Spectroscopy capabilities at the Australian Synchrotron, ANSTO

Jessica L. Hamilton[1], Peter Kappen[1]
[1] Australian Synchrotron, ANSTO, Clayton 3168, Victoria, Australia (*correspondence: hamiltoj@ansto.gov.au)

Spectroscopies typically provide specific information about matter, including local atomic structure, element chemistry, electronic states, molecular structure and vibrational modes, surface chemistry, phonon modes, etc. The Australian Synchrotron offers a range of spectroscopy techniques that add value to laboratory-based spectroscopies. X-ray Absorption Spectroscopy (XAS), Soft X-ray spectroscopies and IR/THz spectroscopy form the current suite of spectroscopy analytical techniques, with Medium Energy XAS joining in the near future as part of ANSTO's BRIGHT Program that extends the capabilities at the Australian Synchrotron.

This presentation will highlight recent examples of how synchrotron-powered spectroscopies promote scientific outcomes in geochemistry. We will emphasise chemical and structural analyses using hard X-ray and soft X-ray XAS, surface analyses based on, for example, angular resolved photoemission, and gas-mineral interactions using THz spectroscopy.