



Department of Civil & Environmental Engineering  
and Earth Sciences

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## **Enhanced Environmental Nuclear Safeguards through Advanced Mass Spectrometry**

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Los Alamos National Laboratory

November 13, 2014  
4 – 5 pm

DeBartolo Hall Room 310

Los Alamos National Laboratory serves as a network analytical laboratory (NWAL) for the International Atomic Energy Agency (IAEA). Environmental sampling and analysis activities initiated by the IAEA help the agency detect undeclared nuclear activities, where signatory States are obliged under the provisions of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) to declare stocks of special nuclear materials such as plutonium and uranium. Limitations on how easily an undeclared activity can be detected through environmental sampling are intimately related to the measurement techniques utilized for this task. Mass spectrometry is a cornerstone technique for environmental-level actinide isotopic measurements for safeguards and nuclear forensics. The Nuclear and Radiochemistry Group at LANL is actively engaged in research and development activities aimed at strengthening environmental-level actinide isotope ratio measurements. Improved accuracy and precision in environmental-level actinide isotope ratio measurements will benefit the IAEA while also strengthening national technical nuclear forensics capabilities for the United States Government. Recent investments in instrumentation (multicollector ICP-MS, TIMS, and large geometry SIMS) and personnel have helped LANL keep pace with a growing need for quality environmental-level actinide measurement capabilities.