



Australian Government



Nuclear-based science benefiting all Australians

David Child – ANSTO chemist

Branch of chemistry: Analytical Chemistry

Your work:

I work on the development of chemistry methods to extract and purify tiny amounts of naturally occurring and man-made isotopes from environmental samples, and to then assist with measurement of these samples by accelerator mass spectrometry. In some samples there are only femtograms of the sample. Measurement of these isotopes in the environment can tell us about many different processes, from dating of geological events like meteorite impact, volcanic activity or ice-age timing and glacial movement through to detection of illicit nuclear weapons manufacturing programs. Since I am working with quantities of material that can't be seen, my work requires extreme attention to detail, high levels of concentration to prevent contamination of samples and a thorough understanding about the processes involved in order to get accurate results.

With whom do you collaborate in your collection and analysis of data?

This work, both the chemical processing and mass spectrometric measurements, are performed at ANSTO by a combined team of chemists and AMS physicists. Geological dating projects involve collaboration between ANSTO and a large number of universities and scientific organisations, both nationally and internationally. Some of the major partnerships we have formed in this area are with Melbourne University, University of Sydney, Canterbury University (New Zealand), Australian Antarctic division, CSIRO Gas lab, University of Newcastle and the University of Queensland. Nuclear Safeguards work has been carried out with the collaboration of the International Atomic Energy Agency (IAEA) and the Australian Safeguards and Non-proliferation Office (ASNO)

