Job Title: Tokamak Systems Monitor Coordinator IO0970

Req ID **1561** - Posted **11/04/2020** - (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: 24/05/2020
Domain: Engineering
Department: Engineering Design
Division: Port Plugs & Diagnostics
Section: In-Vessel Diagnostics
Job Family: Project Engineering
Job Role: Engineer - 2
Job Grade: P3
Language requirements: Fluent in English (written & spoken)
Contract duration: Up to 5 years

Purpose

As ITER's Tokamak Systems Monitoring Coordinator, you will be in charge of the overall implementation of the Tokamak Systems Monitor (TSM). You will manage a program to develop the software suite for the TSM. To achieve this, you will define and drive the TSM's engineering requirements, algorithms and operational code development, in addition to coordinating analysis and all other supporting activities that relate to the integration, coding, deployment, commissioning and operation of the TSM, thus ensuring that it fulfils its operational role.

Background

The in-vessel diagnostics section (IVD) looks after 35 diagnostic projects, including magnetic sensors distributed within core machine components. Core machine components include vacuum vessel, blanket and divertor, cryostat, toroidal field, and poloidal field coils. These core components, their supporting structures and selected port plug structures also carry extensive dedicated instrumentation. Altogether, pickup coils, voltage loops, shunts, optical and classic strain gauges, thermal sensors, distance gauges and accelerometers broadcast data in real time and make it available off-line. The Tokamak systems monitoring project uses this data and dedicated reconstruction algorithms to present the operator with a comprehensive view of the structural health and wear level of core machine and port components. The system is currently in the conceptual system design phase. It will be released in stages, aiming for a fully functional TSM early in ITER plasma operation. Once implemented, the TSM will monitor over one thousand sensors.

Major Duties/Roles & Responsibilities

- Develops the requirements for the TSM system;
- Writes sub-systems requirements' documents (operational, functional and coding requirements etc.);
- Maintains the interface specifications of the TSM with the sensor systems;
- Determines all design aspects of the TSM;
- Responsible for contract oversight and follow-up related to the TSM computational project;

- Drives the development of the TSM software architecture and models;
- Leads selected TSM simulation and reconstruction algorithm development and testing;
- Prepares the specifications for coding the TSM software to ITER control system requirements;
- Leads related gateway reviews and organizes the release of corresponding work packages;
- 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.

Note: May have 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

- Completes work packages to agreed deadlines;
- Manages interfaces efficiently and smoothly;
- Demonstrates fast control of software development flow and subsequent corrections;
- Prepares effective and complete installation plans;
- Collaborates effectively with technical partners.

Experience & Profile

- *Professional Experience:*
  - At least 8 years' engineering experience including engineering complex mechanical or electro-mechanical systems, or electric machines (such as wind turbines, generators etc.) in either fusion, fission, aerospace, energy or automotive environments.
- *Education:*
  - Master's degree or equivalent in an Engineering field, computer science or other relevant discipline;
  - Extensive professional experience involving similar work responsibilities and/or additional training certificates in relevant domains may substitute the required education degree
- *Language requirements:*
  - Fluent in English (written and spoken).
- *Technical Competencies and demonstrated experience in:*
  - Electro-mechanical systems function;
  - Finite element analysis (FEA) and inverse problems;
  - Interpretation of structural instrumentation;
  - Developing algorithms and coding; Best practices of software development practices is considered as an advantage;
  - Contract management, planning and costing ability for computational projects;
  - Design defense in technical design reviews;
  - Ability to generate specifications for FEA modelling and simulation;
  - Mathematical (analytical) modeling of physical systems;
  - Background knowledge of elements of the ANSYS suite would be 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 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 lline management and that may jeopardize the achievement of the Project's objectives.