

P4.1032 Dependence of reconstructed equilibria on input data sets using EFIT on COMPASS and comparison with experimental observations

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See full abstract here:

<http://ocs.ciemat.es/EPS2019ABS/pdf/P4.1032.pdf>

The dependence of equilibrium properties obtained by the EFIT Grad-Shafranov equation solver on constraining input data was studied. Following sets of constraining data were supplied to EFIT: (i) minimal input (16 internal partial Rogowski coils), (ii) optimized minimal input (16 internal partial Rogowski coils with adjusted geometry), (iii) optimized minimal input with flux loops and divertor Mirnov coils (16 internal partial Rogowski coils, 4 flux loops, 8 tangential divertor Mirnov coils, 8 normal divertor Mirnov coils). Reconstructions using the abovementioned sets of input data were performed using first- and second-order polynomial flux functions representation ($p = P2()$, $f f = P2()$). Resulting reconstructed observables were compared to experimental measurements obtained in selected discharges in COMPASS tokamak. Outer-midplane separatrix position was compared to the separatrix position obtained by reciprocating probe and divertor strike point positions were compared to the maximum of heat flux measured by divertor array of Langmuir and ball-pen probes. Separatrix position in H-mode discharges was compared to the pedestal positions obtained by Thomson scattering. Observed dependencies were summarized, showing systematically better agreement between EFIT and diagnostics for various versions of input constraints.

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