IAEA
International Atomic Energy Agency

Job Description for Professional Posts

Reference:NA2024/23

Position and Grade:	Associate Data Scientist (Fusion Energy), P2
Organizational Unit:	Atomic and Molecular Data Unit Nuclear Data Section Division of Physical and Chemical Sciences
Duty Station:	Vienna
Type/Duration of Appointment:	FT – JPO, 1 year

Organizational Setting

The Department of Nuclear Sciences and Applications (NA) 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 Division of Physical and Chemical Sciences is responsible for assisting and advising Member States in research and development for the nuclear sciences, especially the physical and chemical sciences. Specifically, the Division provides support to Member States in the following fields: production of radioisotopes and radiolabelled products for applications in health care and industry; radiation source applications; research reactor utilization; applications of accelerators and nuclear instrumentation; nuclear and atomic data for applications; controlled nuclear fusion and isotope hydrology and geochemistry.

Additionally, the nuclear science activities carried out by the Nuclear Data Section and Physics Section in the Division of Physical and Chemical Sciences of the Department of Nuclear Sciences and Applications fall under Major Programme 1.

The Nuclear Data Section (NDS) is primarily responsible for the generation and maintenance of a number of high-quality and fundamental nuclear and atomic databases and providing services to users worldwide. The main means of dissemination is via the NDS website, which provides interactive tools to present the required data.

Main Purpose

As a member of the Atomic and Molecular Data Unit within the Nuclear Data Section the Associate Data Scientist provides support to the work of the Section in the compilation and exploitation of atomic, molecular, and plasma-material interaction data for nuclear fusion. He/she is provided with opportunities for practical exposure to programme development and execution in the scientific area of atomic, molecular, and plasma-material interaction data for fusion, under the guidance of senior professionals.

Role

The Associate Data Scientist is: (i) an analyst, reviewing and classifying journal literature in the area of atomic, molecular and plasma-material interaction data for fusion and interacting with producers, evaluators and users of such data; (ii) a database developer, maintaining data libraries and their implementation as online services; and (iii) a team member, carrying out scientific or technical research to support the exploitation of these data through validation and visualization software and the development of novel Machine Learning algorithms to create, manipulate and explore them.

Partnerships

The Associate Data Scientist maintains professional contacts with IAEA scientific and technical staff and with external developers and users of atomic, molecular and plasma-material interaction data.

Functions / Key Results Expected

Under close supervision of the Section Head and Atomic and Molecular Data Unit staff, the Associate Data Scientist carries out the following responsibilities to address Member States' needs related to data for atomic, molecular and plasma-material interaction processes in fusion.

- Read and classify journal literature in order to contribute to numerical and bibliographical databases on atomic, molecular and plasma-material interaction processes for fusion and to support data evaluation work for such processes;
- Carry out scientific and data analytic research including computational studies and the development of Machine Learning algorithms to support the evaluation and exploitation of data for atomic, molecular and plasma-material interaction processes for fusion;
- Contribute to implementation of database development needs linked to the above subjects;
- Participate in other daily activities within the Section as required and assigned by the Section Head.

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 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.

Expertise	
Expertise	**Description**
Information Technology/Computer Programming	Experience with numerical programming in a modern programming language such as Python or C++ is required.
Information Technology/Database management	Experience with database management or with specific databases for atomic, molecular, or plasma-material interaction processes would be an advantage.
Information Technology/Data Modelling	Experience with the development and deployment of Machine Learning algorithms, data visualization tools, distributed computing technologies or cloud-computing platforms would be an advantage/Asset

Education, Experience and Language Skills

- University degree in Physics, Chemistry, Computer Science, Engineering or a related field. Master's degree or PhD is an asset.
- Minimum two years of relevant experience in scientific research involving a significant component of numerical data analysis and software development in a modern programming language.
- Experience in international cooperation with proven ability to participate effectively in a multinational and multidisciplinary team with sensitivity and respect for diversity.
- Fluency in spoken and written English. Knowledge of any other official IAEA language (i.e. Arabic, Chinese, French, Russian or Spanish) would be an advantage.