

A calibration Code for JET polarimeter based on a physical optic model of the diagnostic

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Abstract

An equivalent optical model of JET Polarimeter is presented, which overcomes the drawbacks of previous versions of the fitting procedures used to provide calibrated results. First of all the signal processing electronics has been simulated, to confirm that it is still working within the original specifications. Then the effective optical path of both the vertical and lateral chords has been implemented to reproduce the calibration curves. The principle approach to the model has allowed obtaining a unique procedure that can be applied to any manual calibration and remains constant until the following one. The optical model of the chords is then applied to derive the plasma measurements. The results are in good agreement with the estimates of the most advanced full wave propagation code based on Stokes model available and have been benchmarked with other diagnostics. The devised procedure has proved to work properly also for the most recent campaigns and high current experiments.

· See the Appendix of F. Romanelli et al., Proceedings of the 23rd IAEA Fusion Energy Conference 2010, Daejeon, Korea