

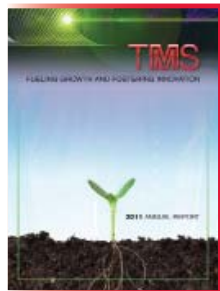
Member News



Updates on friends and colleagues in the materials community

Annual Meeting of the Membership Outlines Plans for the Future

“Fueling Growth and Fostering Innovation” was the theme of TMS’s second Annual Meeting of the Membership at the TMS 2012 Annual Meeting and Exhibition in Orlando. Of particular focus was discussion



of the Society’s 2015 strategic plan goals within the context of current strengths and achievements. To view all the presentations made at this event, go to tms.org/society/pdfs/TMS2012_Meeting_of_the_Membership.html.

Garry Warren, 2011 TMS President, noted that TMS’s five strategic goals were actually considered two sets of goals, with the first two “membership” goals being enablers of the remaining three “technical” goals. He spoke to the membership goals, stressing that TMS will continue to be defined as a “bottom up” society driven by member participation. “Our volunteers are truly priceless to the society,” he said. Warren also touched on plans for achieving the strategic goal of becoming “the destination for young professionals” through continued growth of the Young Leaders program and establishing a mentoring program for young professionals. Collaboration with the TMS

Foundation will be a critical aspect of developing these resources, Warren said.

Wolfgang Schneider, 2012 TMS President, provided an overview of the three technical goals. He emphasized that continued growth of TMS’s “core areas,” represented by its five technical divisions, was vital to its future. Schneider also reported on the progress of TMS’s strategic goal to provide leadership in addressing energy and environmental challenges through materials solutions. He concluded his remarks by introducing TMS’s Materials Innovation @ TMS initiative as a key element in achieving the Society’s strategic goal of being recognized as the “home” for materials and manufacturing innovation. He noted that this new effort is built on TMS’s recognized leadership in programming and projects that support the advancement of integrated computational materials engineering (ICME).

Stanley Howard, TMS financial planning officer, provided an overview of TMS’s financial performance, noting that it was “all good news.” Highlights of his presentation included TMS’s 8.79% return on revenue in 2011 and the strengthening of its already robust Reserve Fund.

A detailed insert on the TMS Strategic Plan will be published in the July issue of *JOM*.

Markus Buehler Named Outstanding Young Investigator

Markus J. Buehler, associate professor, Department of Civil and



Environmental Engineering, Massachusetts Institute of Technology, received the 2012 Outstanding Young Investigator Award from the

Materials Research Society in April. The award recognized Buehler “for highly innovative and creative work in computational modeling of biological, bio-inspired and synthetic materials, revealing how weakness is turned into strength through hierarchical material design.”

In Memory of Jan van Linden van den Heuvel

TMS extends its sympathies to the family, friends, and colleagues of Jan



van Linden van den Heuvel who passed away in April. He was a long-time TMS member and a driving force in establishing the

Recycling and Environmental Technologies Committee. He earned both his bachelor’s and master’s degrees in metallurgical engineering from the University of Delft in the Netherlands and later completed his Ph.D. at the University of Leuven in Belgium. He worked for the Dutch government in Mexico for three years before taking a position with Alcoa in Tennessee, where he stayed for six years before transferring to the Alcoa Technical Center in Pittsburgh. He retired from Alcoa after 25 years and started his own company, Recycling Technology Services, Inc.



Presenting their reports on TMS’s future goals, past accomplishments, and continued strong financial health were (left to right): Garry Warren, Wolfgang Schneider, and Stanley Howard.



TMS Member Profiles

Meet a Member: Michael Demkowicz Looks to History to Improve the Practice of Science

By Lynne Robinson

Michael J. Demkowicz knows, from first-hand experience, that lessons from the past are valuable tools for young scientists to have in hand as they push toward future discoveries. Acknowledging that the “history of science” is generally not a requirement for most engineering and science programs, the assistant professor at the Massachusetts Institute of Technology maintains that developing critical thinking skills through historical analysis could make students better scientists as their careers progress.

“‘Learning science’ should involve more than simply becoming acquainted with the canon of accepted experimental or theoretical results,” he said. “Critical assessment of different perspectives on a text, an idea, or an artifact is central to undergraduate education in the humanities. By contrast, undergraduates in science and engineering are required to assimilate bodies of information, but not necessarily to assess them critically. Incorporating history of science into science and engineering curricula is an attempt to give students the opportunity for critical assessment of scientific theories.”

Demkowicz, as the 2012 TMS Early Career Faculty Fellow Award winner, presented his ideas on integrating historical perspective into the engineering and science educational experience during his Young Leader Tutorial Luncheon Lecture at the TMS 2012 Annual Meeting and Exhibition in Orlando. He structured his talk around a series of case studies on how competing and conflicting research projects eventually evolved into accepted theory.

Studying these scientific debates from the past, said Demkowicz, gives students the “opportunity to develop tools for evaluating opposing, though equally plausible interpretations, of a given scientific finding. The need to do this arises when one’s own research comes into conflict with that of another



Michael Demkowicz noted in his Young Leader Tutorial Lecture that a gap in current science curricula has resulted in young scientists “not being given a big picture perspective on the development of their fields.”

competent scientist.”

Demkowicz developed these skills himself as a student in the Plan II Honors program at the University of Texas, Austin. The rigorous liberal arts curriculum, said Demkowicz, “gave me a solid appreciation for the humanities, which I took with me to grad school.” Demkowicz ultimately earned a B.A. through Plan II, as well as bachelor’s degrees in physics and engineering.

With this background, Demkowicz noted, “I always viewed the things I was learning during my Ph.D. studies from both a technical and a humanities perspective.”

This insight, said Demkowicz, has proved valuable in helping him to critically assess competing scientific perspectives and evaluate potential research directions. His own experience has made him eager to introduce these concepts to emerging scientists and engineers. “There is a gap in the current science curricula,” he commented during his Young Leader Tutorial Lecture. “Scientists are not trained to resolve

non-technical questions of interpretation.”

The most effective approach to closing this gap, Demkowicz proposes, is to examine case studies on differing scientific opinions. “The focus would be on critical assessment of scientific theories by comparing them with their historical competitors and not, for example, on the social, economic, or political milieu in which they were developed,” he explained.

“Case studies are an integral component of business and legal education,” Demkowicz continued. “This format is ideally suited for critical assessment of competing perspectives on a ‘level field,’ without giving undue advantage to the perspective that was, in time, accepted as the correct one. A lecture class tends to give an advantage to the accepted theory, but this is only possible in hindsight.”

Demkowicz said that his ideas have been well received and he looks forward to the day when he can challenge young minds to conjecture how landmark scientific debates were actually conducted. The greatest hurdle, he said, is surfacing the case studies.

“There is a paucity of information on scientific theories that did not stand the test of time,” he said. “Unlike disciplines in the humanities, which pass on both the new and the old, science and engineering are constantly forgetting what came before. We pass on only what is currently accepted—and with good reason.”

“In the process, however, we tend to lose information that could illustrate to young scientists how research is actually practiced.”

Each month, *JOM* profiles a TMS member and his or her activities both in and out of the realm of materials science and engineering. To suggest a candidate for this feature, contact Lynne Robinson at lrobinson@tms.org.