



EUROPEAN COMMISSION

DIRECTORATE GENERAL  
JOINT RESEARCH CENTRE  
Directorate R – Resources  
Resource Management Karlsruhe

Reference number:  
2016-KRU-G-000-8005

***Determining isotopic composition of shielded uranium and plutonium by high-resolution gamma spectrometry***

**Position for:**

Trainee

**Short description of activity:**

As the science and knowledge service of the Commission, the mission of DG Joint Research Centre is to support EU policies with independent evidence throughout the whole policy cycle.

The JRC is located in 5 Member States (Belgium, Germany, Italy, the Netherlands and Spain). Further information is available at: <http://www.jrc.ec.europa.eu>

Safeguards inspectors widely use high-resolution gamma spectrometry to verify the isotopic composition of uranium and plutonium during on-site inspections.

The routinely used gamma-spectrometric methods are not able to provide the isotopic composition of shielded items. The trainee's task will be to collaborate to take gamma spectra of shielded uranium and plutonium samples and to evaluate the performance of alternative gamma-spectrometric data evaluation methods applicable to the shielded materials. This task is part of an SP1 project within the EU support programme to the IAEA.

A large number of spectra taken at JRC Karlsruhe will be evaluated with the help of the trainee using the gamma spectrometric software "FRAM". The software settings will be fine-tuned to improve the accuracy of the results. Visual Basic programming should be used to automatically handle a large volume of data in Microsoft Excel.

The results will be included in the report to the IAEA on the progress of the SP1 project, and they will be used in scientific publications.

**Qualifications:**

Essential

- University degree in science or undergraduates in science or equivalent. For undergraduates, the person should be studying and preparing thesis. Thesis should be directly related to the purpose of the training.

	<p>- Good command of English language, level B2.</p> <p><u>Advantage</u></p> <p>- Knowledge about nuclear science and/or engineering.</p> <p><b><u>For general eligibility requirements, please read the rules governing the traineeship scheme of the JRC:</u></b></p> <p><a href="https://ec.europa.eu/jrc/en/working-with-us/jobs/temporary-positions/jrc-trainees">https://ec.europa.eu/jrc/en/working-with-us/jobs/temporary-positions/jrc-trainees</a></p>
<b>Institute/ Directorate Unit</b>	<p>JRC.G, Nuclear Safety and Security (Karlsruhe) JRC.G.II.6, Nuclear Safeguards and Forensics</p> <p>Further information:</p> <p><a href="https://ec.europa.eu/jrc/en/about/organisation">https://ec.europa.eu/jrc/en/about/organisation</a></p> <p><a href="https://ec.europa.eu/jrc/en/science-area/nuclear-safety-and-security">https://ec.europa.eu/jrc/en/science-area/nuclear-safety-and-security</a></p>
<b>Indicative duration</b>	3 months
<b>Preferred starting date</b>	Mid-February 2017
<b>JRC Site</b>	Karlsruhe
<b>Country</b>	Germany
<b><u>JRC contact details</u></b>	<p><b>For any technical problems with your application, please contact:</b></p> <p><a href="mailto:JRC-ESRA@ec.europa.eu">JRC-ESRA@ec.europa.eu</a></p>