered to achieve design objectives, e.g., corrosion resistance, wear or abrasion resistance, etc., using a wide range of coating methods. The particular method chosen depends on many factors including economics and design requirements. The focus of this talk will be on the development of coatings using Halide Activated Pack Cementation (HAPC). HAPC is a versatile and economical approach to apply coatings of desired compositions to a range of substrates, typically nickel and iron-based alloys. The coating process can be controlled to obtain the desired final composition and microstructure. The in situ generation of halide vapor species inside the pack with subsequent transport, surface reactions and solid state diffusion are important phenomena that need to be understood in order to achieve optimal coating conditions. In this talk, I will review the HAPC process; discuss relevant

Upcoming Events

2012-2013 Events

Thurs, Apr 25th – Technical Dinner Meeting
Topic: Engineered Coatings using Pack Cementation Processes.
Speaker: Dr. Vilupanar Ravi
Location: U of A Faculty Club

Fri, May 17th – Alley Kat Brewery Tour
Location: Alley Kat Brewery

Thurs, Jun 6th – Annual General Meeting
Location: U of A Faculty Club

Chapter Sustaining Members

Please take a moment to visit the websites of our chapter sustaining members

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2011-2012 ASM Edmonton Executive

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thermodynamics and kinetics, and present the current status of our work. Specific examples including the diffusion coatings on nickel and steel as well as hard coatings on soft substrates will be presented.

Biography

Vilupanur A. Ravi is Professor and Chair of the Chemical and Materials Engineering Department in California State Polytechnic University, Pomona, CA. Prior to joining Cal Poly Pomona, he worked at W. L. Gore and Associates, Inc., conducting research and providing technical leadership in the area of expanded poly(tetrafluoroethylene) membranes and derivative products. Preceding this, he worked at Lanxide Corporation on the processing, development and applications of advanced ceramic and metal matrix composites and high temperature coatings. Dr. Ravi's current research interests are in the areas of high temperature materials and coatings, and biomaterials. He is particularly interested in the processing of advanced materials and their subsequent environmental stability. Dr. Ravi received his PhD in Metallurgical Engineering from the Ohio State University. Dr. Ravi is a Fellow of ASM International, Alpha Sigma Mu and the Institute of Materials, Minerals and Mining. He is a registered Professional Engineer (PE) in California, a Chartered Engineer (CEng) in the UK and a European Engineer (Eur Ing). He serves on the Board of Trustees of ASM International. He has served as Chair of the Action in Education Committee of ASM International and is a past President of Alpha Sigma Mu, the international professional honor society for materials Science and engineering

Dates and Times:

Date: Thursday, April 25th, 2012

Registration: 6:00 PM

Dinner: 6:30 PM

Technical Program 7:30 PM

Location: University of Alberta Faculty Club

RSVP by April 23rd, 2012 to asm.edmonton@gmail.com

Costs:

Students: \$10

Professional Members: \$25

Non-Members \$35

Payment can be made by cash or cheque. If you would like to pay by credit card, there will be a nominal fee of \$1.50 to cover processing cost. For more details regarding this payment option please contact us at asm.edmonton@gmail.com.

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Trivia

(Courtesy of Greg Nelson)

Protective coatings can be applied to metal to protect it from a corrosive environment when the metal is otherwise suitable for the application. Protection from the environment can be achieved in one of five ways (or a combination therefore of). What are these five fundamental ways that corrosion protection is achieved through coatings?

Feedback

The ASM Edmonton Executive is continually working to improve this newsletter in order to better serve our members. If you have any suggestions or comments regarding the newsletter or if you would like anything included please contact us [here](#).

Trivia Answer

Source: (S.Bradford, *Corrosion Control*, 2nd edition, CASTI Publishing, pg 313)

1. A barrier coating that prevents the environment from contacting the metal
2. A sacrificial metal coating that corrodes preferentially while giving cathodic protection to the underlying metal
3. A noble metal coating that passivates the underlying metal
4. An inhibitor coating that slows electrode reactions
5. An electrically resistant coating that stifles the electrochemical reactions (i.e. paint)