

Accelerator Mass Spectrometry of Heavy Isotopes

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Tuesday, February 18 ♦ 4 P.M.
Room 124 Nieuwland Science Hall

Accelerator Mass Spectrometry is a technique with the best sensitivity for many radioisotopes and the technique of choice for long-established methods such as radiocarbon dating or exposure dating with Beryllium-10 and Aluminium-26. Over the past 15 years heavier isotopes have gained significant attention. Measuring these isotopes faces two challenges, the separation of interfering isobars and the suppression of isotopic interference from molecules and their break-up. Careful design of the spectrometer and an understanding of ion-beam and atomic physics are required to achieve the lowest detection limits.

This effort is important, since long-lived heavy radionuclides have wide application in environmental science, and there is also potential for the study of nuclear reactions and the determination of trace elements combining Accelerator Mass Spectrometry with Neutron Activation Analysis. The possibilities will be demonstrated in recent examples of research projects in these areas.