



- Operation regime development (Breakdown, Plasma equilibrium and its control, current ramp-up, flat-top and ramp-down, ECRH characteristics) ‘
- MHD, disruption and runaway electrons generation
- Plasma energy and particle confinement

In IC-OP1, a limited set of diagnostics were available (and limited data may be available from each diagnostic). Analyses and modelling of IC-OP1 plasmas should consider the experimental data availability. The scientific topics proposed to be explored for OP2 and OP3 should consider the characteristics of subsystems in JT-60SA in this initial operational phase.

Available subsystems in OP2 and OP3

#### *Neutral beams*

In the Initial Research phase, the NBI system consists of eight positive-ion-based NBI (P-NBI) units and one negative-ion-based NBI (N-NBI) unit. The P-NBI consists of two co-current tangential beam units, two counter-current tangential beam units and four perpendicular beam units.

#### *ECRH*

In the Initial Research phase, two gyrotrons operating at 110 GHz for up to 5 s and other two multifrequency gyrotrons able to operate at 110 GHz/138 GHz for up to 100 s will be installed.

#### *Diagnostics*

Diagnostics systems below will be available in OP2 and OP3. They will be used to evaluate plasma performance, to understand characteristics of plasma behaviours, and to conduct plasma control. Specifications of each diagnostics are shown in <https://www.jt60sa.org/wp/qstadditional-diagnostics/>

- Visible TV camera, Infrared TV camera, EDICAM
- Neutron monitor, Neutron profile monitor
- Thomson scattering ( $T_e$ ,  $n_e$ ), ECE ( $T_e$ ), CXRS ( $T_i$ ,  $V_{tor}$ ,  $V_{pol}$ ,  $n_c$ ), MSE ( $j_r$ ), XICS ( $T_e$ ,  $T_i$ ,  $V_{tor}$ ),
- Visible spectrometer ( $Z_{eff}$ ), VUV spectrometers,  $D_\alpha/H_\alpha$  intensity, TESPEL, Bolometer
- CO<sub>2</sub> interferometer/polarimeter, Soft X-ray
- Divertor probes and thermocouples, Neutral pressure, Magnetic sensors
- FIDA, FILD (OP3)

#### *Available analysis tools*

A basic experimental data analysis software (eDAS) for the JT-60SA implemented in the Analysis Server, which provides the users with smooth and interactive data analysis environment for the wave form, equilibrium and spatial profile, including the functions of data retrieval from various DBs. Data access libraries for various DBs are available particularly for users who step further into advanced analysis so that they could develop their own tools.

#### *Presentation and publication of obtained results*

Participation in topical group meetings and experiment team meetings is expected from the proponents. In such meetings, it is expected that the selected members of the experiment team will discuss their ongoing work and potential contributions to journals and conferences. The JT-60SA pinboard will be used for JT-60SA related publications involving the experiment team.

#### *Data Access*

The accepted experiment team members will have to follow and sign the agreement on access to JT-60SA data and use of JT-60SA IT Facilities. They also shall read, understand and follow “Use Policy for JT-60SA IT Facilities”.

## Contact

For any question related to participation to JT-60SA, please contact the WPTE Deputy Task Force Leader Jeronimo Garcia ([Jeronimo.GARCIA@cea.fr](mailto:Jeronimo.GARCIA@cea.fr)).