Overview

Los Alamos National Laboratory (LANL) has nearly 60 years of experience in developing and implementing Nondestructive Assay (NDA) technologies in support of nuclear safeguards, security, and nonproliferation.

The Safeguards and Security Technology Training Program (SSTTP) at LANL provides NDA training using nuclear material, specialized equipment, and subject-matter expert instructors. The SSTTP's modular training materials can be readily customized to meet customer's needs.

Facility Description & Capabilities

- The training and research facility at LANL's Technical Area 66 (TA-66) provides easy and safe access to sealed items including uranium and plutonium. These materials are used for teaching nuclear material measurements techniques and for research and development of new safeguards and security technologies.
- The 8,600 sq. ft. facility provides ample room for lectures and hands-on training, with two classrooms, a series of interconnected hands-on laboratory spaces, and meeting rooms for up to 24 participants. In addition to training, the facility is used for testing and evaluation of new safeguards technologies with certified nuclear material reference materials.
- Other areas at LANL, representative of actual nuclear fuel cycle facilities, are available for the development and training of nuclear security and safeguards approaches in a realistic environment. These locations in combination with the TA-66 facility yield a safe, secure, flexible, and realistic teaching environment to meet the needs of our domestics and international partners.
- This facility offers testing and evaluation of new safeguards technologies with significant quantities of NM. Certified reference materials are available for measurement campaigns, detector comparisons, and system characterization.

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Los Alamos NATIONAL LABORATORY

Advanced Gamma Nondestructive Assay



Course Description

- This training course presents a wide range of gamma-ray measurement techniques used domestically, within the DOE complex, and globally by the IAEA and, other International nuclear regulatory agencies. The uses for the gamma-ray measurement techniques covered in this course include:
    - Material safeguards
    - Criticality safety
    - Material identification
    - Nuclear Security
- The course is composed of lectures that describe underlying theories followed by hands-on laboratory exercises covering measurement techniques.

NDA Concepts Covered:

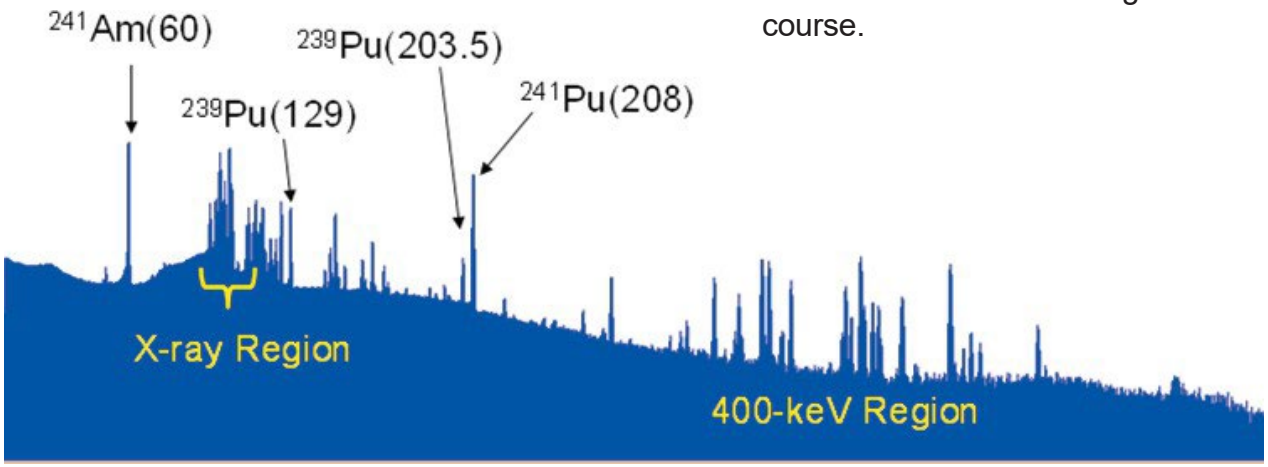
- Fundamental principles of gamma-ray spectrometry
- Uranium enrichment measurements with the enrichment meter technique
- Uranium and plutonium isotopic composition measurement using response function analysis
- Radionuclide Identification

NDA Equipment Covered: NaI and HPGe



Course Objective

To provide students with an in-depth understanding of the use of gamma- ray spectrometry and spectroscopy to nondestructively measure and analyze special nuclear materials and other radionuclides of interest.



Additional Information

Course Length: 4.5 days

Target Audience: Individuals that perform, manage, or supervise measurements involving gamma-ray detection and analysis. Auditors, regulators, and policy makers may also benefit from attending this course.