



Australian research infrastructure gets two-year respite

Long-term uncertainty remains

Uncertainty loomed over scientific research funding in Australia early this year. A controversial higher education reform legislation held up in the country's Parliament had put at risk funds of AUD\$150 million (USD\$116 million) for the National Collaborative Research Infrastructure Strategy (NCRIS), an umbrella covering 27 projects, many of which support materials research. It was not clear whether much of this infrastructure, employing some 1700 staff, would remain open past June 30 of this year.

Relief came in mid-March when Education Minister Christopher Pine committed one year of funding for NCRIS to last through 2016. Further good news arrived on May 12 when the 2015 Australian federal budget was released: the lifeline for NCRIS was extended with an extra year of funding, taking the total amount to AUD\$300 million.

"This news is quite encouraging," said Paul Dastoor, a physics professor and director of the Centre for Organic Electronics at The University of New Castle in Australia. "We're anticipating that it will be enough to maintain research across all of our activities. One of the key things that the scientific community

needs is stability. It is key for materials research in particular to have continuity of funding."

Many of the research projects funded by the NCRIS are materials-related. One is the Australian National Fabrication Facility (ANFF), which provides micro- and nanofabrication facilities for users to process materials such as metals, composites, ceramics, and polymers, and transform them into structures with applications in sensors, medical devices, and nanophotonics and nanoelectronics. For example, the New South Wales Node of the ANFF provides facilities and staff specializing in high-resolution electron-beam lithography, which Australian researchers are using to develop a silicon-based quantum computer.

The Australian Microscopy and Microanalysis Research Facility, which also falls under NCRIS and has nodes in various universities across the country, provides a national network of equipment, instrumentation, and expertise in cutting-edge optical, electron, and x-ray microscopy and microanalysis techniques. Researchers in materials science, metallurgy, energy, and engineering have all benefited from this facility. The steel company BlueScope Steel Ltd, for exam-

ple, recently used the Facility's expertise in atom probe tomography, a characterization tool that helped them analyze the nanostructures of their thin, strip-cast steels in order to refine it and make them stronger without losing ductility.

A few other materials-related research activities supported by the NCRIS include basic experimental research in fusion energy at the Australian Plasma Fusion Research

Facility based at The Australian National University (ANU) in Canberra, and two new biofuels facilities that support research into the conversion of agricultural waste into fuels as well as the Heavy-Ion Accelerator Facility and other ion-implantation and ion-beam analysis facilities at ANU.

The two-year funding for NCRIS came as a result of direct pressure from the country's scientific community. It was important for the public and political groups to realize the impact of the research infrastructure landscape, said Rosie Hicks, chief executive of the ANFF. Rather than various research organizations giving their own message, the research community came together and campaigned tirelessly to give a single unified message when talking to politicians and newspapers, she said.

On March 4, the National Research Alliance, which includes public and private research organizations, sent an open letter to the Prime Minister to let him know of the damage that could come from a funding freeze to any of the NCRIS facilities. The letter highlighted that over 35,000 Australian and international researchers use NCRIS's world-class facilities, which underpin much of the country's AUD\$30 billion science and research efforts. "This was a wonderful example of the community coming together and I think we've been made much stronger," Hicks said. "I hope these ties remain."

Now the long-term health of Australia's research and its scientific community depends on a research infrastructure review that is currently being undertaken by businessman Philip Marcus Clark. At the time this issue of *MRS Bulletin* went to press, the results of the review were expected sometime in August.

Hicks said that the Australian scientific community has some indication of what the review will recommend. "There is talk about having seven-year funding programs for the research infrastructure," she said. "If that were to happen it would be a fantastic outcome. The characteristic of NCRIS would be quite different depending on its budget. We need money for instruments and special staff to run those instruments. We need a very special funding scheme and continuation is important to us."

Prachi Patel



Engineers making quantum devices at the Australian National Fabrication Facility at the University of New South Wales in Sydney.