



# **Webinar on Overview of Approach for Estimating Activity in a Package Using a Portable High Purity Germanium (HPGe) Detector**

**Organized by the  
The IAEA Division of Nuclear Security  
and Division of Physical and Chemical Sciences**

**Tuesday, 15 June 2021**

**Scheduled at: 09:00, Vienna (Austria) Time**

**Duration: 2 hours**

**Information Sheet**

## Introduction

When a package<sup>1</sup> emitting radiation is discovered as part of a nuclear security detection activity, additional information is required in order to determine an appropriate course of action. This information includes identification of the isotope(s) present and an estimation of the activity. In the field, identification of isotopes is most accurately performed using a high purity germanium (HPGe) detector. However, using a HPGe detector to estimate the total activity adds complexity to the use and analysis of the detector data, and may require additional software and hardware.

This webinar will provide an overview of the general approach to estimating activity in a package containing radioactive material, discuss the uncertainty in the estimation, and demonstrate the process using an example HPGe detector and the relevant software.

Additionally, a second webinar (date/time TBC) will also have a special focus on HPGe detectors and will provide an opportunity to discuss this topic in greater detail and demonstrate an activity estimation process using freely available software.

## Objectives

The objective of the webinar is to provide an overview of approaches to estimating activity in a package using measurements from a portable HPGe detector.

This webinar will include an introduction to and demonstration of in-situ object measurement techniques using a portable HPGe detector, and will cover:

- description of typical hardware configuration
- system setup
- energy and efficiency calibration procedures
- field measurement requirements; and
- data analysis (reporting), including the presentation of uncertainties.

## Target Audience

This webinar is aimed at users familiar with operation and use of portable HPGe detectors from expert and front-line organizations involved in the measurement and estimation of activity in a package that contains radioactive material.

## Working Language(s)

English

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<sup>1</sup> For the purposes of this webinar, package will be defined as an object ranging in size from a small envelope up to a Unit Load Device (ULD) used to carry cargo in an airplane.

## Registration

Please register for the webinar using [this link](#) not later than **14 June 2021**.

After the registration and acceptance of your participation, you will receive an electronic mail containing information on how to access the webinar by following a hyperlink to join the WebEx meeting or by calling in by phone.

You can test your ability to connect to a WebEx meeting at the following link: <https://www.webex.com/test-meeting.html#>. Please contact your IT department if the test fails.

For additional help regarding registration, please contact Mr Charles Massey, Division of Nuclear Security (C.Massey@iaea.org) and Ms Lai Peng (L.Peng@iaea.org), Division of Nuclear Security.

## Webinar Programme

### Introduction

- Overview
- Background
- Objectives

Mr Charles Massey, *Nuclear Security Officer, Nuclear Security of Materials Outside Regulatory Control Section, Division of Nuclear Security, IAEA*

### Overview of measurement approaches and general equipment set-up

Mr Petr Sladek, *Nuclear Instrumentation Specialist, Nuclear Science and Instrumentation Laboratory, Division of Physical and Chemical Science, IAEA*

### Demonstration of activity measurement in two package types using a portable HPGe device

Ms Lucie Fiserova, *Consultant, Nuclear Science and Instrumentation Laboratory, Division of Physical and Chemical Science, IAEA*

Mr Milan Matos, *Senior Laboratory Technician (Nuclear Science), Nuclear Science and Instrumentation Laboratory, Division of Physical and Chemical Science, IAEA*

Mr Petr Sladek, *Nuclear Instrumentation Specialist, Nuclear Science and Instrumentation Laboratory, Division of Physical and Chemical Science, IAEA*

Mr Branislav Stribrnsky, *Consultant, Nuclear Science and Instrumentation Laboratory, Division of Physical and Chemical Science, IAEA*

### Q&A and Conclusions