

Job Description for Professional Posts

Reference: NA2024/07

| | |
|--------------------------------------|---|
| Position and Grade: | Associate Research Scientist (Low-level Gamma-Ray Spectrometry), P2 |
| Organizational Unit: | Radiometrics Laboratory Division of IAEA Marine Environment Laboratories |
| Duty Station: | Monaco |
| Type/Duration of Appointment: | FT – JPO, 1 year |

Organizational Setting

The Department of Nuclear Sciences and Applications implements the IAEA's Major Programme 2, "Nuclear Techniques for Development and Environmental Protection". This Major Programme comprises individual programmes on food and agriculture, human health, water resources, environment and radiation technologies. These programmes are supported by laboratories in Seibersdorf, Monaco and Vienna. The Major Programme's objective is to enhance the capacity of Member States to meet basic human needs and to assess and manage the marine and terrestrial environments through the use of nuclear and isotopic techniques in sustainable development programmes.

The IAEA Marine Environment Laboratories consists of three laboratories, which are located in Monaco. The Division supports Member States in enhancing their capacity to use nuclear and isotopic techniques to understand marine and atmospheric environmental processes and dynamics, and to identify and address environmental problems caused by radioactive and non-radioactive pollutants and climate change.

The Radiometrics Laboratory has expertise in the fields of marine radioactivity measurements, development of radioanalytical methods, low-level counting, modelling of dispersion, environmental and radiological assessments, marine database management, and radiotracer applications in oceanographic, pollution and climate studies. It collaborates with Member States to assist them in their development and to implement capacity building technical cooperation projects. It also helps them to prepare for emergency situations, carries out missions at sea, supports analytical quality in Member States laboratories and provides training.

Main Purpose

To undertake research into the application of gamma-ray spectrometry to low-level gamma spectrometric analyses of environmental samples.

Role

Under supervision of the Head of the Radiometrics Laboratory, the Associate Research Scientist (Low-level Gamma-Ray Spectrometry) is: (1) a technical specialist assisting in the development and implementation of low-level radioactivity measurement techniques, (2) an analyst undertaking measurements and analysing the results, and (3) a communicator preparing and presenting results through technical reports and scientific publications.

Partnerships

The Associate Research Scientist (Low-level Gamma-Ray Spectrometry) builds and maintains working relationships with staff of the RML and other laboratories of the IAEA Marine Environment Laboratories Division. The incumbent builds relationships with staff of the Nuclear Sciences and Applications Department and other departments of the IAEA and other organisations and working groups, including collaboration with other international organisations and international projects, to ensure the effective utilisation of technical advances to the development and implementation of low-level radioactivity measurement techniques. He/She develops and builds networks with scientists and technical staff from Member State laboratories to exchange information on advances in the development and the applications of low-level radioactivity measurements. She/he will collaborate with project officers and researchers on projects supporting the application of low-level radioactivity measurement techniques. The Associate Research Scientist (Low-level Gamma-Ray Spectrometry) will collaborate with the other specialists in nuclear analytical techniques in NAML and will work closely with the Laboratory Head, Research Scientists and Research Assistants in RML.

Functions / Key Results Expected

- Contribute to the development of RML's low-level gamma-ray spectrometry capability using a combination of experimental and modelling approaches.
- In close collaboration with the team, improve the characterisation of current underground and surface low-level gamma-ray spectrometry systems incorporating a range of active and passive shielding.
- Considering current best practice and worldwide research activity, evaluate options for the future development of this counting capability, focussing on the further reduction of background levels and improvement of detection levels for a range of environmental sample matrices.
- Research alternative and/or complementary methods for the analysis of gamma-ray spectra, measurement uncertainty estimation and related data evaluation.
- Communicate the results of research in technical reports, peer-reviewed scientific publications and relevant meetings.

Competencies and Expertise (do not revise or edit)

| Core Competencies | | |
|-------------------|------------------------|---|
| Competence | Occupational Role | Behavioural Indicator |
| Communication | Individual Contributor | Communicates orally and in writing in a clear, concise and impartial manner. Takes time to listen and understand the perspective of others and proposes solutions. |
| Achieving Results | Individual Contributor | Takes initiative in defining realistic outputs and clarifying roles, responsibilities and expected results in the context of the Department/Division's programme. Evaluates |

RESTRICTED

| | | |
|-------------------------|------------------------|---|
| | | his/her results realistically, drawing conclusions from lessons learned. |
| Teamwork | Individual Contributor | Actively contributes to achieving team results. Supports team decisions. |
| Planning and Organizing | Individual Contributor | Plans and organizes his/her own work in support of achieving the team or Section's priorities. Takes into account potential changes and proposes contingency plans. |

| Functional Competencies | | |
|---|--------------------------|---|
| Competence | Occupational Role | Behavioural Indicator |
| Analytical thinking | Associate | Gathers and analyses information, identifying critical relationships and patterns among data and proposes workable solutions. |
| Knowledge sharing and learning | Associate | Actively seeks opportunities to learn by formal and informal means; learns from others, adopting and sharing best practice. |
| Technical/scientific credibility | Associate | Acquires and applies new skills to remain up to date in his/her area of expertise. Reliably applies knowledge of basic technical/ scientific methods and concepts. |
| Commitment to continuous process improvement; | Associate | Identifies opportunities for process, system and structural improvement as well as improving current practices, increasing effectiveness and achieving efficiency gains. Actively supports the application of sound quality management standards and process improvement. |

| Expertise | |
|-----------------------------|--|
| Expertise | Description |
| Environmental radioactivity | Good knowledge of environmental radioactivity, in particular marine radioactivity |
| Nuclear physics | Extensive knowledge of nuclear physics and measurement techniques for environmental radioactivity analysis |
| Gamma-ray spectrometry | Comprehensive knowledge of gamma-ray spectrometry including digital nuclear electronics, spectral analysis and detector modelling techniques |
| Data analysis | Broad data science skills including statistical methods, scientific programming and visualisation of data |

RESTRICTED

Education, Experience and Language Skills

- University degree in physics.
- Minimum of two years' experience in environmental radioactivity, radioactivity measurements, Monte-Carlo computer modelling
- Excellent oral and written command of English. Knowledge of other official IAEA languages (Arabic, Chinese, French, Russian and Spanish) is an asset.