

## MS&T 2013 Lecturers Announced

Continuing the grand tradition of ASM International events, three distinguished lecturers will speak at the 2013 Materials Science & Technology Conference and Exhibition (MS&T'13) to be held October 27-31 at the Palais des congrès de Montréal Convention Center. MS&T brings together the strengths of five major materials organizations: ASM International, The American Ceramic Society (ACerS), The Association for Iron & Steel Technology (AIST), Metallurgy and Materials Society of CIM (Metsoc), and The Minerals, Metals & Materials Society (TMS).

### 2013 ASM/TMS Distinguished Lectureship in Materials and Society presented Monday, October 28, 1:00 – 2:00 p.m.



*Dr. Tresa M. Pollock, FASM  
Alcoa Professor, University of California,  
Materials Department  
Flight in the 21st Century:  
The Roles of Materials and ICME*

Flight systems ranging from commercial aviation to space exploration have enabled profound leaps in science, commerce, communication, and security. The immense technical challenges involved in designing and operating these vehicles and their propulsion systems have motivated a broad spectrum of scientific advances across all disciplines of engineering, including materials science. Some examples of materials

innovations that have contributed to the success of these advanced systems will be highlighted. While new materials and processes will undoubtedly continue to enable future flight systems, there is little intrinsic merit in "new." Reliable performance of any new material is essential, and the timeline for delivering reliable, new high-performing materials is contracting as the tools for aero, thermal, and mechanical design become more sophisticated. The Integrated Computational Materials Engineering (ICME) approach aims to close this gap; challenges for this approach in the context of emerging flight systems will be discussed in this session.

### 2013 Alpha Sigma Mu Monday, October 28, 2:30 – 4:00 p.m.



*Dr. David B. Williams  
Executive Dean of the Professional  
Colleges  
Dean of the College of Engineering  
Monte Ahuja Endowed Dean's Chair  
Ohio State University  
Reflections on Microscopy & Analysis:  
From Viewing the Small World to  
Leading on a Larger Stage*

We are celebrating 2013 as the 100th birthday of ASM International. It is also 150 years since Henry Sorby first viewed an alloy structure under a visible-light microscope and invented micro-spectroscopy, the first combination of imaging and analytical techniques. I have spent my academic life studying alloys with various microscopy and spectroscopy techniques and recently was honored by the Henry Clifton Sorby Lifetime Achievement Award of the International Metallographic Society (IMS).

"Lifetime" is a somewhat sobering adjective, so this timely confluence of anniversaries prompted me to think of what I had learned in my professional life that might be of use to others, particularly younger academics and researchers early in their careers. By some standards, I have had a successful career spanning the range from assistant professor to president of a Carnegie Tier-I research university. So, rather than

### Official ASM Annual Business Meeting Notice

The Annual Business Meeting of members of ASM International will be held in conjunction with MS&T'13 on:

**Monday, October 28, 2013**

**4:00 – 5:00 p.m.**

**Palais des congrès de Montréal, Canada**

The purpose of the ASM Annual Business Meeting is the election of officers for the 2013-14 term and transaction of other society business.

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The Materials  
Information Society

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## Jean Duval Educational Fund with ASM Foundation

The Duval family established an educational fund with the ASM Materials Education Foundation in honor of Mr. Jean Duval's accomplishments during his long, productive, and innovative career as chairman and CEO of Aubert & Duval (Paris, France). The Jean Duval Educational Fund is designated for educational activities to encourage young people to enroll in materials science or other STEM professions for their lifelong career.

Jean Duval's life and career can serve as a model for ASM members and all materials technologists, scientists, and metals manufacturing and engineering professionals worldwide. During World War II, Mr. Duval became a German prisoner, but was able to escape early in the war. After returning to France, he was highly involved with the free French resistance movement. After the war, he joined Aubert & Duval, which was founded by his father and Mr. Aubert. The company was a significant player in the manufacturing of special tools and alloys and Mr. Duval was made CEO and became chairman in 1971. During his 20 years of leadership, Duval succeeded in growing the company into a world class supplier of steel, nickel base, and titanium components in products sold throughout the world.

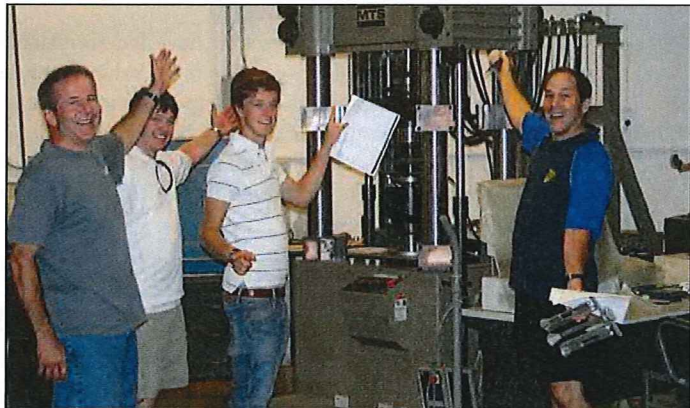
While at the helm, Duval focused on making quality products and introduced many new machines and technologies to make various forms of metal products out of a wide array of alloys. Aubert & Duval's production plants were disciplined and orderly and he stressed using procedures specified by metallurgical engineers. Today, Aubert & Duval supplies numerous components made from many different modern metallic materials for aerospace and other demand-



*Patriarch Jean Duval's (1916-1996) legacy is carried on in the Duval family's support of the ASM Foundation educational programs.*



*Edouard Duval (right), son of Jean Duval, receiving the 2010 George A. Roberts Award from its namesake at MS&T'10.*



*Franklin Duval (center), grandson of Jean Duval, traveled from France to attend the Eisenman Materials Camp 2010 in Cleveland.*



*Due largely to Duval family support and leadership, the first Materials Camp in France was held in 2010. Camp attendees visited the Michelin museum in Clermont-Ferrand.*

ing markets. Duval put special emphasis on being a leader in melting technology, through the use of electric melting, vacuum induction melting, and vacuum arc remelting equipment. The company's vacuum furnaces were the first installed in Europe. The equipment also included many innovative types of conversion equipment, such as a 4500 metric ton forging press. In 1977, he was instrumental in creating a consortium that built and installed a 65,000 metric ton closed die forging press, now called Interforge and located in Issioure, France. The press—currently owned 94% by Duval and 6% by Snecma, the French aircraft engine company—is a major source for forging large aircraft structural parts and jet engine components.

Throughout his life, Jean Duval championed formal education for engineers, training for all levels of personnel, as well as in-plant training for local support staff. The Duval family is proud to continue to support the ASM Foundation's initiative to recruit young people to enter materials science professions. They have been enthusiastic benefactors of the ASM Materials Camp programs to excite students to enroll in materials science or STEM education as their profession.

The Duval family is proud to dedicate their donation to the ASM Materials Education Foundation in honor of the contribution that Jean Duval made to the materials industry and to the world of materials science.

*Courtesy of Robert D. Halverstadt, FASM.*



## CHAPTER PROFILE

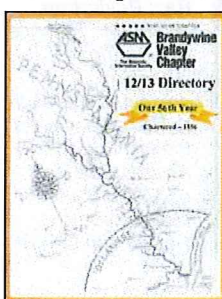
## Rebirth of the ASM Brandywine Valley Chapter



The Brandywine Valley Chapter (BVC) began operation in 1956. For more than 40 years it performed its mission with distinction. In the

late 1990s, this became a more difficult task.

In October 1999, Ronald D. Crooks, a past chair (1993-94), discovered the elected chair and vice chair had moved without informing ASM headquarters. Due to inactivity, the Chapter was at risk of being disbanded. Crooks and the Executive Committee scheduled a membership meeting on November 16 to determine the fate of the Chapter. Several attendees questioned the need for continued BVC operation,



Cover of the ASM Brandywine Valley Membership Directory.

citing dwindling attendance and general lack of interest. Arthur H. Graham suggested that the entire membership be surveyed before a decision was made.

After the survey results were tabulated, Graham prepared a presentation for the March 14 meeting, "The Future of the BVC (Will it be an Irish Wake or a Celebration of its Re-birth?)." More than 50 members completed the survey and 19 offered to serve on committees. Robert L.

Freed, a past chair (1983-84), volunteered to lead the rebirth as chair (2000-01). The new Executive Committee realized the key to reviving the Chapter was growing membership. By April 2011, BVC had increased membership from 104 to 136.

Brandywine's leadership since 1999 has been composed of seasoned veterans and young, energetic, new members. Membership is no longer identified with one or two large



Left to right, Steve Brubaker thanks Julia Hess, Claire Campbell, Caroline Dang, and Ken Young for the presentations and arrangements for a tour of the Boeing Research and Technology Metals and Composites Laboratories.

companies—now there are more than 50 represented. The Chapter's current innovative programming, consisting of diverse, nontraditional topics and unique outings, is another sign of its vibrancy. Although the Chapter had ups and downs, it achieved a five-star rating in seven of the last eight years. That's a rebirth worth celebrating.

Courtesy of Arthur Graham and Steve Brubaker, Brandywine Valley Chapter

## New Student Networking Forum

Looking for a way to network with other students or learn more about what ASM has to offer? Then join the new ASM Student Networking Forum. Take this opportunity to begin conversations about what you are working on, ask technical questions of other students, or find that next opportunity through ASM. To join the forum, visit the ASM home page at [www.asmeinternational.org](http://www.asmeinternational.org) > Students > Enter Student Forum. This page also showcases what ASM International offers as part of your Material Advantage student membership. An ASM Member ID number and password are needed to access the site. For assistance, email [memberservicecenter@asmeinternational.org](mailto:memberservicecenter@asmeinternational.org).

## VOLUNTEERISM COMMITTEE

## Profile of a Volunteer



Steve Coryell

Precision Castparts Corp. (PCC)  
Forged Products

Steve Coryell is on a mission to bridge the gap between industry and academia. "I see a lot of research being done with very little practicality. For example, I was at a university grant party to celebrate levitating a drop of water. But what can you do with that?" he wonders. Coryell sees ASM as a critical link in helping researchers understand practical needs in industry.

As an undergraduate in materials science and engineering at the University of Michigan, he was very involved in the ASM Detroit Chapter, serving on the executive board and helping with a Student Materials Camp. In the local chapter of the Alpha Sigma Mu Honors Society, Coryell helped develop a "points system" for students who became active ASM members—rather than just making it a line on their resume. "At first, I was the only student at the meeting," he recalls. "When

I left, there were at least six to 10 students at every meeting."

Coryell served as president of his local chapters of Material Advantage and Alpha Sigma Mu, both opportunities to bridge that gap between research and industry. During graduate study at the Colorado School of Mines, he joined the ASM Rocky Mountain Chapter while working at the Advanced Steel Processing and Products Research Center. He is currently a Product and Application Development Engineer for PCC Forged Products in Huntington, W.Va.

Coryell won the ASM Emerging Professional Achievement Award in 2012 and is involved with NACE International and TMS. "With professional societies, you get out what you put in. You don't build much of a network by just coming to meetings once a month," he says. "There's a big difference between meeting someone face-to-face and sending an email. With social networking sites alone, I've never met someone who turned into a working relationship and a real resource."

ASM is a Coryell family legacy, with Steve's brother Jason active in the Detroit Chapter and his father Jim involved as a retiree.



**Dr. Michael Aronov**, CEO of IQT, presented case studies outlining application of the IntensiQuench process to optimize the properties of a wide variety of steel parts. A similar workshop was held June 5 in Durham, UK, presented by **Geoff Bolton**, a representative of IQT.

### Furrer Inducted into Connecticut Academy of Science and Engineering

**Dr. David U. Furrer**, FASM, Pratt & Whitney's senior fellow discipline lead, Materials and Processes Engineering, was inducted into The Connecticut Academy of Science and Engineering at a ceremony on May 22 at Quinnipiac University in Hamden, Conn. Academy members are elected based on scientific and engineering distinction achieved through significant contributions in theory or applications. Dr. Furrer was recognized for the development and application of materials and process modeling to support component design optimization. He has also written a number of papers and led a number of symposia in the area of Integrated Computational Materials Engineering (ICME).



### Ribbon Cutting at Metallurgical Lab Open House

**Larry Somrack**, president of NSL Analytical Services Inc., formally dedicated his company's newly renovated Metallurgical Testing facility with an open house celebration on May 16. The new Metallurgical Lab, located in Warrensville Heights, Ohio, houses the company's mechanical testing, metallography, research and development departments, and

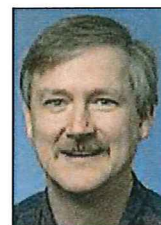
administrative support staff. The state-of-the-art 11,800-sq-ft facility increases NSL Analytical's capabilities to perform materials testing and analysis. The new Metallurgical Lab will eventually employ 19 chemists and technicians. It augments NSL's headquarters and main test lab.



Participating in the "metal" ribbon cutting ceremony were (left to right): Arnold Lockett, Cuyahoga County Department of Development; Colletta Somrack, NSL stockholder; Larry Somrack, president, NSL stockholder; Bradley Sellers, mayor of Warrensville Heights; and Leo VanderShuur, NSL chief operating officer.

### Jablonski Named Finalist for Service to America Medal

National Energy Technology Laboratory metallurgist **Dr. Paul Jablonski** was named a finalist for a Partnership for Public Service Samuel J. Heyman Service to America Medal during a congressional ceremony in May in Washington, D.C. The awards pay tribute to federal employees whose work advances the health, safety, and well-being of Americans. Dr. Jablonski was one of eight finalists—out of more than 300 nominees—for the prestigious Science and Environment Medal in recognition of his leading role in developing and fabricating a novel platinum-chromium alloy for use in new, state-of-the-art coronary stents. The new stents are more visible in X-rays, more resistant to corrosion, and more flexible than conventional stents.



## EMERGING PROFESSIONALS

### 3D Digital Surface Metrology: Widening Horizons and Opening Opportunities



**Veljko Samardzic, Ph.D.**  
New Jersey Institute of Technology

As the materials engineering field advances, critical structural dimensions of new materials are reduced from micro- to the fine resolution nano-scale. Consequently, challenges to characterize novel materials emerge. A variety of characterization methods are needed not only on a structural scale, but also in volumetric and composition ranges. Often a nondestructive approach is needed in both R&D and production environments. This article focuses on the development of 3D surface metrology.

Surface metrology is widely employed in quality control, new product development, and production. An array of 3D digital methods has emerged in recent years as improvements in digital technology have developed. These novel methods open new horizons in resolution, accuracy, speed, and mobility of materials characterization to support R&D and quality control. Infinite focus microscopy, 3D digital profilometry, and 3D digital microscopy are all based on a common approach to combine high-end optics with innovative digital technology for macroscopic, microscopic, and nanoscopic imaging.

Generally, these methods are a perfect combination of precision optics and high performance microscopes. These techniques provide vertical resolution ranging between <1 nm and 20,000  $\mu\text{m}$ , and lateral resolution below 200 nm. They are able to capture images of samples made using various materials with complex geometries such as samples made with high surface roughness, steep flanks, and highly reflective surfaces. These systems combined with multiple software packages enable topographic measurements of distances, radii, step heights, and other parameters across a defined path. They can also help to analyze many different materials and complement other instruments such as scanning electron microscopes and atomic force microscopes, among others.

To remain up-to-date in their careers and competitive within the professional community, materials engineers should stay current with the new technologies and utilize their advances. 3D digital materials characterization technologies can benefit any engineer, but especially the emerging professional community because new technologies provide novel opportunities that can turn into a variety of career paths. I benefited greatly from discovering these techniques and I am employing them continuously in my professional practice.