

Contribution ID: 39

Type: In-person talk

Calibration options for ITER reflectometry systems

Tuesday 14 May 2024 15:30 (30 minutes)

Calibration is a key step in the development and operation of any measurement instrument. It allows to quantify the accuracy and precision of the measurement. A careful calibration enables the user to understand the performance of the different parts of the instrument and therefore permits the compensation of systematic errors. Regular calibrations also give some insights on the long-term stability of the measurement. While being an important contributor of the performance of a diagnostic, calibration is not always integrated into the early design of fusion diagnostics. This is why ITER has decided to organise a series of workshops dedicated to diagnostic calibration to make sure calibration is well defined and implemented into the diagnostics design and operation.

The first ITER microwave diagnostic workshop was held in November 2023. Calibration of reflectometry systems was discussed. The calibration experience from JET and KSTAR reflectometers was presented. The calibration plans for future ITER reflectometers were detailed as well.

We will present the outcome of the ITER calibration workshop: the lessons learnt from other tokamaks, the actual provision for ITER reflectometry calibration and the open questions on some of the calibration options which are not yet implemented. After sharing this first feedback with the IRW community we would like to gather contributions on best-practices for reflectometry calibration before organising a second workshop to review in detail the final implementation of calibration within the ITER microwave diagnostics.

The views and opinions expressed herein do not necessarily reflect those of the ITER Organization

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Session Classification: Talks

Track Classification: Day 2 - Scientific Contributions: Technology development