Job Title: Laser & Microwave Systems Coordinating Scientist IO1003

Requisition ID **4520** - Posted - (France, 13067 St Paul Lez Durance Cedex) - **Engineering of Systems** - **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: 17/10/2021
Domain: Engineering
Department: Engineering Design
Division: Port Plugs & Diagnostics
Section: In-Vessel Diagnostics
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

In this role of Laser & Microwave Systems Coordinating Scientist, you will oversee the Laser and Microwave activities of the In-Vessel Diagnostics (IVD) Section, providing technical and project engineering expertise, and ensuring the team applies clear project management methods. You will also prepare the final designs, oversee manufacture and commissioning of these systems working both directly on the technical solutions for certain systems and coordinating the technical work of the scientists and engineers working in this area.

Background

The aim of diagnostics is to provide the measurements to control and understand the plasma so as to achieve the ITER operation goals and gain the knowledge needed for future reactor design. The Port Plug and Diagnostics Division (PPD) provides all the Diagnostics for ITER, along with the engineering infrastructure to support these.

IVD prepares 39 diagnostic projects to support ITER operation. Twelve of these diagnostics measure plasma parameters using optical interferometry, polarimetry, mm-wave and optical scattering techniques. The systems employ high power lasers from the far infra-red (FIR) to the visible and coherent sources and receivers from the cm to the mm range. Their measurements aim to control plasma performance and to gain the knowledge needed for reactor designs.

Key Duties, Scope, and Level of Accountability

- Identifies and applies clear leadership strategies to ensure resources are efficiently utilized;
- Leads and oversees the laser and microwave design work, including the design review process;
- Coordinates technical solutions for the core, edge and divertor Thomson, interferometry, electron cyclotron emission (ECE) reflectometry (high and low-field side) and polarimetry systems;
- Manages direct supply of first plasma interferometry, Electron Cyclotron Heating (ECH) sensors and Collective Thomson Scattering (CTS) through commissioning preparation including but not limited to:
    - Develop calibration strategies in the context of other systems;
    - Determine, organize and execute all supporting R&D;
    - Develop the interfaces of the sensors with the tokamak;
    - Drives relevant integration activities;
    - Plan and specify assembly and integration on site;
    - Prepare technical specifications and oversee procurement with industry.
- Oversees construction of Domestic Agency (DA) optical and scattering systems;
    - Provides oversight to DA activities;
    - Leads interfaces and other ITER Organization (IO) activities related to infra-red systems;
    - Plans and specifies assembly and integration on site;
    - Ensures DA and IO schedules are compatible at all times.
- Resolves related technical issues:
    - Calculates typical loads; Estimates signal levels;
    - Assesses interface and other change requests;
    - Organizes, specifies and executes supporting R&D, as needed.
- Supervises service contracts, visitor and technicians' work;
- Communicates and coordinates with other organizations, laboratories, and institutes within the ITER collaboration, and the fusion community;
- Reports variances on all technical, cost and schedule aspects immediately to the Section Leader;
- Performs and reviews effective opportunities & risk identification and management of related documentation;
- Manages the change control process for the work and communicates changes to the line management;
- Maintains related documentation at all times on the ITER Document System and ensures it is updated and in the correct formats;
- 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, weekends and public holidays.

Measure of Effectiveness

- Demonstrates leadership in coordination of activities and teams for different projects;
- Completes work packages completed within quality, cost and deadlines;
- Delivers interface documentation, schematics plans and databases within defined schedule;
- Develops and approves technical documentation for procurement within scope;
- Develops and approves installation plans within the defined schedule and cost;
- Collaborates efficiently with technical partners in Domestic Agencies and other Departments/Offices at the IO;

Experience & Profile

- ***Professional Experience:***
    - Minimum 10 years' experience, including coordinating activities in engineering design, manufacturing and / or commissioning in the field of fusion within complex international environments or projects.
- ***Education:***
    - Masters' degree or equivalent in Physics or Engineering 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:***
    - Design of complex optical systems with high power lasers and/or microwave systems;
    - Proven participation in fusion experimental operations;
    - Documented expertise in plasma or beam density or temperature or electron kinetics;
    - Documented ability to coordinate experimental teams;
    - Planning and budget management: define needs requirements and scopes of work, estimating costs, sequencing, risk, and change management;
    - Procurement and contract management: defines requirements, performs sourcing activities, monitors contract delivery, and manages external parties to ensure implementation per contractual requirements;
    - Interface management: identify, resolve, and maintain technical and functional interfaces;
    - Problem solving; assess problems, identify root causes, and reach solutions in a way to reach project objectives within time and cost;
    - Design defense in technical design reviews;
    - Familiarity with electrical diagrams;
    - Presentation writing: write, review, and present technical documents in the domain of expertise, transmitting knowledge and data with precision;
    - Documented expertise in numerical modeling;
    - Use of 3D mechanical design and plasma modeling packages;
    - Technical follow-up of CAD activity and familiarity with CATIA;
    - Basic knowledge of nuclear effects on materials.
- ***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/define 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, 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.