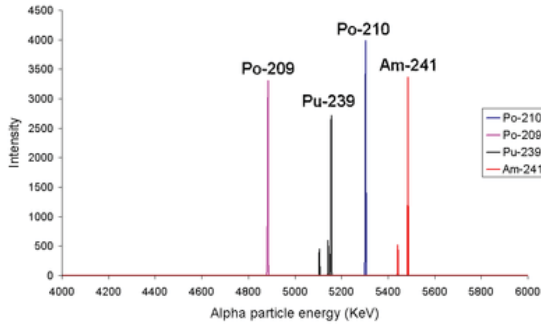


Applied Alpha Spectroscopy

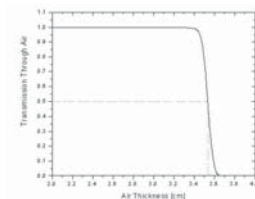


This 3-day course is designed to acquaint the student with Alpha instruments and measurements required to detect, monitor, record, and analyze alpha emitters, including Actinide materials. This will provide students with quantitative understanding of instrument calibration,

surveys and measurements, sample preparation, quality control of data, and analyses. This course will provide both theoretical as well as practical knowledge of alpha spectroscopy.

Topics

- Basics and Units of Radioactivity
- Fundamental of Radiation Measurements and Detection of Alpha.
- Quality Factors, Shielding, PPE Protection (e.g. paper stops alpha, don't lick your anti-c gloves, etc.)
- Types of Detection Equipment and Capabilities: gas flow, scintillation, alpha spectroscopy, Frisch Grid and semiconductors
- Detector Principles
- Destructive Sample Preparation: water, smear, air filters, soil, bioassay (urine and fecal).
Sample digestion techniques
- General Theory of Calibrating Alpha Systems
- Counting Statistics, MDA and Counting Uncertainties
- Sample Collection Processes
 - Air
 - Water
 - Loose Surface Contamination
 - Old Method vs. New Method - masslin vs. standard US 100cm2 smears
- Counting Methods
 - Why they can't just direct frisk masslin wipes any more
 - Why the disk smears – US standard - is a representative sample process
 - Distinction between long and short-lived nuclides
- Instrument Nonlinearity
- Calibration and Managing Uncertainties in Calibrations
- Quality Assurance and Quality Control
- Alpha Spectroscopy
- Alpha Spectrometry Check List
- Alpha Software
- Counting Samples
- Laboratory Exercises



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THE AMERICAN ACADEMY OF HEALTH PHYSICS (AAHP) HAS AWARDED THIS COURSE 16 CONTINUING EDUCATION CREDITS.
ASSIGNED ID NUMBER: 2011-00-004

FOR FURTHER INFORMATION OR ASSISTANCE, PLEASE CONTACT:

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