

# Job Title: Scientist, Data Processing IO1099

Requisition ID **6162** - Posted - (France, 13067 St Paul Lez Durance Cedex) - **Science and Technology Expertise - New Posting**

The ITER Organization brings together people from all over the world to be part of a thrilling human adventure in southern France—building the ITER Tokamak. We require the best people in every domain.

We offer challenging full-time assignments in a wide range of areas and encourage applications from candidates with all levels of experience, from recent graduates to experienced professionals. Applications from under-represented ITER Members and from female candidates are strongly encouraged as the ITER Organization supports diversity and gender equality in the workplace.

Our working environment is truly multi-cultural, with 29 different nationalities represented among staff. The ITER Organization Code of Conduct gives guidance in matters of professional ethics to all staff and serves as a reference for the public with regards to the standards of conduct that third parties are entitled to expect when dealing with the ITER Organization.

The south of France is blessed with a very privileged living environment and a mild and sunny climate. The ITER Project is based in Saint Paul-lez-Durance, located between the southern Alps and the Mediterranean Sea—an area offering every conceivable sporting, leisure, and cultural opportunity.

To see why ITER is a great place to work, please look at this video

**Application deadline:** 09/06/2022

**Domain:** Science & Operation Domain

**Department:** Science, Controls & Operation Department

**Division:** Science Division

**Section:** Plasma Modelling & Analysis Section

**Job Family:** Scientific Coordination

**Job Role:** Coordinating Scientist

**Job Grade:** P4

**Language requirements:** Fluent in English (written & spoken)

**Contract duration:** Up to 5 years

## **Purpose**

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As a Scientist in the Data Processing and Interpretation area, you will coordinate and lead the development of high-performance experimental data processing pipelines and the associated delivery of Live Display capabilities.

You will establish and manage a dependency-driven data processing infrastructure that scales with data rates and processing capabilities, in addition to developing robust high-performance data interpretation workflows delivering physics parameters and their uncertainties from multiple measurements.

## **Background**

Execution of the ITER Research Plan and the achievement of ITER's mission goals requires prompt access to a wealth of rigorously processed, reliably interpreted and carefully analyzed experimental data.

Rapid processing and rigorous interpretation pipelines are necessary to support efficient execution of the programme, whilst in-depth analyses guide programmatic decision making.

ITER's Integrated Modelling & Analysis Suite (IMAS) builds around a standardized data representation and is the framework within which all data processing, interpretation and analysis tools will be developed.

## **Key Duties, Scope, and Level of Accountability**

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- Defines, coordinates and implements a hierarchy of data processing and interpretation pipelines to support the execution of the ITER Research Plan, ranging from single diagnostic data processing to the statistical inference of plasma parameters from multiple diagnostics and their uncertainties;
- Defines, coordinates and implements IMAS infrastructure extensions to enable high-performance data processing to take place, possibly remotely, as soon as input data is available and that scales efficiently with data rates and computing resources;
- Ensures the implementation of appropriate models for ITER's diagnostic systems (synthetic diagnostics), including uncertainties, enabling advanced data interpretation and inference techniques;
- Defines, coordinates and implements a programme of verification and validation to ensure the delivery of rigorous, reproducible data processing capabilities;
- Contributes to the maintenance and management of a database of tokamak metadata (machine description data) including uncertainties that is updated through a combination of direct measurement and data analysis;
- Coordinates development and integration into IMAS of workflows and tools developed within the ITER Members' R&D programmes to expand data processing, interpretation and analysis capabilities;
- Coordinates activities of ITER staff, visiting researchers and ITER Scientist Fellows contributing to work in the area of data processing and interpretation;
- Provides expert scientific and technical inputs to either resolve key scientific or technical issues or enhance technical decision making;
- Supports the Section Leader in the implementation and execution of the section work programme, including voluntary R&D programmes in the ITER Members institutions such as the International Tokamak Physics Activities (ITPA) and the ITER Scientist Fellow Network (ISFN).
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- May be required to work outside ITER Organization reference working hours, including nights, week-ends and public holidays.

### Measure of Effectiveness

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- Conceives and implements effective solutions to experimental data processing, interpretation and analysis with emphasis on minimizing uncertainties and computational performance;
- Ensures development and delivery of user-friendly tools to support execution of ITER Research Plan and programmatic decision making;
- Interacts with and efficiently co-ordinates experts from within the ITER Members in the definition, implementation and monitoring of activities in his/her area of responsibility;
- Effectively supports the schedule & cost for ITER operations by anticipating and solving issues;
- Facilitates productive collaborations in the area of ITER data processing, interpretation and analysis to expedite execution of the ITER Research Plan;
- Maintains effective support for ITER diagnostic design and performance assessment activities by provision of predicted measurements, including uncertainties;
- Develops, implements and executes efficiently within the defined schedule, R&D activities with the international fusion community in support of ITER construction and the preparations for operation.

### Experience & Profile

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- **Professional Experience:**
- At least 8 years' experience in leading fusion-relevant researches, with significant project management experience and proven technical leadership abilities.
- **Education:**
  - PhD degree or equivalent in plasma physics field or other relevant discipline;
  - The required education degree may be substituted by extensive professional experience involving similar work responsibilities and/or additional training certificates in relevant domains.

- **Language requirements:**
  - Fluent in English (written and spoken).
- **Technical Competencies and demonstrated experience in:**
  - Processing and analysing data from fusion-relevant devices;
  - Developing and applying data processing tools and workflows;
  - Coordinating experts in the definition, implementation and monitoring of scientific activities;
  - Numerical techniques for the implementation of sophisticated modelling and analysis tools;
  - Developing and managing high-performance scientific software;
- **Behavioral Competencies:**
  - Collaborate: Ability to facilitate dialogue with a wide variety of contributors and stakeholders;
  - Communicate Effectively: Ability to adjust communication content and style to deliver messages to work effectively in a multi-cultural environment;
  - Drive results: Ability to persist in the face of challenges to meet deadlines with high standards;
  - Manage Complexity: Ability to analyze multiple and diverse sources of information to understand problems accurately before moving to proposals;
  - Instill trust: Ability to apply high standards of team mindset, trust, excellence, loyalty and integrity.

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***The following important information shall apply to all jobs at ITER Organization:***

- Maintains a strong commitment to the implementation and perpetuation of the ITER Safety Program, ITER Values (Trust; Loyalty; Integrity; Excellence; Team mind set; Diversity and Inclusiveness) and Code of Conduct;
- ITER Core technical competencies of 1) Nuclear Safety, environment, radioprotection and pressured equipment 2) Occupational Health, safety & security 3) Quality assurance processes. Knowledge of these competencies may be acquired through on-board training at basic understanding level for all ITER staff members;
- Implements the technical control of the Protection Important Activities, as well as their propagation to the entire supply chain;
- May be requested to work on beryllium-containing components. In this case, you will be required to follow the established ITER Beryllium Management Program for working safely with beryllium. Training and support will be provided by the ITER Organization;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- Informs the IO Director-General, Domain Head, or Department/Office Head of any important and urgent issues that cannot be handled by line management and that may jeopardize the achievement of the Project's objectives.