Job Title: Diagnostics Coordinating Scientist IO1000 & IO1004

Requisition ID **3440** - Posted **11/01/2021** - (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: 21/02/2021
Domain: Engineering
Department: Engineering Design
Division: Port Plugs & Diagnostics
Section: Ex-Vessel Diagnostics or In-Vessel 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

Two openings – Please note that your application will be considered for both positions.

One Diagnostics Coordinating Scientist will lead the designs and implementation of a range of Heat and Imaging systems for ITER, within the Ex-Vessel Diagnostics Section (**EVD**).
The second Diagnostics Coordinating Scientist will lead the designs and implementation of Boundary and First Wall diagnostic systems, within the In-Vessel Diagnostics Section (**IVD**).

For both positions, you will specify, lead and coordinate work in the laboratories and institutes of the ITER Organization (IO) Partners, including any relevant supporting Research & Development (R&D). You also will manage the scope, schedule, safety, quality control and cost of procuring the corresponding diagnostic systems and supporting hardware, through specified procurement packages and by direct contracts.

Finally, you will support the coordinated and synchronized integration of the above-mentioned diagnostics and potentially other diagnostics as required, for all relevant parts of ITER machine, including ports, vacuum vessel, divertor, galleries and the diagnostics building.

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 to lead the diagnostics work-scope of a subset of these (EVD) diagnostics, coordinated in the Heat and Imaging diagnostics group. These diagnostics are used for imaging, spectroscopy (including Doppler spectroscopy) and thermography of plasma and plasma facing components in the visible and infrared light, and the measurement and tomographic reconstruction of the radiative heat emission over the whole electromagnetic spectrum of the plasma.

The in-vessel diagnostics section (IVD) prepares 34 diagnostic projects to support ITER operation.
The IVD position on offer is to lead and coordinate the diagnostics work-scope of a subset of these (IVD) diagnostics, coordinated in the Boundary and First Wall group. These diagnostics are used for the measurement of plasma and gas conditions near the plasma-facing components and the results of interaction of the background plasma and fast particles with these components.

Major Duties/Roles & Responsibilities

- Diagnostics Coordinating Scientist in EVD:
  - Leads the Heat and Imaging group technical design and coordinates technical solutions for a range of diagnostics (the Divertor IR Thermography, Visible and IR Viewing systems in Equatorial and Upper ports, Temporary IR system for First Plasma, Divertor Flow Monitor, Bolometers and In Vessel Lighting) and other related systems as required;
  - Manages the direct supply of the Temporary First Plasma Viewing system and other systems as required;
- Diagnostics Coordinating Scientist in IVD:
  - Leads the boundary and first wall group technical design and coordinates technical solutions for a range of diagnostics (the Langmuir Probes, Pressure Gauges, Residual Gas Analysers, Dust, Tritium, Erosion and Lost Alpha Monitors, Charge Exchange (CX) samples, Erosion monitor, thermocouples) and other related systems as required;
  - Manages the direct supply of the Dust or Tritium monitors, CX samples and other systems as required.

For both positions:

- Leads and coordinates the design of the diagnostics interfaces with the main tokamak components;
- Drives integration activities to ensure that the diagnostics achieve specified requirements;
- Specifies and monitors R&D packages;
- Leads the Design Review processes related to the relevant diagnostics systems, and other related systems as required;
- Leads technical specification creation and manages the procurement of the relevant diagnostics systems through procurement packages and direct contracts, interacting with the teams working in the Domestic Agencies (DAs) and IO Procurement and Contracts Division as necessary;
- Monitors the procurement of diagnostic systems by using relevant tools, with the support of Corporate Domain (e.g. project planning, work-breakdown, technical schedule);
- Manages, coordinates and maintains the systems' data and documentation in the relevant ITER databases;
- Maintains communication with other organizations within the ITER collaboration and the fusion community;

- Develops plans for the construction, installation, commissioning and operation of the diagnostic systems at ITER;
- Reports variances on all technical, cost and schedule aspects, analyses the impact(s) and proposes recovery plans;
- Oversees construction of the relevant diagnostics systems and supervises the work of contractors/technicians;
- Performs and reviews effective risk identification and management of related documentation;
- Manages the change control process and communicates changes as necessary;
- 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.

Measures of Effectiveness

- Ensures that work packages are completed to agreed quality, deadlines and costs;
- Develops and approves accurate design and interface documentation, schematics plans and databases;
- Develops and approves high quality technical documentation for procurement including risks;
- Develops and approves operation and installation plans within the defined schedule and cost;
- Effectively coordinates and delegates when appropriate to people and teams for different projects activities;
- Successfully collaborates and communicates well with technical partners in Domestic Agencies and other ITER Organization (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;
- Ensures that data and documents are properly kept, in the correct format and to a high standard of accuracy.

Experience & Profile

- ***Professional Experience:***
  - At least 10 years' experience (post-Master's degree) of diagnostics projects including full project lifecycle management (e.g. the development, integration or operation of diagnostics in nuclear installations or in other complex environments, such as satellites or large scientific projects) within in the field of scientific or industrial projects.
- ***Education :***
  - PhD, Master's degree or equivalent in Physics, Engineering in a relevant discipline
  - In both cases, 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, calibration, installation, commissioning and exploitation of either of the diagnostics systems as described above;
    - Modelling including techniques and heat transport modelling in tokamak plasmas and onto the first wall and in diagnostic components are an advantage;
  - Interface Management (identifying, resolving and maintaining technical and functional interfaces): Resolving complex and challenging technical issues is required;
  - 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 is required;

- Systems Engineering and Design Control: Functional analysis, requirement management, change control, and design defense in technical design reviews are considered an advantage.
- For EVD:
  - At least one project supported by publications in a relevant discipline: Imaging, Thermography, Bolometry, Doppler spectroscopy;
  - Analysis and treatment of images and with thermal and spatial inversion methods including tomography, ray tracing and reflection compensation, is advantageous.
- For IVD:
  - At least one project supported by publications in a relevant discipline, such as plasma edge and boundary diagnostics (e.g. Langmuir Probes, Pressure Gauges, Residual Gas Analysers, Thermocouples) or Dust, Tritium, Erosion diagnostics (including speckle interferometry or holography), Lost Alpha Monitors etc.;
  - Plasma edge modelling and / or particle and heat transport calculations is 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/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, **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.