Job Title: Heat and Imaging Diagnostics Engineer IO1062

Requisition ID **5980** - 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: 08/05/2022
Domain: Engineering
Department: Engineering Design
Division: Port Plugs & Diagnostics
Section: Ex-Vessel Diagnostics
Job Family: Engineering
Job Role: Engineer – 3
Job Grade: P3
Language requirements: Fluent in English (written & spoken)
Contract duration: Up to 5 years

Purpose

As the Heat and Imaging Diagnostics Engineer, you will design, oversee design and implement Visible and Infrared diagnostics systems for the ITER machine. You will specify and coordinate work with laboratories and institutes of the ITER Organization (IO) Partners, including any relevant supporting Research & Development (R&D) entities. You also will manage the scope, schedule, safety, quality control and cost for procuring the Heat and Imaging systems and supporting hardware and software under your responsibility.

Background

The aim of diagnostics is to provide the measurements necessary to control the plasma and first wall processes in operation to achieve the ITER goals and to gain the knowledge needed for future reactor design. The Port Plugs and Diagnostic Integration Division provides all the Diagnostics for ITER, along with the engineering infrastructures and test systems to support these and guides them through design, manufacturing, installation and commissioning, always keeping efficient operation in view.
The Ex-Vessel Diagnostics Section (EVD) prepares 32 diagnostic projects to support ITER Operation. The EVD position on offer is one of a responsible officer for one or more of these (EVD) diagnostics, coordinated in the Heat and Imaging diagnostics cluster. These diagnostics are used for measurements of the temperature of the plasma facing components, plasma emission in the visible waveband, flows in the

plasma boundary, energetic particles, plasma radiation, and for imaging the plasma facing components between plasma pulses.

Key Duties, Scope, and Level of Accountability

- Manages one or more of the Heat and Imaging systems such as Equatorial and Upper port Visible and Infrared Wide Angle Viewing Systems, Divertor IR Thermography, Temporary First Plasma Infrared System, Divertor Flow Monitor, In-vessel Lighting System, Lost Alpha Monitor, Bolometers, and other related systems as required;
- Manages diagnostics interfaces with the interfacing systems and components;
- Ensures that the diagnostics achieve specified requirements and proposes/implements corrective actions as necessary;
- Conducts Design Reviews related to Heat and Imaging diagnostics, and other related systems as required;
- Specifies and/or reviews R&D packages to be submitted, and oversees the procurement of Heat and Imaging diagnostic systems through procurement packages and direct contracts, interacting with the Domestic Agencies (DAs) and IO Procurement and Contracts Division as necessary;
- Supervises R&D program for the mirror cleaning and diagnostic shutters;
- Communicates with other stakeholders within the ITER project and the international fusion community, in particular for spectroscopy systems, e.g. by organizing or participating in workshops and other meetings;
- Proposes and implements plans for the construction, installation, commissioning and operation of the diagnostic systems for the whole project;
- Reports variances on all technical, cost and schedule aspects, analyses the impact(s) and proposes recovery plans;
- Performs and reviews effective risk identification and management of related documentation;
- Performs the change control process, document it and propagates changes to all concerned stakeholders;
- Maintains up to date the documentation for the systems under the defined scope of responsibilities;
- 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.

Note: 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.

Measure of Effectiveness

- Ensures that work packages are completed to agreed quality, deadlines and costs;
- Develops accurate design and interface documentation, schematics, plans and databases within defined quality, scope, schedule and cost;
- Establishes high quality technical documentation for procurement including risks within defined schedule;
- Establishes operation and installation plans within the defined schedule and cost;
- Provide timely support to technical partners in DAs and other IO Departments / Offices;
- Successfully coordinates and synchronizes the integration of diagnostics, especially in the ports but also all other relevant parts of ITER such as galleries and diagnostic building within defined schedule;

Experience & Profile

- ***Professional Experience:***
  - Minimum 6 years' experience of full project lifecycle management of instrumentation or diagnostics projects (including the development, integration, or operation of

diagnostics/instruments in other complex environments, such as nuclear installations, satellites, or large scientific projects) within complex international environments or projects;

- ***Education:***
  - PhD 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:***
  - Specialized domain of work (Diagnostics):
    - Design, supervision of construction, integration, calibration, installation, commissioning and/or exploitation of Heat and Imaging systems as described above;
    - Heat and Imaging related modelling including the modelling of plasma emissions and impurity transport is advantageous;
    - Research and development of the mirror cleaning systems and diagnostic shutters is advantageous;
  - Interface management (identifying, resolving and maintaining technical and functional interfaces): Resolving complex and challenging technical issues;
  - Project management (planning/measuring progress of project work, managing risks and costs): Identifying issues and delays in projects, development of recovery plans and cost, scope and schedule negotiations with international stakeholders;
  - Analysis and interpretation of visible and infrared diagnostic data, including temperature and heat flux evaluation are advantageous;
  - Systems Engineering and Design control such as functional analysis, requirement management, change control, and design reviews are 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, 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.