Updates on friends and colleagues in the materials community

Duquette Named Horton Professor of Materials Engineering at Rensselaer

TMS Member David Duquette has been named John Tod Horton Distinguished Professor in Materials Engineering at Rensselaer Polytechnic Institute. The endowed professorship is one of the highest honors bestowed on a Rensselaer faculty member.

"Since joining Rensselaer in 1970, Professor Duquette has been fiercely dedicated to the Institute, its faculty, and students," said Rensselaer Provost Robert Palazzo. "Under David's stewardship, the Department of Materials Science and Engineering has achieved considerable success in nanotechnology, while also maintaining a world-class academic reputation. He is an intellectual leader, a truly exceptional researcher and educator, and without a doubt one of the finest materials engineers of his generation."

Duquette, who has been recognized for his work in the fields of corrosion, electrochemical phenomena, and processing, has recently expanded his research interests to work on the challenge of on-chip interconnect technology for semiconductor applications.

At Rensselaer, Duquette supervises materials science graduate students. In January, he was named to the Board of Governors of the National Institute for Nano-Engineering (NINE), a partnership between Sandia National Laboratories and a group of universities and corporations, including Rensselaer. Duquette also serves on a National Materials Advisory Board panel that is producing a comprehensive report on the status of education in corrosion science and engineering in the United States.

Anderson Leads Research on Magnets for Electric Motors

TMS Member Iver Anderson is leading a research team at the U.S. Department of Energy's Ames Laboratory to advance electric drive motor technology used in electric cars, fuel-cell automobiles, and plug-in hybrids.

Anderson, director and chair of the TMS Public & Governmental Affairs Committee, is senior metallurgist at Ames and adjunct professor of materials science and engineering at Iowa State University. Along with fellow researchers Bill McCallum and Matthew Kramer, Anderson has designed a high-performance permanent magnet alloy that operates with good magnetic strength at 200ºC to help make electric drive motors more efficient and cost effective.

"It's important that those motors be made economically with an operating envelope that fits how they will be driven," said Anderson. "The automotive companies in this country have set out a series of parameters that they would like electric motors to meet."

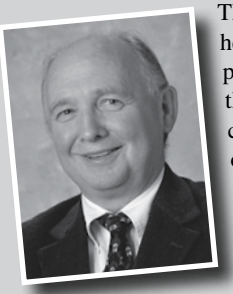
The most desirable permanent-magnet materials are neodymium-iron-boron magnet materials ($Nd_2Fe_{14}B$), he explained, but these tend to lose much of their magnetic energy at fairly modest temperatures. To make a permanent magnet alloy that operates with good magnetic strength at higher temperatures, researchers designed an alloy that replaces pure neodymium with a mixed rare earth (a combination of neodymium, yttrium, and dysprosium). The influence of the yttrium and dysprosium allowed for much less degradation of magnetic properties with temperature.

The researchers processed the alloy in a fine, spherical powder form using gas atomization. This method would allow the automobile industry to make the motors with a high-volume manufacturing process.

"We need to support our auto companies and help them develop better products," said Anderson. "We can do that by getting things worked out at the basic science end—that's our job."

FORMER TMS PRESIDENT ELECTED TO SOUTH CAROLINA SENATE

In TMS circles, Paul G. Campbell, Jr. has proven himself to be a leader. In 1995, Campbell served as president of TMS. In 1999, he served as president of the American Institute of Mining, Metallurgical, and Petroleum Engineers, of which TMS is a member society. Now, he is applying his leadership skills in a new venture: politics.



On January 8, Campbell was sworn in as a senator in the state of South Carolina, though he has been active in committee work and constituent service since winning a special election in August 2007. Campbell is a Republican senator for Berkeley County.

"In my role at TMS, I learned about responsibility, service, working for others, and making sure that you're effective and efficient at what you do, and I think that really adds to my ability to be an effective and efficient state senator," said Campbell. "Part of what you learn when you do volunteer leadership is influence management with those who don't report to you. You also learn the value of teamwork and working collaboratively with others to accomplish a goal."

Campbell's leadership experience was a key component of his election campaign. He worked for Alcoa/Alumax for nearly twenty years in the county he now represents. Campbell is now retired as regional president of Alcoa and works as a consultant.

"I'm one of two engineers in the South Carolina Senate," said Campbell. "It's going to be interesting to see how these folks can adjust to an engineer working with them. Engineers are problem-solvers for the most part, which means they have to be collaborative in working with people. I think it will make a difference."