



Diran Apelian Named Foreign Member of Armenian Academy of Sciences

TMS Past President Diran Apelian, Howmet Professor of Mechanical Engineering at Worcester Polytechnic Institute and founder and director of the university's Metal Processing Institute, has been elected a foreign member of the National Academy of Sciences of the Republic of Armenia. He is an internationally recognized pioneer in metals research.

Apelian was born in Egypt to Armenian parents and emigrated to the United States at the age of 15. He earned an undergraduate degree in metallurgical engineering from Drexel University in Philadelphia, Pennsylvania, a doctorate of science from Massachusetts Institute of Technology, and was awarded an honorary doctorate, as well as being named an honorary professor, from Northwestern Polytechnic University of Xian, China, in 1997.

Apelian began his career at Bethlehem Steel's Homer Research Laboratories before becoming a professor and later head of the Department of Materials Engineering, associate dean of the College of Engineering, and vice provost at Drexel University. In 1990, he joined Worcester Polytechnic Institute as university provost and returned to teaching and research in materials processing in 1996. Apelian was instrumental in establishing the Metals Processing Institute, where he serves as director.

Throughout his career, Apelian has received numerous awards, including

the Brimacombe Prize and Bruce Chalmers Award for outstanding contributions to the science and technology of solidification science in 2006 and the Acta Materialia Inc. J. Herbert Holloman Award in 2007. He was one of six Anniversary Laureates at the TMS 2007 Annual Meeting, which marked the Society's 50th anniversary, has authored over 500 publications, co-edited 11 books, and serves on the editorial board of the *International Journal of Cast Metals Research* and the *Encyclopedia of Materials Science and Engineering*. Apelian is a Fellow of TMS, APMI International, and ASM International and is an honorary member of the French Materials Engineering Society.

The National Academy of Sciences of the Republic of Armenia was established in 1943 and promotes and carries out fundamental and applied research in several scientific fields. It coordinates research under way throughout the nation and is an official scientific consultant to the highest governing bodies of Armenia.

JEREMY BUSBY DEVELOPS NEW CAST STAINLESS STEEL FOR RESEARCH

TMS member Jeremy Busby, lead researcher in the Materials Science and Technology Division at Oak Ridge National Laboratory, along with a team of researchers, developed a new cast stainless steel that is 70 percent stronger than comparable steels. The new stainless steel is being evaluated for use in the huge shield modules required by the ITER fusion device.

ITER is a multibillion-dollar international research and development project to demonstrate the scientific and technological feasibility of fusion power and to enable studies of self-heating burning plasmas. It requires hundreds of tons of complex stainless steel components that must withstand temperatures of more than 100 million degrees Celsius.

The United States must produce nearly 100 of the modules that are 3–4 tons each and include geometric shapes and openings, according to Busby. However, drilling holes in solid steel would result in the removal and loss of 30 percent of the material. Busby and his team of researchers are working to improve the materials' properties to reduce the amount of machining and welding, and to allow for better performance.

In Memory of Glenn A. Fritzen

In January 2008, Glenn Arthur Fritzen, a retired manager of quality control at Haynes Stellite in Kokomo, Indiana, passed away at the age of 88. A senior member of TMS, he joined the Society in 1939 and was a member of the TMS Legion of Honor.



In 1941, Fritzen earned a B.S. degree in metallurgical engineering from Purdue University. After graduation, he served as a Major in the Army Air Corps stationed at Wright Patterson Air Force Base in Ohio. When World War II ended, Fritzen returned to Indiana and began working at Haynes Stellite. During his 37 year career, Fritzen

worked in the development of heat-and corrosion-resistant metals especially for the aerospace industry. After retiring from Haynes Stellite, Fritzen taught mechanical engineering at the Kokomo Campus of Purdue University until his final retirement in 1992.

Fritzen holds three patents and contributed to many advances in the technology of the metals industry. He served as a consultant for NASA, and was an American Society for Materials and American Metallurgical Society Fellow. Fritzen was listed in *Who's Who in America*, *Who's Who in Engineering and Technology*, and *American Men and Women of Science*. He was considered to be at the top of his profession as a metallurgist and scientist and an excellent and motivational teacher.



TMS Member Profiles

Meet a Member: Laura Rea, the Leading Lady of Advocacy

By Francine Garrone

Laura Rea has played a variety of roles in her life: the leading lady in community theater productions, the bass guitarist in the pit band, community activist, mother and wife, and a career-oriented woman, but it was not until December 2006 that she took on the role of health advocate. It was then that Rea was diagnosed with breast cancer and turned to her involvement with the community theater to help her cope with her life-changing diagnosis.

“Everyone processes a cancer diagnosis differently. For me, it was critical to maintain as much normalcy as possible,” she said. “Keeping busy with nightly rehearsals was a gift because for a few hours every night I had to completely put it out of my mind to make sure I didn’t dance into a set wall or forget a line.”

Rea, a C4ISR Portfolio Manager for the U.S. Air Force Research Laboratory Materials and Manufacturing Directorate in Dayton, Ohio, became active in theater at the age of 14. Her first performance was in *Godspell*, where she played the guitar in the orchestra. In high school she did lighting work, but during college, Rea took a hiatus from theater. “An engineering course load and later marriage and a family didn’t leave a lot of free time,” she said.

Rea returned to theater 10 years ago when her daughter, Katie, now 22, got involved in a local theater production. “I returned to the orchestra pit playing bass guitar, began organizing props, and eventually served on the board of directors,” she said. In 1999, Katie coerced her mother into auditioning for *Gypsy*. Rea was cast, alongside her daughter, as Miss Mazeppa and got to “bump it with a trumpet.”

While cast as Mayor Maggie in the production of *Bat Boy: The Musical* Rea received the unexpected news that she had invasive ductal carcinoma—the most common form of breast cancer. A routine mammogram found an

abnormal mass and Rea was called in for a digital “spot” mammogram and an ultrasound. On December 26, 2006, while meeting with her doctor, she received pathology results from a biopsy which revealed that the small tumor was indeed cancerous. “The size of the tumor was barely at the detection limit,” she said. “By getting it that early, I was comfortable taking a moderately aggressive treatment path of lumpectomy followed by radiation.”

Rea turned to the theater and remained part of the cast in *Bat Boy: The Musical*. She underwent a lumpectomy with sentinel lymph node biopsy on January 14, 2007, while rehearsing for the production. Four days later she returned to the stage and in early February, with the support of the theater community, she performed as part of the cast. On February 15, Rea had minor reconstructive surgery and in March underwent radiation treatments.

By the end of April, it was all behind her and she was on to her next mission—training for a half-marathon.

Rea joined the Leukemia and Lymphoma Society “Team in Training” program, raising \$3,000 to support cancer research. She began training while still receiving radiation, and completed the Columbus half-marathon in October 2007. Since then, Rea has become a voice in early detection. Her positive approach to reduce her body fat rather than pursue a course of hormonal chemotherapy was embraced by her oncologist as a viable treatment option. Rea’s doctor originally recommended an estrogen-blocking medication that is categorized as “hormonal chemotherapy,” which has been used to reduce cancer recurrence in breast cancer patients. Rather than five years of medication, with some risk of side effects, Rea chose to reduce her body fat.

Today, she shares her experience with body fat reduction as a risk mitigation strategy with other women diagnosed with cancer. “Breast cancer strikes one-eighth of women in the U.S.,” she said. “Also, approximately 2,000 men are diagnosed every year. That’s a lot of people—if not you, it will be someone you love. I was extremely lucky. If you can get it early, the show will go on.”

For more information on the Leukemia and Lymphoma Society “Team in Training” program, visit www.teamintraining.org. To view more of Rea’s theater and marathon photos, visit the JOM Discussion Board at iweb.tms.org/forum/default.aspx?forumid=26.



Figure 1. Laura Rea portrays Mayor Maggie in *Bat Boy: The Musical* two weeks after undergoing a lumpectomy for early stage breast cancer.

Each month, *JOM* features a TMS member and his or her activities outside of the realm of materials science and engineering. To suggest a candidate for this feature, contact Francine Garrone, *JOM* news editor, at fgarrone@tms.org.