



The South African government has also established a 15-year program that seeks to further utilize its PGM resource and develop a hydrogen and fuel-cell industry in country. The first five years of the Hydrogen South Africa (HySA) Program have been focused on attracting international experts from academia and industry to form centers of expertise. This strategy has allowed South Africa to quickly establish competency in current fuel-cell technologies and jump-start a research and development program to innovate new hydrogen and fuel-cell technologies. The second phase of the HySA program began in 2013 and focuses on establishing collaborations

with industrial partners. This phase will require significant government incentives for industrial partners to establish PGM- and non-PGM-based manufacturing in South Africa. While it is too early in the scope of the HySA program to gauge the industry response and effectiveness of the program, it is nonetheless a good example of a conscious government effort to transition toward a hybrid economy.

As more resource-rich nations make the transition toward a hybrid economy, the global manufacturing and trade landscapes will likely undergo significant changes. One area of international concern stems from the possibility of the develop-

ment of a monopoly on a specific material and any products that incorporate that material. Alan Hurd, a Franklin Fellow in the Office of the Science and Technology Adviser to the US Secretary of State, said, "Critical materials are so-named by a country because their utilization is essential to economic or national security, and regional tensions can be exacerbated by a trade imbalance." Hurd said that the transition to a combined resource- and knowledge-based economy "may help the resource-rich countries in the short term, but regional balance must be considered in the long term."

**Jennifer A. Nekuda Malik**

### CSIR to launch titanium pilot plant [www.csir.co.za](http://www.csir.co.za)

The Titanium Centre of Competence (TiCoC), hosted by the CSIR and funded by the Department of Science and Technology, is developing a suite of complementary technologies to help South Africa add value to its vast resources of titanium. Key to this program is the development and commercialization of a novel process for producing the primary titanium metal. The estab-

lishment of a small-scale Titanium Pilot Plant on the CSIR campus is an important milestone in this process.

The Titanium Pilot Plant is unique in that it will be able to produce titanium powder at a much lower cost than present imports, making this light metal an economically viable option from which many industries can be created and sustained. South Africa's entire titanium

beneficiation strategy depends largely on the success of this pilot plant and its further commercialization.

The launch of the CSIR Titanium Pilot Plant not only unleashes a new era for South African titanium, but also strategically positions South Africa as a key player in the international titanium arena, undoubtedly stimulating further development of various economic sectors with long-term advantages that go into 2020 and beyond.

### NRC to help Canadian transportation industry reduce vehicle weight [www.nrc-cnrc.gc.ca](http://www.nrc-cnrc.gc.ca)

As automakers and their suppliers from around the world strive to develop fuel-saving technologies, the National Research Council of Canada (NRC) has announced a new program to help the Canadian transportation industry reduce the weight of cars, trucks, trailers, buses, and trains by developing innovative aluminum technology.

"Canada is a global leader in producing aluminum, and now has the opportunity to lead the world in the transformation of aluminum into parts for lighter weight vehicles," said Michel Dumoulin, General Manager of the Automotive and Surface Transportation portfolio at the National Research Council of Canada.

"This program will support Canadian manufacturers in developing lighter parts and structures that will make our vehicles more fuel-efficient, safer, and environmentally friendly."

The new Lightweighting of Ground Transportation Vehicles Program will see to the development, validation, and deployment of advanced technologies to form aluminum into parts and to assemble and join these parts into next-generation vehicles. The program will enable industry to reduce overall vehicle weight by 10% within the next eight years.

Before an audience of automakers at the Automotive Parts Manufacturers Association's annual conference in Wind-

sor, Ontario, NRC also announced a new research and development consortium that will bring together industry partners from all areas of the manufacturing supply chain to address issues in advanced aluminum shaping, aluminum durability, and parts assembly.

This program and consortium address an immediate industry need as automakers try to find innovative ways to build lighter vehicles and meet strict new fuel efficiency requirements such as the American CAFE (Corporate Average Fuel Economy) regulations to reach 54.5 mpg (4.3 liter per 100 kilometers) average fuel economy by 2025. Vehicle lightweighting is considered by automakers to have the greatest potential in allowing them to meet these regulations. □

# Become an MRS Congressional Science and Engineering Fellow!

Help **improve the interface** between science and legislative decision-making.

**Advocate for policies** that will facilitate the discoveries of the future.

Play a crucial role as you **educate the public** about the benefits of science.

Decisions made by Congress, regulatory agencies and local government have profound effects on the way in which science is conducted. By keeping decision-makers well informed on the current affairs of the scientific community, MRS Congressional Science and Engineering Fellows ensure the right choices are being made. Now's your time to make a difference!

The Materials Research Society offers material scientists two exciting opportunities to participate in, and contribute to, the federal policymaking process, while learning firsthand about the intersection of science and policy.

During your year as a Fellow you will:

- ▶ contribute widely to the effective use of materials science knowledge in government
- ▶ broaden awareness about the value of scientist- and engineer-government interaction among society members and within government
- ▶ have significant freedom to follow specific topics and issues that interest you

The MRS Congressional Science and Engineering Fellowship Program is an invaluable experience, but don't just take our word for it. Our past Congressional Fellows explain it best!

"Academia taught me how to think, but the MRS Congressional Fellowship taught me how to get things done. Never have I had such leverage, such opportunities to comingle with dignitaries, to structure agreements and broker deals, as I did in that year. I learned how to navigate past armies of secretaries shielding a VIP, enlist military support for a project, take a rough idea and make it law, to fashion an event into a sound bite and then watch it propagate across the news. I learned to take data and present it in such a way that it gravitated, almost of its own accord, all the way up to the Vice President of the United States. These are skills anyone, who is going anywhere, can use."

**Merrilea Mayo** Founder, Mayo Enterprises, LLC.  
MRS Congressional Fellow 1998-1999  
Office of Senator Lieberman

"At the end of the fellowship year I found that I was enjoying "doing" science policy more than just teaching about it, and I ended up staying on in Rep. Honda's office as a member of the staff where I have remained for over a decade. I would not have had that opportunity without the Congressional Fellowship. I encourage anyone who wonders about how federal policies are developed or wants to have a greater role in that process to apply to be a Congressional Fellow."

**Eric Werwa** Legislative Director, Congressman Mike Honda  
MRS Congressional Fellow 2001-2002  
Office of Congressman Mike Honda



To learn more about the MRS Congressional Science and Engineering Fellowship Program and how you can apply, visit [www.mrs.org/congressional-fellows](http://www.mrs.org/congressional-fellows).

Applications for the 2014-2015 MRS Congressional Science and Engineering Fellowship Program will be posted on the MRS website in early September 2013. **Deadline for submission is January 3, 2014.**