

MS&T '10

Material Advantage Student Wrap-Up

Over 700 students attended the MS&T '10 conference in Houston, Texas, on October 17-21. In addition to the technical sessions, students had the opportunity to participate in and attend many Material Advantage activities.

Student programs kicked off with the Material Advantage Chapter Leadership Workshop on Saturday, Oct. 16. Over 50 chapter leaders learned about the four partnering societies in the Material Advantage student program. They learned how to manage a Material Advantage chapter and shared ideas on how to increase membership and raise funds.

Following the workshop, the students participated in the Material Advantage Outreach Demonstration Expo, the second year for this event in which outreach activities that have been developed by the individual chapters were showcased. The demonstrations provided an exchange of ideas, and other chapters were encouraged to take part in the very important task of promoting interest in materials science to grades K-12.



On Sunday, Oct. 17, students competed in the Material Advantage Student Speaking Contest semi-finals, where they were narrowed down to four participants for the finals. All contestants received \$300 for travel expenses. The winners of the 2010 student speaking contest were:

- Winner: Erica Marden from The Pennsylvania State University, winning \$200 for her presentation entitled, "*Effect of Concentration and Precipitation pH on the Degree of Amylose Inclusion Complex Formation with Dicarboxylic Fatty Acid.*"
- First Runner-Up: Ryan Ginder from Northwestern University, winning \$100 for his presentation entitled, "*Improving Li-ion Battery Capacity via PANI Composite Anodes.*"
- Second Runners-Up: Catherine Mohrmann from Missouri University of Science & Technology for her presentation entitled, "*Crystallization Studies of Alumina Doped Tellurite Glass: For Use in Fiber Optics,*" and Seth Berbano from Iowa State University for his presentation entitled, "*Electrochemical Performance of Rechargeable Lithium Batteries with Ni-coated Cathode Active Materials.*" They each won a \$50 cash prize.

This contest was organized by the Ceramic Educational Council for Material Advantage. The contestants in the semi-final round were evaluated by a volunteer panel of judges consisting of Amanda Billings, Marissa Reigel, and Alex Cozzi from Savannah River National Laboratory, and Navin Manjooran of Siemens Corporation. The Speaking Contest judges for the final round were Kinga Unocic of Oak Ridge National Laboratory, Paul Ohodnick of National Energy Technology Lab, and Leigh Duren of Nichols Portland – Parker Hannifin.

Also on Sunday, entries for the undergraduate poster competition were displayed for judging. On Tuesday, the poster entries for the graduate student poster contest were judged. Both of these contests are organized by the Ceramic Educational Council. The winners of the 2010 student poster contests were:

Material Advantage Graduate Student Poster Competition:

- First Place: Debrupa Lahiri from Florida International University for her poster entitled, "Quantifying Mechanical Properties and Adhesion Strength of a Single Splat – Building Blocks of Thermal Sprayed Coatings."
- Second Place: Kyle Rozman from Oregon State University for his poster entitled, "Corrosion and Corrosion Fatigue of Oil Drilling Steels."
- Third Place: Masayoshi Wadamori for his poster entitled, "Quantitative Analysis of Local Deformation during Tensile Test of Dual Phase Steel by Digital Image Correlation."

This contest was organized by the Ceramic Educational Council for Material Advantage. The winners were selected by a volunteer panel of judges consisting of S. Jill Glass from Sandia National Laboratories, John Ballato from Clemson University, John Anderson from Nucor Steel – Texas, and Fabienne Johnson from Savannah River National Laboratory.

Material Advantage Undergraduate Student Poster Competition:

- First Place: Sibu Kuruvilla from the University of Illinois at Urbana-Champaign for his poster entitled, "Top-down fabrication of patterned, vertically aligned silicon nanowires."

- Second Place: Carlos Bledt from Rutgers University for his poster entitled, "Optical Properties of Silver/Silver Halide Thin Film Coated Low-Loss Hollow Waveguides for Infrared Spectroscopic Applications."
- Third Place: David Shahin from Missouri University of Science & Technology for his poster entitled, "Glass Cracking Near Edges and Interfaces."
- Honorable Mentions: Kelsey Meyer from New Mexico Institute of Mining and Technology for her poster entitled, "Alternative Electrodes for Improved Electroceramic Thin Films," and Howie Jores from John Hopkins University for his poster entitled, "Combinatorial Methods for Oxide Thermoelectric Development."

The winners were selected by a volunteer panel of judges consisting of Kelly Dallas from ArcelorMittal, Amanda Brennecka from Sandia National Laboratories, and Fathi Hammad from TMK-IPSCO.

While the semi-final round of the speaking contest was under way, two additional programs were offered for the students. First was the Material Advantage Career Forum, where representatives from different materials-related careers introduced themselves to the students. The representative talked about their backgrounds and career decision that led to their current positions. The student had the opportunity to ask questions of the panel to assist them in the difficult task of making their own career decisions. On the panel representing industry (steel) was Randy Skagen from Nucor Steel Tuscaloosa Inc., representing academia was Molly Kennedy from Clemson University, and representing government labs was Amy Clarke from Los Alamos National Laboratory.

Second was the Material Advantage Graduate School Forum, where representatives from different universities and current graduate students introduced themselves to the students. The representatives talked about their backgrounds, the pros and cons of attending graduate school, as well as the process for selecting the right program. The graduate students talked about their backgrounds, why they chose to attend graduate school, and how they made their decision to attend graduate school. The panel consisted of a university professor, Wayne Huebner from Missouri University of Science & Technology, a university representative, Jeanette Magee from Arizona State University, a current graduate student, Lisa Deibler from Case Western Reserve University, and a recent graduate, Ruth Hidalgo from the University of Puerto Rico/Army Corp of Engineers.

Third was the Material Advantage Art of Networking Forum. Emily Kinser from IBM provided information on how to network, how to get the most from networking, and the benefits networking provides. Students practiced their newly learned networking skills with each other.

Between the three forums, the students were provided with the type of information they need to make informed decisions about their future.

The final activity on Sunday was the Material Advantage Student Mixer, always a highlight for the students. More than 500 students, most wearing their school colors, networked with each other, leaders from the four partnering organizations, representatives from companies participating in the Professional Career Pavilion, and members of the Material Advantage Committee.

Tuesday, Oct. 19 was full of student activities beginning with the Material Advantage Ceramic Mug Drop Contest, organized by Keramos on behalf of Material Advantage. In the Mug Drop Contest, students entered their mugs, fabricated from ceramic raw materials, which were then judged on both aesthetics and breaking thresholds. The winner was Twyla Sampaco from the University of Washington with a 150-cm drop. The winner of the best-looking mug was Albert Tien, also from the University of Washington.

Next was the Material Advantage Putting Contest, also organized by Keramos. Teams of four students competed using putters and balls they fabricated. Prizes were awarded based on aesthetics, closest putt and best putting team. The winner, who received \$100, was the team from the University of Washington: Twyla Sampaco, Andrey Maslov, Jill Kuchman and Dan Buck. Andrey Maslov won most aesthetic ball and closest to the hole (75 cm), and Jill Kuchman won most aesthetic putter, both from the University of Washington.

New to the exhibit hall this year was the MS&T Professional Recruitment & Career Pavilion. Students were encouraged to visit the companies in the pavilion. The participating companies were ArcelorMittal USA, Carpenter Technology Corporation, Freeport McMoRan Copper & Gold, Inc., GE Global Research Center, Nucor Corp., SSAB, Steel Dynamics Inc., Titanium Metals Corporation, Corning Incorporated, O-I, Saudi Aramco, Bloom Energy. Universities included Drexel University and Arizona State University.

The student activities wrapped up with the Material Advantage Student Awards Ceremony, hosted by the Material Advantage Committee chair, Bill Farenholtz, from Missouri University of Science & Technology. The winners of Material Advantage contests were congratulated and presented with awards.

In addition to the MS&T contest awards, the 2010 Material Advantage Chapter of Excellence Awards were announced. All active chapters were scored based on criteria for programming, career development, service, social activities and chapter management. The 2010 Chapters of Excellence winners, winning \$400 each, were The Pennsylvania State University, Missouri University of Science & Technology, Virginia Tech, Florida International University and the University of Connecticut. The Most Outstanding Chapter Award went to Iowa State University.

The Material Advantage Committee meets each year at MS&T. This committee actively participates in decision making of the Material Advantage Student Program. Many thanks to the devoted committee members.

Representing ACerS

Bill Fahrenholtz (Chair), Missouri University of Science & Technology
Kevin Fox, Savannah River National Laboratory
Allen Kimel, The Pennsylvania State University
Edmund Moore, Wright-Patterson Air Force Base

Representing AIST

Ronald J. O'Malley (Past Chair), Nucor Steel – Decatur
Kent D. Peaslee, Missouri University of Science & Technology
Clayton D. Spangler, Steel Dynamics Inc.
Kelly Dallas, ArcelorMittal

Representing ASM International

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Jake Auliff, Sauer-Danfoss
Ryan Deacon, Johns Hopkins University
Anne Stockdale, Rolls Royce

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Diana Lados, Worcester Polytechnic Institute
Dave Bahr, Washington State University
John Balk, University of Kentucky
Ben Poquette, GE Healthcare

