Job Title: Upper Launcher Engineer IO0380

Requisition ID **3808** - Posted **29/03/2021** - (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: 09/05/2021
Domain: Engineering
Department: Engineering Design
Division: Heating & Current Drive
Section: Electron Cyclotron
Job Family: Project Engineering
Job Role: Coordinating Engineer
Job Grade: P4
Language requirements: Fluent in English (written & spoken)
Contract duration: Up to 5 years

Purpose

In this role as Technical Responsible Officer (TRO) for the Electron Cyclotron (EC) Upper Launcher (UL) and Ex-Vessel Waveguides (EW) Procurement Arrangement (PA) with the European Domestic Agency (EUDA), you will be responsible for PA oversight, providing the technical and managerial inputs which focus on the design finalization and manufacturing, and lead to the successful delivery, installation, and operation of the UL and EW.

As TRO, you will also be responsible for Quality Assurance (QA) support, definition of design & safety requirements, manufacturing follow-up including development of installation, operation and maintenance plans, and resource management. A key element of this position is to manage the integration and interfaces of this scope into the overall ECRH system and the ITER machine. Additionally, you will provide mechanical engineering support to the overall Electron Cyclotron (EC) system and the Equatorial Launcher (EL) developments when required.

Background

The EC team are a section within the Heating and Current Drive (HCD) Division, in the Engineering Design Department. This team are responsible, with the responsible Domestic Agencies, for the development of the

EC system for ITER. The EC system will be used in ITER for Heating and Current Drive (H&CD) in a number of plasma operating scenarios. The EC system aims at delivering up to 20MW for plasma heating and current drive (H&CD) applications, with a potential upgrade for an additional 20MW (40MW in total) of delivered power as a future up grade. In order to achieve 20MW of delivered power, the EC system has an installed power of 24MW (sources located outside of the ITER tokamak building). Transmission lines and EW are integrated in the tokamak building guiding the power to the four upper launchers (UL) and Equatorial Launcher (EL), mounted in the vacuum vessel.

The ECH system is also a First Plasma (FP) system, where approx. 8MW of power needs to be installed to accommodate plasma breakdown. In preparation for FP operation, the First of four EUDA Upper launchers will be operational, with the remaining systems operational for the Pre-Fusion-Plasma Operation phase (PFPO-1).

Major Duties/Roles & Responsibilities

- Co-ordinates the development of the final design of the EC UL and EW in collaboration with other EC section members, IO-CT (ITER Central Team) and IO-F4E (European Domestic Agency);
- Documents the design requirements, load specification, safety functions, requirements propagation and verification, and quality plans of the PA (in collaboration with the EU-DA);
- Ensures design compliance with ITER project requirements and other ITER systems interfacing with the UL and EW;
- Monitors the final design development and prototype tests of the UL and EW;
- Co-ordinates the development of the qualification and test programs of the UL/EW in parallel with the prototype tests, leading to a final qualification program associated with the manufacturing, assembly, installation and commissioning of the systems;
- Provides the technical and project management support to the procuring DA, to ensure the scope delivery though design finalization, manufacture and testing of the UL and EW up to delivery;
- Provides the technical inputs required for the installation and commissioning documentation preparation of the UL and EW;
- Assists in the monitoring of Quality Programs associated with the sub-system procurements;
- Provides assistance in the above activities for the Equatorial Launcher (EL) development and overall EC system development;
- Ensures tasks schedule compliance with EC design and procurement milestones;
- Implements the technical control of the Protection Important Activities, as well as their propagation to the entire supply chain;
- 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

- Achieves the development of the UL and EW final design and manufacturing as measured by the Annual Work Plan (AWP) and Strategic Management Plan (SMP) milestones;
- Improves and updates documentation management, quality compliance, system integration associated with the UL and EW;
- Manages the resources associated to the work scope and coordinates the activities ensuring that the interfaces and the integration of the PA scope is ensured;
- Manages the procurement arrangement within the defined schedule and associated technical specifications and procedures, ensuring the UL and EW systems are compliant with ITER Organization (IO) requirements and Safety regulations;
- Manages the inputs required for the installation and commissioning documentation of the UL and EW according to the project requirements, including schedule;

- Ensure that the technical inputs are provided as required to the design and manufacturing supply team;
- Maintains effective communication with the interfacing teams within ITER, Domestic agencies and with external contractors.

Experience & Profile

- ***Professional Experience:***
  - At least 10 years' experience working as design engineer in the field of heating current drive systems or technical integration of complex mechanical systems.
- ***Education:***
  - Master degree or equivalent in mechanical engineering 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:***
  - Mechanical engineering in areas such as remote handling, Ultra High Vacuum (UHV) environments, nuclear environments, or high heat flux components;
  - Thermal-mechanical applications including high thermal heat loads and optimized cooling configuration, engineering standards (for example: RCC-MR, SDC-IC, ASME, EN, ASTM), regulation compliances (such as European Directives) and quality management (for example: ISO 9000s, IAEA GS-R-3, ASME NQA-1);
  - Project management, including procurement and contracts: defining requirements, planning, measuring progress, managing risks, costs, and issues within the constraints of identified resources (human, financial) and schedule, prepares & executes contracts including sourcing activities and managing external partners;
  - Reporting on the project performance, status, issues and actions to the IO management;.
  - Quality management: knowledge of requirements for international quality standards (both management and product), methods and practices;
  - Interface management: Identify, resolve, and maintain technical and functional interfaces via collaboration with internal and/or external partners and stakeholders;
  - Technical writing and presentation: write and review technical documents, translate and share content and data with clarity and precision to stakeholders;
  - Analytical programming, CATIA, &ANSYS knowledge, and Microsoft applications;
  - Design and development of high power heating system(s) on an existing fusion device (Stellarator or Tokamak), with experience developing complex components in compliance with nuclear and safety requirements is highly beneficial;
  - Mechanical and spectral analysis is an advantage.
- ***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 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.