4 November 2001
Session 3, 1:30 p.m.

Advances in Nuclear Measurements Workshop

Presented by

ORTEC®

with co-sponsoring Alliance Partners

Protean Instrument Corporation
and
Durridge Company, Inc.

SUNDAY NOVEMBER 4, 2001 1:30-3:00 PM

ORTEC® presents the latest advances in nuclear measurement technology and software. Topics to be presented include:

- **Low-cost mechanical cooling for use with HPGe detectors — X-Cooler™**

    A low cost, mechanical cooler has been developed for use with HPGe detectors. This cooler eliminates the need for liquid nitrogen. The input power for the cooler is less than 300 Watt, making it a useful alternative to current processes for cooling.

- **Complete-portable DSP-Based MCA — DigiDART**

The DigiDART is the latest MCA in ORTEC's long history of MCA's. It is a portable, DSP-based MCA with keypad and display. Coupled with the SMART-1 detector, it makes a complete system for data collection and viewing. The display shows the spectrum in live time. The internal operation can be controlled from the keypad or from a PC, using a USB port. Up to 500 spectra can be stored internally and downloaded later.

- **True Coincidence Corrections using GammaVision**

The problem of correcting the calculated activity of nuclides with cascade summing has been studied for years. Many researchers have applied various methods to obtain the correct activities

from the gamma-ray spectrum. Under-reporting of cascade summing-rich nuclides (such as Cs-134) can be 15% or more, while (for the same analysis) correct values can be obtain for nuclides that are not rich in cascade summing (e.g., Cs-137). ORTEC has implemented a TCC method developed by Blaauw, et al. in GammaVision. The TCC correction can be obtained while calibrating your detector for energy and efficiency. The calibration wizard in GammaVision can be used to make the process simple and error free.

- **PC-based Alpha-Spectrometry Software — AlphaVision Version 5**

ORTEC has developed a new generation of its popular AlphaVision software for Alpha-spectrometry. AlphaVision 5.0 includes enhanced features for sample management (including a LIMS interface), and new peak-search-fit tools for environmental, waste characterization and radiobioassay laboratories. The software includes a flexible MDA feature, easily customizable report features, uncertainty fields for all measured input values, use of either blank or background data for the MDA calculation, database data archive for easy data archive/retrieval, and simple interactive QC charts that allow for quick preparation of flexible-user-defined Control charts.

- **Durridge Company — Radon and Radium in Air and Water Measurements Using the Rad7**

The Rad7 is a rugged-simple-to-use instrument for measuring radon and thoron in air and water. The device uses Si-detector technology that enables base-line alpha-peak resolution for supreme accuracy and precision. Because the instrument is capable of energy discrimination of Po-210, it allows for extremely low detection limits. In addition, recent technology advances in Ra extraction from water samples allow the measurement of Ra-224 ($t_{1/2}$ = 3.66 days) almost immediately after collection — with no radiochemistry needed.

- **Protean Instruments — Advances in Alpha and Alpha/Beta Counting Systems**

Protean supplies a large line of products designed to serve the needs of alpha and alpha/beta counting, including the lowest level of detection currently available. The presentation will provide information about the automated and manual, windowed and windowless counting systems. Whether a single detector, multi-detector, self-contained, or PC-based system is required, Protean has an accurate, rugged, and easy-to-use instrument for the task.