Job Title: Scientific Officer (Plasma-Wall Interactions) IO0386

Requisition ID **3581** - Posted **31/01/2021** - (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: 14/03/2021
Domain: Science & Operation
Department: Science,Controls & Operation
Division: Science
Section: Experiments and Plasma Operation
Job Family: Scientific Coordination
Job Role: Scientist - 2
Job Grade: P3
Language requirements: Fluent in English (written & spoken)
Contract duration: Up to 5 years

Purpose

As a Scientific Officer specialized in Plasma-Wall Interactions, you will contribute to the coordination and analysis of all plasma-wall interaction (PWI) issues related to execution of the ITER Research Plan, and in support of project engineering and operational needs. For key PWI physics, you will support plasma control system development and integrated modelling activities, in addition to developing and coordinating experimental and modelling R&D activities in the Member's fusion programs aimed at improving predictive capability for key PWI processes involving material migration, fuel retention, fuel inventory control and dust generation.

Background

Plasma-wall interaction is a key issue which must be understood and controlled for the successful execution of the ITER Research Plan, while respecting the safety constraints imposed by fuel retention and dust production. It sets the operational boundary conditions in terms of plasma-facing material performance and lifetime and plays a major role in operational readiness and fuel recovery through wall conditioning.

Major Duties/Roles & Responsibilities

- Contributes to the definition and coordination of plasma boundary and PWI activities (such as wall conditioning, power loads to plasma-facing components) required for the development of the Plasma Control System;
- Provides expert interface between the ITER Science Division and the Vacuum, Operations, Heating and Current Drive and Fueling Divisions for the conditioning of the ITER vacuum vessel and walls using baking, glow discharge and active (electron cyclotron and radio frequency) cleaning techniques;
- Contributes to the definition and development of plasma boundary and PWI elements of the Science Division Integrated Modelling program; defines and coordinates experimental and modeling R&D activities associated with the processes of material migration, fuel retention and dust generation, together with the continuous assessment of techniques and perspectives for fuel inventory control;
- Acts as an interface between Science Division and the ITER Safety and Quality Department for all aspects relating to PWI, fuel and dust inventory;
- Interacts with and coordinates experts in the ITER Members' programmes and the ITER Scientist Fellowship Network in the development and testing of plasma control, wall conditioning and integrated modelling schemes in the plasma boundary and PWI area;
- Integrates R&D results and analysis from the ITER Members' programs in the areas of material migration, fuel inventory, inventory control, wall conditioning and dust generation and evaluates their implications for ITER plasma operation;
- Contributes to the specification and analysis of ITER plasma operational regimes;
- Contributes to the planning for ITER commissioning and operation;
- Liaises with ITER construction activities in areas directly concerned with plasma boundary physics and PWI, including in the areas of plasma-facing component procurement and preparation, diagnostics, exhaust, wall conditioning and tritium inventory control;
- Provides expert scientific and technical inputs to either resolve key scientific or technical issues, or enhance technical decision making;
- 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

- Effectively supports the development of the ITER Plasma Control System in areas influenced by plasma-wall interaction;
- Makes sound contributions to the development of improved understanding of and predictive capability in ITER plasma-wall interactions;
- Successfully supports the planning for ITER commissioning and operation with particular emphasis on wall conditioning techniques;
- Maintains effective communication and excellent relations with interfacing teams within ITER and with experts;

- Effectively supports the schedule and cost for ITER operations by anticipating and solving issues to minimize any disruption;
- Maintains effective support for ITER construction activities by provision of analysis support in a timely manner to engineering/technology development in areas impacted by plasma-wall interaction;
- 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

- ***Professional Experience:***
  - At least 6 years' experience working in fusion-relevant research, with extensive expertise in the area of plasma-wall interactions in magnetic fusion devices.
- ***Education:***
  - PhD degree or equivalent in plasma physics, materials science or other relevant discipline;
  - Demonstrable record of several publications in recognized scientific and technical journals;
  - 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:***
  - Specialized Domain of Work/Technical Expertise (Plasma-Wall Interactions):
    - Defining and coordinating experimental and modelling R&D activities, with several years' experience in the study and analysis of plasma-wall interactions;
    - Experience/knowledge in the area of hydrogen diffusion/trapping in materials an advantage;
    - Expertise/knowledge in the general area of plasma boundary physics an advantage;
    - Familiarity with modern scientific data analysis and visualization tools.
  - Delivery & Operations Execution (executing tasks with consistency, self-testing and feedback, whilst adapting to the changing context):
    - Coordination of experts from R&D institutes, in the definition, implementation and monitoring of scientific activities;
    - Project management experience with technical/scientific leadership would be advantageous.
- ***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.

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, **r**adioprotection 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 lline management and that may jeopardize the achievement of the Project’s objectives.