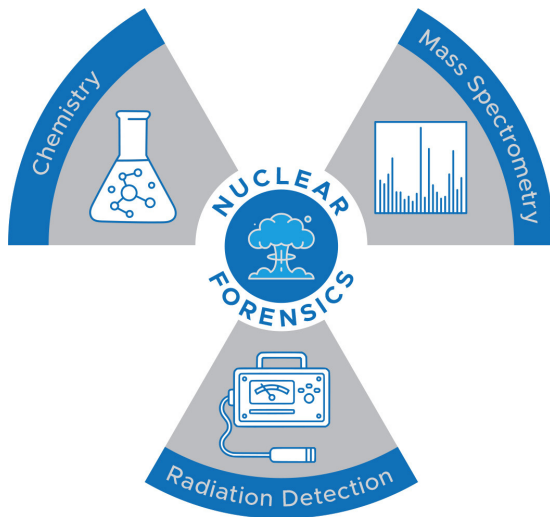


NUCLEAR FORENSICS

Interdiction of nuclear material outside regulatory control or a nuclear explosion within the United States would be events of high consequence. Understanding the origin and source of such events is critical to support immediate and decisive action. Nuclear forensics involves the characterization of materials associated with pre-detonation and post-detonation nuclear incidents. Its goal is to assist decision-makers in preventing, mitigating, and attributing nuclear events.

NUCLEAR FORENSICS AT PNNL

Pacific Northwest National Laboratory (PNNL) is a critical leader in the United States' pre- and post-detonation nuclear forensics missions. More than 100 PNNL staff contribute to these missions in operations, research and development, training, and international engagement. PNNL's team is multidisciplinary with a wide range of technical backgrounds and degree levels, but chemistry, radiation detection, and mass spectrometry are core to the Lab's nuclear material analysis.



TRANSFORMING NUCLEAR MATERIAL ANALYSIS

PNNL scientists lead several different research areas to improve nuclear material analysis for nuclear forensics.

These areas are:

- Reducing timelines to measure current analytical signatures (e.g., whole sample isotopic and elemental analysis by mass spectrometry and radiation detection)
- Discovering new analytical signatures for the traditional analysis process (e.g., additional isotopic and elemental analysis)
- Developing new signatures for a transformed analysis process (e.g., sample morphology, microanalysis, and advanced data analysis tools/machine learning).

PNNL researchers will continue to develop original techniques and train the next generation of experts in nuclear forensics to make the world safer. Visit the website for more information about nuclear forensics at PNNL and internship opportunities.

