

A bright future for accelerator science at ANSTO

M A C Hotchkis, D P Child, D Cohen, J Dodson, D Fink, D Garton, Q Hua, M Ionescu, G E Jacobsen, V Levchenko, C Mifsud, R Siegele, A M Smith, A Williams and S Winkler

*Institute for Environmental Research, Australian Nuclear Science & Technology Organisation,
New South Wales 2234, Australia.*

In the May 2009 budget, the Federal government announced funding of \$25m to ANSTO through the Education Investment Fund, to build state-of-the-art applied accelerator science facilities, by upgrading and replacing existing facilities and laboratories at ANSTO.

Currently, ANSTO's researchers, jointly with researchers from all 37 Australian universities, plus other agencies such as CSIRO, government departments and local government bodies, and overseas collaborators and customers, use ANSTO's accelerator facilities for analysis of a wide range of materials, predominantly by Accelerator Mass Spectrometry (AMS) and Ion Beam Analysis (IBA). There are >100 external users of those facilities every year. Such analyses are essential to carry out studies in a wide range of sciences, including: climate and environmental science; nuclear safeguards and forensics; archaeology; materials science; medical physics; and radiation physics. These accelerator facilities are part of Australia's national research infrastructure.

We are currently in the planning phase of the new project which will upgrade these facilities. The scope of the project is a phased upgrade of the accelerators and associated labs. In the first phase, we will build new sample preparation laboratories for Accelerator Mass Spectrometry (AMS), and acquire a compact, low energy multi-isotope AMS accelerator with multiple ion sources. This accelerator would be used primarily for radiocarbon dating and heavy isotope analysis, including nuclear safeguards work, and experimental work on technique development. Plans for the second phase include an upgrade of the ANTARES accelerator and acquisition of a modern low-maintenance 5 or 6MV accelerator, providing state-of-the-art AMS and IBA capabilities and a range of beams for irradiation experiments.

Wide consultation with users is currently underway to define the precise requirements for these facilities, to ensure they meet the needs of the Australasian scientific community over the next 20-30 years.