# International Atomic Energy Agency

## Long Term Fellowship on Gamma Object Measurement (Gamma Spectrometry)

**PROSPECTUS**

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| **Project Number & Title:** | RER/7/008: "Strengthening Capabilities for Radionuclide Measurement in the Environment and Enhancing QA/QC System for Environmental Radioactivity Monitoring" |
| **Place (City, Country):** | Spiez, Switzerland |
| **Dates:** | 30 January to 22 December 2017 |
| **Deadline for Nominations:** | **11 November 2016** |
| **Organizers:** | The International Atomic Energy Agency (IAEA) in cooperation with the Government of Switzerland through the SPIEZ LABORATORY of the Federal Office for Civil Protection. |
| **Host Country Organizer:** | Mario Burger, Ph.D.<br>Head of Physics Division<br><br>Béatrice Balsiger Ph.D.<br>Head of Radioactivity Branch<br><br>Nina Mosimann, Ph.D.<br>Fellow supervisor<br><br>Federal Department of Defence,<br>Civil Protection and Sport<br>Federal Office for Civil Protection<br>Austrasse, SPIEZ LABORATORY<br>CH-3700 Spiez, Switzerland<br>Phone: +41 58 468 16 15<br>Fax: +41 58 468 14 02<br>e-mail:beatrice.balsiger@babs.admin.ch<br>www.labor-spiez.ch |
| **Language:** | English. Knowledge of French or German would be positive. |
| **Purpose:** | The main purpose of this long term fellowship is to improve the knowledge in gamma object measurements (GOM) on various objects and under different shielding conditions, such as NORM. |
| **Expected Output(s):** | Participant will have to:<br>1. Conduct a literature review on the topic. Review the principles of |

spectrometric gamma object measurements as an application for screening cars and trucks potentially transporting radioactive materials (e.g. shielding with NORM material) and become acquainted with the operation procedures of the detectors used at Spiez Laboratory for such measurements (Falcon5000, Canberra).
2. Model/simulate various gamma emitting objects and geometries, perform measurements and interpret the obtained spectra in order to be able to compare these results to the models and for the purpose of evaluation of the limitations and opportunities of this technique.
3. Documentation and presentation of the above mentioned tasks.
4. Other works related to the personal interests of the candidate related to gamma spectrometry and in the interest of RER/7/008. Personal interest has to be mentioned in the application form.

**Scope and Nature:**

The long term fellowship will consist of both technical lectures and practical training with hands-on experiments led by the staff of the laboratory. The participant should be able to work autonomous after the first month of the fellowship.

Topics that will be included are:

1. Gamma spectrometry
2. Modelling/Simulation of gamma emitting objects with ISOCS
3. Counting and detection methods, with emphasis on gamma spectrometry.
4. Hands-on experiments at the Spiez Laboratory.
5. Quality assurance/Quality control
6. Preparation of scientific reports/publications
7. Other topics of interest for the candidate and the IAEA.

**Background Information:**

The overall objective of the regional project RER/7/008 is to further develop the capabilities in source and environmental monitoring and to improve quality assurance for the measurements and monitoring of radioactivity in the environment, in accordance with ISO/EN 17025, in order to assure future metrological comparability of measurement results and to harmonize approaches and procedures at the regional level. The expected project outcome is to have increased capabilities in monitoring radionuclides in the terrestrial and aquatic environments.

**Participation:**

This long-term fellowship is open to only one participant. The applicant will be selected based on the qualification criteria stated below. Therefore, applicants are encouraged to provide the necessary information to prove their professional competencies.

**Participants' Qualification:**

A master degree in Physics or Nuclear Sciences.
Minimum of two years of demonstrated experience in the field of gamma spectrometry.

**Nomination Procedure:**

Please submit nominations to the IAEA online through the Technical Cooperation Department's InTouch system (http://intouch.iaea.org). Only if

this is not possible, nominations may be submitted using the standard IAEA Nomination Form for Fellowship, which is available from the IAEA website: http://www.iaea.org/technicalcooperation/How-to-take-part/fellowship/index.html. Completed forms should be endorsed by relevant national authorities and sent to the Programme Management Officer for this project, Ms Carmina Jimenez de Bergant (IAEA Official Fax: +43-1-26007 or E-Mail Official.Mail@iaea.org), through the official channels, i.e. the designated National Liaison Office for IAEA matters, not later than **11 November 2016**. Nominations received after this date or that have not been routed through the established official channels cannot be considered.

**Administrative and Financial Arrangements:**

Nominating Governments will be informed in due course of the name of the applicant who has been selected and will, at that time, be given full details of the procedures to be followed with regard to administrative and financial matters.

The selected applicant will be provided with a round trip economy class air ticket from his/her home country to Switzerland and a stipend for the period of the fellowship.

The organizers of the fellowship do not accept liability for the payment of any cost or compensation that may arise from damage to or loss of personal property, or from illness, injury, disability or death of a fellow while he/she is travelling to and from or during fellowship, and it is clearly understood that each Government, in nominating participants, undertakes responsibility for such coverage. Governments would be well advised to take out insurance against these risks.