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Contribution to the multi-machine pedestal scaling from COMPASS tokamak

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The COMPASS tokamak is equipped with a set of high resolution diagnostics, which are capable of resolving the pedestal and hence contribute to the multi-machine scaling of the pedestal parameters. The first results obtained for a series of shots at $q_{95} \sim 2.5$ in 2015 confirmed that typical pedestal dimensionless parameters obtained at COMPASS are close to those achieved in a multi-machine matching experiments [1].

In order to approach the required values, the COMPASS tokamak [2] has recently enhanced its operational space by achieving a routine operation up to 2.1 T, i.e. Ohmic H-modes could be obtained also for $q_{95} \geq 3$, in addition to the NBI heated H-modes

At the same time, edge diagnostics were significantly upgraded. Particularly, the port for edge Thomson scattering observation system has been modified in order to improve the field of view and allow routine pedestal observation with the standard plasma size. In addition, the number of lasers for Thomson scattering has been doubled in order

to increase the probability to obtain data for the pedestal profile in the last 20% of ELM cycle.

A new experimental campaign allowed to collect the pedestal parameters in discharges at higher q_{95} for values of $v_{and} \rho$ relevant to the multi-machine matching experiment.

References

- [1] M. Beurskens et al. Phys. of Plasmas 18 (2011) 056120
- [2] R. Panek et al. Plasma Phys. Control. Fusion 58 (2015) 014015

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