Contribution ID: **85** Type: **Flash presentation**

Efficiency Calibration of a Large Volume Well-Type HPGe Detector

Tuesday 26 September 2023 12:00 (15 minutes)

The Canberra GCW6023 well-type HPGe detector is one of the instruments at the Nuclear Security Department that is used to measure the gamma energy spectrum of low activity and typically small-sized environmental samples, e.g., slag, soil, or dust. Small samples in vials can be fitted into the 16 mm wide well providing high efficiency detection and consistent geometry. The detector is also needed for the measurement of other environmental samples which are typically large samples and need to be placed on top of the aluminum cup. Accurate activity determination requires an adequate calibration process for each sample type and sample-detector configuration.
The goal of this project is to determine the full-energy peak efficiency (FEPE) of the GWC6023 detector as a function of gamma-ray energy for different measurement geometries and samples. For this purpose, certified reference materials are assayed, and the Monte Carlo simulation technique is applied to calculate theoretical efficiency values.

Author: DEMBO, Judith

Co-authors: Mr DÓSA, Gergely (Nuclear Security Department, HUN-REN Centre for Energy Research); Mr ALMÁSI, István (Nuclear Security Department, HUN-REN Centre for Energy Research); Mr KIRCHKNOPF, Péter (Nuclear Security Department, HUN-REN Centre for Energy Research); Dr VÖLGYESI, Péter (Nuclear Security Department, HUN-REN Centre for Energy Research)

Presenter: DEMBO, Judith

Session Classification: Flash presentation of the participants

Track Classification: Flash presentations