

Competencies

Task Force Leader

Code: TFL

Candidates: Task Force Leader, deputy TFL or designated TFL / deputy

Qualification:

Ability to lead and scientific expertise in specific topics under investigation.

Task description:

Coordinate the execution of the experimental programme, monitor session progress, chair session briefings, chair and adjudicate in-session discussions on experimental details. Reports to EALJ/CSU the progress and overall results of the experiments carried out by the Task Force.

Scientific Coordinator

Code: SC

Candidates: Senior physicist

Qualification:

Managerial and scientific expertise in the specific area of investigation.

Task description:

Ensure adequate scientific coordination in the preparation, execution and analysis of the experiment: adequacy of plasma pulses, diagnostics results, availability of inter-shot/off-line data analysis. Supervise the analysis and reports to the Task Force on the progress and results of the experiments. Included in the control room roster.

Session Leader

Code: SL

Candidates: Trained JET session leaders with 2MA, 3MA, or full licence

Qualification:

Self-standing session leader; physics background in the scenario under investigation and experienced in implementing these scenarios on JET.

Task description:

Prepare JET pulse schedule, gas requests, heating requests, pulse execution and monitor results. Communicates the technical issues to CSU and Task Force Leader. Included in the control room roster

Trainee session leader

Code: TSL

Candidates: Physicists who have successfully completed the SL JET training course

Qualification:

Ability and will to serve as JET Session Leader in addition to the “main” duty.

Task description:

Assist the session leader and become competent in as many sessions required to obtain an SL licence. Included in the control room roster.

Diagnostic coordinator

Code: DC

Candidates: Trained JET DCs / Physicists-in-Charge (PiCs)

Qualification:

Overview of JET diagnostics capabilities.

Task description:

Request appropriate diagnostics settings, monitor availability of diagnostics data, support Session Leader and scientific coordinator with inter-shot diagnostics results. Included in the control room roster.

Trainee diagnostic coordinator

Code: TDC

Candidates: Novice DCs with some experience in tokamak diagnostics

Qualification:

Physicists with experience in tokamak physics and diagnostics.

Task description:

Assist DC and become competent in as many sessions as required for DC training. Included in the control room roster.

Viewing System Operator

Code: VSO

Candidates: Diagnostician with relevant experience in viewing systems

Qualification:

Basic understanding of IR thermography systems

Task description:

Management of the viewing systems during operation. Assist the experimental team (SL, SC, DC) in the inter-shot interpretation of images from the ILW protection cameras in the control room (and after the experiment). Participation in the preparation of the session (ILW protection). Included in the control room roster.

Expert session leader

Code: ESL

Candidates: JET Expert Session Leaders

Qualification:

Detailed knowledge of JET machine capabilities and JET configurations.

Task description:

(a) assist SL to prepare and create new plasma configurations, (b) be on call during campaigns for all enquiries concerning the operation of JET, (c) trouble-shoot in case of severe problems (start-up etc.) in the control room, and (d) be present in the control room when discharges with complex operational requirements are scheduled. Included in the control room roster.

IR and visible data interpretation expert

Code: IIRE

Candidates: Physicist and IR analysis expert

Qualification:

Knowledge of the visible and IR camera systems at JET including thermocouples and Langmuir probes in main chamber and divertor. Familiar with the data processing tools.

Task description:

Assist the experimental team in the inter-shot interpretation of images in the control room and after the experiment. Validate plasma scenario with power with respect to their power heat load on the ILW with the relevant tools. Interpretation of transient heat loads during ELMs or local events such as hot spots.

Ion cyclotron resonance frequency heating expert

Code: ICRFE

Candidates: Physicist

Qualification:

Experience with ICRF systems and/or ICRF waves penetration, propagation and absorption calculation

Task description:

Provide expertise for an effective use of ICRF heating and contribute to the analysis of experiments to characterise the plasma - ICRF wave interaction. Particular area of interest

- are:
- interaction with plasma edge (coupling, RF-sheaths related effects)
 - estimation of the ICRF wave absorption and related ICRF heating scheme properties both experimentally (BIS, FFT analysis) and through modelling (including support to PION and TRANSP-TORIC)

Lower hybrid heating and current drive expert

Code: LHCDE

Candidates: Physicist

Qualification:

Experience with LHCD systems and/or LH waves penetration, propagation and absorption calculation

Task description:

Provide expertise for an effective use of LHCD and contribute to the analysis of experiments to characterise the plasma - LH wave interaction. Particular areas of interest are:

- development of arc detection using newly installed KL10 camera or bolometry signals
- LH wave penetration and absorption (through modelling or experimental evaluation)
- interaction with plasma edge (coupling, production of fast electron beams)

Neutral Beam physics expert

Code: NBE

Candidates: Physicist

Qualification:

Experience with NBI systems in particular those installed on JET

Task description:

Provide expertise in the characterisation of the neutral beam interaction with the ILW (shine through areas, re-ionisation tiles) in term of heat loads and impurity sputtering

MHD analysis expert

Code: MHDE

Candidates: Physicist

Qualification:

Experimental MHD investigations, background in MHD theory, broad expertise of the MHD related limitations to discharge performance.

Task description:

Support all Task Force in the control room and after the experiment with recognition and assessment of the effect of MHD instabilities occurring during their experiments. Contribute to the analysis and interpretation of NTM, sawtooth and ELMs precursors.

Fast particle or TAE specialist

Code: FPT

Candidates: Physicist

Qualification:

Experimental and data interpretation expertise in the domain of fast particles or fast particle driven instabilities

Task description:

Participate in the preparation of the discharges of interest, contribute to the monitoring of the experiments using the relevant diagnostics and TAE antennae during the campaign and data analysis/interpretation. Contribute to the data interpretation and to the modelling of aspects of fast particle physics or fast particle driven instabilities.

Pedestal stability expert

Code: PSE

Candidates: Physicist/modeller

Qualification:

Expert in pedestal stability and ELM stability models and codes.

Task description:

Determine the linear MHD pedestal stability if required by the experimental programme in aid of identification of the ELM regime. Extend analysis to non-linear MHD pedestal stability analysis and modelling of the ELM collapse. If possible also contribute to the modelling of the ELM evolution and help in the interpretation of the experimental data.

Resistive wall mode expert

Code: RWME

Candidates: Physicist

Qualification:

Experimental and data interpretation expertise in the domain of wall mode physics and wall response to magnetic perturbation

Task description:

Preparation of the discharges on resistive wall modes studies (RFA, high beta), including the effect of ELMs in the plasma response. Contribute to the monitoring of the experiments during the campaign and data analysis/interpretation.

Disruption physics expert

Code: DPE

Candidates: Physicist and control expert

Qualification:

Experimental and data interpretation expertise in the domain of disruptions (disruption causes, prevention, runaways, VDEs, halo currents, etc.).

Task description:

Contribute to the execution and analysis of disruption experiments during the campaign and data analysis/interpretation. Propose disruption avoidance schemes, analysis of halo currents, current quench and run-aways.

Disruption mitigation expert

Code: DME

Candidates: Physicist and MGI expert

Qualification:

Experimental experience in disruption mitigation using massive gas injection with a focus on plasma-wall-interaction issues such as heat loads and wall loading with injected gas and deuterium.

Task description:

Contribute to the execution and analysis of disruption mitigation using massive gas injection. Analyse related thermal loads on the ILW and impact on plasma operation.

ELM mitigation specialist (pellets and kicks)

Code: ELMM

Candidates: Physicist and/or pellet operator

Qualification:

Expert in the interpretation of the pellet/vertical-kicks ELM pacing experiments and/or expertise on operation of the JET pellet injector.

Task description:

Specifically targeted at the identification of paced vs. natural ELMs. Includes the analysis of the paced-ELM energy and heat losses and the study of the impact of the ELM pacing on the pedestal structure and particle and energy confinement. Operation of the JET pellet injector if he/she has the required expertise.

ELM suppression and mitigation specialist (EFCC)

Code: ELMS

Candidates: Physicist

Qualification:

Expert in the interpretation of the EFCC ELM mitigation/suppression experiments.

Task description:

Quantification of the impact of EFCC on the ELMs (reduced losses or full suppression) and the subsequent pedestal particle and energy confinement. Includes the study of EFCC induced edge modes and its effect on edge turbulence. Modelling of RMP in vacuum and with plasma.

Plasma material interaction expert

Code: PMIE

Candidates: Plasma physicist

Qualification:

Experimental and data interpretation. Expertise in first wall and/or divertor erosion in steady-state and transients (erosion fluxes, re-erosion/ re-deposition, impurity, recycling and CX fluxes, material mixing with seeding impurities and wall materials, material migration) as well as material melting.

Task description:

Qualification of first wall / divertor erosion and deposition pattern and quantification of impurity sources and recycling fluxes (inboard/outboard) by spectroscopic means. Study of material migration and material mixing and determination of remaining C influx and concentration and comparison with reference pulses. Participation in experiments to study the W and Be erosion and deposition behaviour and monitoring the evolution W erosion fluxes with experimental time and operational regime (inter-ELM and ELM resolved).

Migration and surface analysis expert

Code: MSAE

Candidates: Plasma or surface physicist

Qualification:

Experimental experience in fusion relevant surface physics and post mortem analysis, collector probe and QMB measurements. Material migration to remote areas and limits due to material lifetime e.g. carbidisation of W-coatings.

Task description:

Quantification of material migration to remote areas and participation in the operation with dedicated diagnostics in different experiments. Qualification of the tile selection for tile removal and post-mortem techniques.

Divertor plasma physics expert

Code: DPPE

Candidates: Plasma physicist

Qualification:

Expertise in experimental divertor physics under steady-state conditions and during ELMs. Divertor characterisation from low recycling regime to detachment with volume recombination. Familiar with applicable divertor diagnostics: probes, IR and UV and VIS spectroscopy as well as bolometry and tomography.

Task description:

Characterisation of the operational space of the new full W divertor with respect to plasma conditions, recycling conditions, radiation pattern, heat fluxes as well as involved in detachment studies. Determination of the divertor plasma parameters with all available techniques and comparison with upstream parameters. Participation in the experimental programme with focus on low Te operation in the edge.

Divertor-SOL modelling expert

Code: DSME

Candidates: Plasma modelling physicist

Qualification:

Expertise in divertor modelling with 2D codes such as EDGE2D-EIRENE, EMC3EIRENE, overview of JET plasma edge and divertor diagnostics capabilities. Task can includes ELM-modelling and turbulences.

Task description:

Modelling of plasma background for different ILW scenarios with available EDGE2D-EIRENE, EMC3EIRENE, DIVIMP etc. Benchmark with experimental reference plasmas in different plasma shapes and plasma regimes. Provide input for plasma wall interaction codes. Participation in edge-modelling months.

Plasma-Wall Interaction modelling expert

Code: PWIME

Candidates: Plasma modelling physicist

Qualification:

Expertise in modelling with plasma-wall interaction codes such as ERO, ERODEP, MD, MEMOS etc. for steady-state or transient conditions (ELMs, RE). Overview of DIVSOL diagnostics capabilities as well as surface analysis and material mixing data.

Task description:

Modelling of plasma-wall interaction (material erosion, mixing, migration and retention as well as damage) for different plasma scenarios and wall conditions. Benchmark with experimental reference plasmas in different plasma shapes and plasma regimes. Participation in edge-modelling month. Determine the impact of ELMs on the whole plasma-interaction process by dedicated modelling. Participation in edge-modelling months.

Gas balance and recycling expert

Code: GBRE

Candidates: Physicist

Qualification:

Physicist with experimental experience in gas balance studies, deuterium recycling and retention.

Task description:

Quantification of gas balances with the aid of AGHS, gas pressure gauges (KT5P) and RGA for different plasma regimes and configurations. Determination of edge recycling fluxes and remaining fuel retention in dedicated experiments.

Machine conditioning expert

Code: MCE

Candidates: Plasma or vacuum physicist

Qualification:

Experimental experience in different wall conditioning techniques such as GDC, ICWC, baking, rapid plasma breakdown etc. Includes analysis of RGA and interpretation of wall conditions after disruptions.

Task description:

Participation in machine conditioning with different techniques including baking, ICWC and GDC. Characterisation of the wall conditions by mass and optical spectroscopy as well as AGHS. Comparison of cleaning techniques with respect to fuel and impurity removal.

Particle fuelling expert

Code: PFE

Candidates: Physicist and/or pellet operator expert

Qualification:

Expertise in the comparison of deuterium fuelling by gas, pellet fuelling and recycling with respect to plasma performance and plasma edge conditions and/or expertise in operation of the JET pellet injector.

Task description:

Participation in experiments with particle fuelling with gas injection and pellets as physicist or pellet operator. Characterisation of the fuelling techniques and its impact on plasma edge conditions and core performance.

Impurity seeding expert

Code: ISE

Candidates: Plasma physicist

Qualification:

Expertise in the application of impurity seeding and high recycling in order to detach the divertor plasma. Familiar with the use of spectroscopy, Langmuir probes, bolometry in order to apply feedback control on different degrees of detachment, radiation etc.

Task description:

Participation in experiments with radiating divertor operation by impurity seeding and high deuterium fuelling and exploration of the radiating divertor domain. Analysis of the degree of detachment and exploration of potential feedback control on spectroscopic, bolometry or infrared signals.

Scenario development and integration expert

Code: SDIE

Candidates: Experimental physicist specialised in scenario development

Qualification:

Scenario familiar with the development of H-mode discharge (baseline, hybrid or steady state) and their integration in JET. Knowledge in plasma stability, ELMs and confinement studies.

Task description:

Participation in the preparation of the discharges, and development of integrated solutions for the ITER scenarios (Baseline, hybrid and steady-state). Contribute to the monitoring of the experiments during the campaign and data analysis/interpretation.

Integrated scenario modelling expert

Code: ISME

Candidates: Physicist and modeller

Qualification:

Interpretation and integrated scenario modelling using codes such as ASTRA, JETTO, CRONOS, TRANSP, etc ...

Task description:

Participation in the preparation of the experiments by predictive runs and in data validation. Interpret the scenario performance in terms of transport and current drive. Extrapolate the scenario to larger devices on the basis of the interpretative runs.

Edge Pedestal, ELM and H-mode Specialist

Code: EPS

Candidates: Physicist

Qualification:

Expert in edge pedestal, and ELM physics and/or familiar with diagnostic analysis techniques for pedestal and ELM studies

Task description:

Analysis of plasma edge pedestal measurements (such as edge temperature, density, rotation etc.) Characterisation of the edge pedestal structure, pedestal confinement, H-mode threshold. Contains the study of the entire ELM cycle including both the ELM crash as the detailed study of the inter-ELM evolution. Also contributing to dimensionless and dimensional scaling experiments..

Transport analysis and modelling specialist

Code: TAMS

Candidates: Physicist and modeller

Qualification:

Specialist on the detailed study of energy, particle and momentum confinement. Familiar with interpretive/predictive transport modelling.

Task description:

Contribute to the detailed understanding of basic plasma confinement in various scenarios, analysing/modelling the underlying sources and transport physics. Knowledge of turbulence code for the interpretation of turbulence diagnostic data

Impurity transport expert

Code: ITE

Candidates: Physicist and modeller

Qualification:

Specialist on impurity transport with expertise on methods to avoid accumulation, or model/ interpret impurity transport data studies.

Task description:

Contribute to the development of impurity accumulation avoidances techniques. Contribute to the data/interpretation of impurity sources, impurity transport analysis and impurity transport modelling using the relevant codes.

Diagnostic Competencies

Thomson scattering

Code: TS

Candidates: Physicist, expert in Thomson Scattering Systems

Qualification:

Experimentalist, broad experience in system evaluation and analysis.

Task description:

Validation and analysis of data, consistency of data within overall electron temperature and density measurements. Constant evaluation of reliability of the data/apparatus. Incorporation of the data in physics scenarios.

Related diagnostics:

KE3- LIDAR Thomson Scattering System for bulk plasma

KE11- High Resolution Thomson Scattering System

Microwave

Code: MW

Candidates: Physicist, expert Electron Cyclotron Emission/ Propagation of microwaves in plasmas /Reflectometry

Qualification:

Experimentalist, broad expertise in system evaluation and analysis.

Task description:

Validation and analysis of data. Consistency of data within overall electron temperature (KK1, KK3, KK5, KE3, i.e. ECE and Thomson Scattering systems) and electron density measurements (interferometry (KG1), reflectometry (KG10) Thomson Scattering systems (KE3, KE11)). Incorporation of the data in physics scenarios, with particular regards to energy transport physics.

Related diagnostics:

KK1- Michelson Interferometer

KK3- Heterodyne Radiometer

KK5- ECE Michelson Interferometer

KG8B/KG8C X-mode correlation reflectometer (EP2)

KG10- Multiband density profile reflectometer

Magnetic

Code: MAGN

Candidates: Physicist

Qualification:

Experimentalist, expert in magnetic reconstruction/ equilibrium analysis and/or MHD analysis.

Task description:

Scenario evaluation; MHD and disruption analysis

Related diagnostics:

KC1- Magnetic diagnostics

KC1D- Equilibrium magnetics

KC1E- Equilibrium magnetics

KC1M- MHD magnetics

KC1H- Halo Currents

Soft X-rays

Code: SXR

Candidates: Physicist, Expert in Soft X-ray apparatus and Fast Data Acquisition

Qualification:

Experimentalist, broad expertise in system evaluation and analysis, and experimental impurity profile studies

Task description:

Validation and analysis of data. Firstly for reconstruction of high Z impurity profiles and secondly for integration of data in MHD stability analysis. Constant evaluation of reliability of the data/apparatus and codes for data interpretation. Incorporation of the data in physics scenarios.

Related diagnostics:

KJ3/4, KJ5 (Soft X-ray arrays)

Neutronics

Code: NEUT

Candidates: Physicist.

Qualification:

Experimentalist, expert in neutron diagnostics and gamma-ray detectors.

Task description:

Validation of data and checks on calibrations. Incorporation of the validated data in physics scenarios. Technical evaluations of apparatus

Related diagnostics:

KN1- Neutron Yield Monitor

KN2- Neutron Activation

KN3- Neutron Profile Monitor

KN4- Delayed Neutron Activation

KM1C- CVD Diamond Detector - compact neutron spectrometer (EP2)

KM6- Gamma ray spectrometry, vertical and tangential views (New detectors, EP2)

KM7- 14MeV Time resolved Neutron Yield monitors, including CVD Diamond Detector (EP2)

KM9- 14MeV Neutron Spectrometer

KM11- TOFOR Neutron Spectrometer
KM12- 14MeV neutron spectrometer

Charge exchange

Code: CXS

Candidates: Physicist, expert in CXS/ passive and/or active spectroscopy

Qualification:

Experimentalist, broad expertise in system evaluation and analysis.

Task description:

Validation and analysis of data, consistency of data within ion temperature, plasma rotation, impurity density measurements, using also data from KX1 system. Consistency checks with data from other systems. Constant evaluation of reliability of the data / apparatus. Incorporation of the data in physics scenarios.

Related diagnostics:

KS(4,5)- Core CXS

KS7- Edge CXS

Motional stark effect

Code: MSE

Candidates: Physicist, expert in MSE apparatus

Qualification:

Experimentalist, broad expertise in system evaluation and analysis

Task description:

Validation and analysis of data, consistency of data within current profile measurements. Consistency checks with data from polarimetry. Constant evaluation of reliability of the data / apparatus, close link with experiment and physics interpretation needs. Incorporation of the data in physics scenarios

Related diagnostics:

KS9 - MSE

Passive VUV and XUV spectroscopy

Code: PUVS

Candidates: Physicist

Qualification:

Experimentalist, expert X-ray/VUV spectroscopy

Task description:

Validation of data on impurities. Impurity transport physics studies for bulk plasmas using X-ray diagnostics (KS6, KX1, KH2) and VUV spectroscopy systems KT1, KT2, KT4 and KZ3. Divertor physics analysis using KT1, KT3, KT7D, KT5P. Incorporation of the data in physics scenarios

Related diagnostics:

KT1- VUV spatial horizontal scan of divertor and wall (EP2)
KT2- VUV broadband spectroscopy
KT3- Divertor Spectroscopy (EP2)
KT4- grazing incidence XUV broadband spectroscopy (EP2)
KT7D- divertor VUV and XUV spectroscopy (EP2)
KZ3- Laser Blow-off system

Passive visible spectroscopy

Code: PVS

Candidates: Physicist

Qualification:

Experimentalist, expert of spectroscopy

Task description:

Perform impurity flux measurements, data analysis and tomographic reconstruction of divertor impurity radiation. Impurity transport physics studies for bulk and divertor plasmas. Incorporation of the data in physics scenarios. Fast camera operation.

Related diagnostics:

KL1- video CCD cameras, data stored in videotapes
KL1E- Endoscopes for main chamber + divertor view (three filtered cameras) (EP2)
KL1E- endoscopes for divertor
KL8 – Fast Visible Camera
KL10 - LH antenna view (EP2)
KS3 - Visible spectroscopy (EP2)
KS8 - Visible spectroscopy (EP2)
KT5P- Divertor gas analysis

Infrared thermography

Code: IR

Candidates: Physicist

Qualification:

Experienced in IR measurements and IR data analysis (in particular ELMs)

Task description:

Analysis of IR data. Evaluation of heat flux distribution in between and during ELMs. Multi-machine comparison of ELM power deposition and contribute to extrapolation of ELM behaviour in ITER

Related diagnostics:

KL3 - Infrared camera for divertor
KL7 - IR camera, wide angle view
KL9A – Divertor IR camera
KL9B – Divertor IR camera (EP2)
Pyrometers

Probes + Quartz MB

Code: PQMB

Candidates: Physicist, with Plasma Edge physics and SOL physics background.

Qualification:

Experience in probe data analysis (reciprocating probe data: Mach numbers, ne, Te, Ti by RFA data). QMB Expert.

Task description:

Validation and analysis of data, consistency of data within electron density and temperature profile measurements at the edge and in the SOL. Turbulent transport in the SOL. Measurements of deposition in the divertor. Incorporation of data in edge physics interpretation and divertor studies.

Related diagnostics:

KY3- Plasma boundary reciprocating probes

KY4D- divertor and limiters probes

KY5D- pressure gauges

KV6- Quartz Microbalances

Beams and active spectroscopy

Code: BAS

Candidates: Physicist, expert in Li-beam spectroscopy active spectroscopy

Qualification:

Experimentalist, broad expertise in system evaluation and analysis. Plasma Edge physics expert

Task description:

Validation and analysis of data, integration of data in electron density and temperature profile measurements at the edge. Constant evaluation of reliability of the data / apparatus, incorporation of data in edge physics interpretation and divertor studies. Application of the Li beam to edge current profile measurement. Incorporation of the data in physics scenarios

Related diagnostics:

KY6- 50kV Lithium Beam

Neutral particle analyser

Code: NPA

Candidates: Physicist

Qualification:

Experimental physicist with good knowledge of charge-exchange reactions, atomic transport in plasmas, impurity ionization equilibria, ion dynamics in tokamak plasmas

Task description:

Validation of consistency of simultaneous measurements of three hydrogen isotope species, deduction of radial hydrogen isotope density distribution, hydrogen isotope ion density transport, determine hydrogen isotope ion energy distribution functions. Evaluation of energy distribution function of energetic ions. Analysis of wave-particle interactions in ICRF heating experiments, energetic ion interaction with MHD mode activity, radial energetic ion transport due to mode activity

Related diagnostics:

KR2- low energy NPA

KF1- High energy NPA

Bolometer

Code: BS

Candidates: Physicist

Qualification:

Experienced in bolometer measurements and tomographic reconstruction.

Task description:

Perform tomographic reconstruction of divertor bolometer data. Validation of the total radiated power and distribution of radiation for bulk and divertor plasmas. Incorporation of the data in physics scenarios

Related diagnostics:

KB3D- Divertor Bolometers

KB4- In-vessel Bolometers

KB5- Ex-vessel Bolometers

KD1D- Divertor calorimetry

Interferometry/Polarimetry

Code: IPS

Candidates: Physicist/diagnostician

Qualification:

Physicist familiar with interferometry/polarimetry and or advanced analysis techniques

Task description:

Analysis of data by inversion algorithms. Density validation of interferometry data through e.g. consistency checks with Thomson Scattering System (KE3, KE11) and reflectometry (KG10). Check of consistency of the current profile data with MSE (KS9). Regularly verify the polarimeter on-line calibration measurements and outputs. Provide input data as constraints to the equilibrium reconstruction. Incorporation of the data in physics scenarios with particular emphasis on the current profile effect on confinement and MHD stability. Further implementation and interpretation of the Cotton-Mouton method for density validation and real-time control.

Related diagnostics:

KG1- Multichannel FIR interferometer

KG4- Faraday polarimeter

X-ray spectroscopy

Code: XRS

Candidates: Physicist.

Qualification:

Experimentalist, expert X-ray spectroscopy

Task description:

Validation of data of ion temperature and consistency checks with CXS measurements (KS4,5 bulk and KS7 edge). Impurity transport physics studies. Incorporation of the data in physics scenarios.

Related diagnostics:

KX1- X Ray crystal spectrometer (EP2)

KS6- Bragg rotor X-ray spectroscopy

Lost charged Particle diagnostics

Code: LPD

Candidates: Physicist.

Qualification:

Experimentalist experienced in plasma physics and data analysis

Task description:

Calibration, data validation and analysis, interpretation of charged particle losses

Related diagnostics:

KA2- Faraday Cup Array

KA3 - Lost ion/alpha scintillator

KY3- Activation Probe

Fast Electron Bremsstrahlung and Fast Ion Distribution

Code: FEB

Candidates: Physicist

Qualification:

Experimentalist with experience in Hard X-ray and Gamma ray systems

Task description:

Analysis and validation of data. Screening from spurious signals due to neutron-induced g-rays. Radial inversion techniques to obtain fast electron and fast ion distribution profiles. Contribute to runaway electron and fast ion modelling

Related diagnostics:

KH1 – Hard X-ray monitors

KN3G – Gamma Camera placed in front of the KN3 neutron profile monitor on a shot to shot basis and disables KN3 -switchable between fast electron and ions (EP2)

Equilibrium specialist: EFIT, Equinox, Pressure and current profiles

Code: EQS

Candidates: Physicist familiar with relevant diagnostic systems and/or Magnetic equilibrium reconstruction codes

Qualification:

Expert in equilibrium reconstruction with internal constraints using e.g. data from MSE, Polarimetry and total pressure profiles including pedestal.

Task description:

Detailed analysis of the magnetic equilibrium using EFIT or Equinox (or other equilibrium codes) constrained with kinetic pressure profiles and current profile from available validated diagnostic data. Validation and interpretation of MSE and polarimetry data.

Related diagnostics:

EFIT/Equinox, all high-resolution kinetic diagnostics,

KG4: Polarimetry

KS9: MSE

Turbulence analysis specialist

Code: TRB

Candidates: Physicist

Qualification:

Expert in turbulence diagnostics and turbulence analysis techniques

Task description:

Dedicated study of density fluctuation measurements using KG10, KG3 and KG8B (KG8C after EP2 handover) systems, i.e. reflectometry and correlation reflectometry systems. Studies of relation between fluctuations and transport, MHD behaviour and pedestal stability. Give input to modelling activities on particle transport studies.

Related diagnostics:

KG3 - reflectometer

KG8B/KG8C - X-mode correlation reflectometer (EP2)

KG10 - Multiband density profile reflectometer