

<b>Title: Senior Technical Officer for Diagnostics, CODAC&amp;IT, H&amp;CD, and Diagnostics / Diagnostics Division</b>		<b>CHD-019</b>
<b>REPORTS TO LINE MANAGER: Head of Diagnostics Division</b>		
<b>DIRECT EMPLOYMENT: NOT REQUIRED</b>	<b>GRADE RANGE: P4 - P5</b>	
<b>Date Written: 12 June 2007</b>	<b>Date Revised:</b>	<b>Date Revised:</b>

**Purpose:** Support the Division Head in all matter relating to the implementation of ITER diagnostics. Develop the designs of diagnostic systems by personal contribution and by specifying, monitoring and coordinating work in the laboratories and institutes of the ITER Partners, including any relevant supporting R&D, with emphasis on physics and engineering of spectroscopic diagnostics. Manage scope, schedule and cost of procurement of some of the diagnostic systems and supporting hardware through specified procurement packages.

**Major Duties/Responsibilities:**

- Diagnostic physics and engineering
- Responsible for:
  - providing expertise, in particular on spectroscopic diagnostics including x-ray and VUV;
  - vacuum-coupled and straight-line-of-sight diagnostics;
  - specifying and assessing neutronics calculations relating to diagnostic shielding and performance;
  - design of diagnostic systems and interfaces, including those in upper and equatorial ports;
  - integrating and improving the design of diagnostic systems;
  - specifying and monitoring R&D packages;
  - organizing and monitoring detailed design reviews;
  - liaising with ongoing diagnostic design and integration activities in the Participant Home Teams.
- Supports the DH in all matters related to the Diagnostic system for ITER construction.
- Develops the designs of diagnostic systems by personal contribution and by specifying, monitoring and coordinating work in the laboratories and institutes of the ITER Partners, including any relevant supporting R&D, with emphasis on diagnostics engineering.
- Assist with the preparation of the relevant procurement packages.

- Assists with the management of the scope, schedule and cost of procurement of the associated diagnostic systems and supporting hardware through the specified procurement packages.
- Assists with the preparation of the interface documentation and keeping it up to date.
- Assists with the preparations for the installation of the diagnostic systems on ITER.
- Reports variances on all technical, cost and schedule aspects immediately to the DH.
- Supports effective risk identification and management.
- Shows strong commitment to the ITER safety program and enforces it through individual behaviour and in his/her organization.
- Maintains a strong commitment to the implementation and perpetuation of ITER values and ethics.

### **Qualifications Required:**

- PhD or equivalent working experience in a relevant area.
- At least fifteen years of further experience in fusion.
- Expertise in design, integration, specification, procurement, commissioning and operation of diagnostic systems in a fusion research facility with excellent technical and managerial leadership.
- Experience with operating diagnostics in Tritium experimental campaigns.
- Demonstrated ability to propose and deploy innovative solutions to the challenges of diagnostics on a large fusion device.
- Experience with the use of atomic databases, plasma-modelling codes, and neutronics analysis to assess diagnostic performance.
- Experience with the use of neutronics analysis tools for shielding design, and for prediction of detector noise levels and component lifetime.
- Expertise in detailed mechanical, electro-mechanical and electronic design of computer-controlled instrumentation for fusion plasma diagnostics.
- Expertise in the design and development of x-ray and VUV optics and detectors.
- Expertise in the design of vacuum systems for fusion plasma diagnostics.
- Knowledge of the main ITER systems that interface with diagnostics, such as the vacuum vessel and divertor, would be an advantage.
- Ability to form effective working relationships with both management and technical representatives in the ITER Participating Home Teams.
- Experience in effective QA management and implementation would be an advantage.

### **Work Direction and Interfaces:**

Reports to the Division Head.

### **Authority/Approval Levels:**

Has authority and approval levels defined by the DDG for his scope of work.

### **Measures of Effectiveness:**

Successfully develops the design of diagnostic systems.

Successfully develops the design of interfaces of diagnostic components with the main tokamak components.

Successfully prepares technical specifications of allocated diagnostic procurement packages.

Successfully manages the procurement of the diagnostics.

Successfully develops cost effective installation and testing plans.

Successfully maintains effective communications with all parties delivering subsystems for the diagnostic systems.

Successfully supports the diagnostics need of the project.