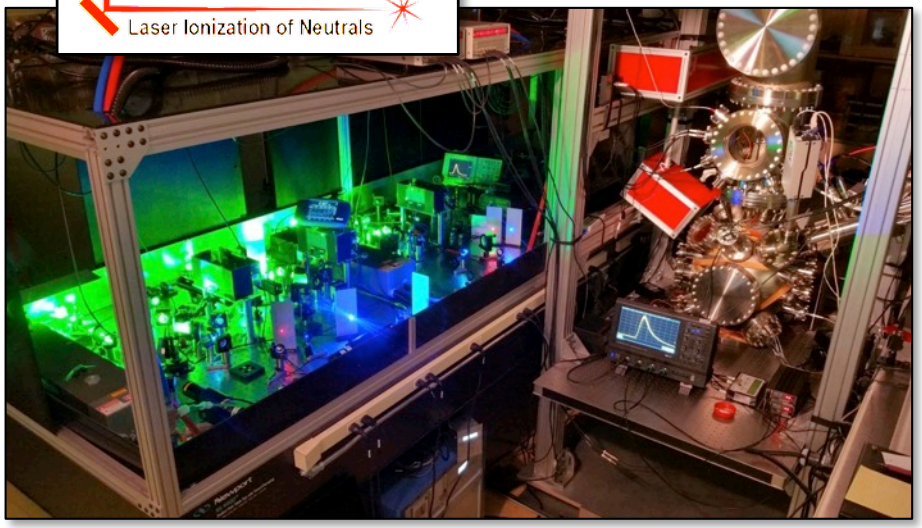
Rapid Nuclear Forensics via Laser Mass Spectrometry

Research Overview

We build instruments for new nuclear forensics methods using tuned lasers to do highly sensitive, selective elemental and isotopic analyses of complex materials.

LION
Laser Ionization of Neutrals

Resonance Ionization Mass Spectrometry



Potential Collaborations

- Methods development for exotic and ultratrace isotopes
  - – Detect transuranics or ppb elements in complex materials without sample prep
- Imaging of complex materials
  - – chemical and isotopic mapping for forensic science
- Improving detection sensitivity
  - – Rapid *in situ* surface chemistry with reactive ion beams to improve sensitivity in real-world samples

Previous Dissertations

- Quantifying Uranium Isotope Ratios Using RIMS (Brett Isselhardt, UC Berkeley, 2011)
- Master's Theses at Naval Postgraduate School: Two completed / two in progress

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