MIRION TECHNOLOGIES

MIRIONSERVICES

SU-601

Interpretation of Gamma Spectroscopy Results

DESCRIPTION

This 2-day course is designed primarily for germanium detector spectroscopy, although many of the topics are also applicable to scintillation detectors. The course emphasizes the use of fundamental principles of physics to explain features found in spectra, and the creation of libraries to aid in the interpretation of spectra. Students should acquire the tools and information they need to: understand "phantom peaks", optimize gamma nuclide libraries to accurately identify and quantify nuclide activity, reduce the reporting of unidentified peaks, utilize methods for counting "hot" samples, understand "Dead Time" and its implications, and optimize the analysis of spectral data. Students are encouraged to bring examples of their spectral files for examination during the course. Additional topics of special interest may be covered depending upon student interest. Lab exercises with simulators and spectra are employed to demonstrate lecture topics. Analysis algorithms discussed and demonstrated are from the standard Genie™ software.

HOW YOU WILL BENEFIT

This course provides the student with a review of the principles and practices of gamma spectroscopy and emphasizes radionuclide identification and quantification. It is intended for health physics and radiochemistry personnel who have some experience in gamma counting and want to further their knowledge of the methods used to interpret gamma spectra. It is recommended for personnel responsible for operating gamma spectroscopy systems and/or reviewing of the results from these systems.

COURSE REQUIREMENTS

Students should bring a scientific calculator to class.

COURSE CONTENT

- ✓ Features in spectra, their origin and properties
  - Interaction of radiation with matter
  - Interaction that occurs between radioactive nuclide and the detector
  - Interaction inside the detector and properties of the detector
  - Electronics used to acquire the spectra
- ✓ Summation peaks
  - Random
  - Coincidence
- ✓ Calibrations
  - Energy
  - Efficiency
- ✓ Parent daughter relationships and equilibrium
- ✓ Applying reference nuclear decay information
- ✓ Detector resolution
- ✓ Peak fitting (Interactive Peak Fit, IPF)
- ✓ Working with background spectra

PREREQUISITES

Fundamentals of Gamma Spectroscopy (GP-201) or equivalent experience.

To register, visit
www.mirion.com/na-courses

MIRION UNIVERSITY

PATHWAYS TO EXPERTISE LEVEL:
E FUNDAMENTALS

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