

## **P5.1080 Toroidal rotation prediction of ITB H-mode JET plasmas using CRONOS code**

*Friday, 12 July 2019 14:00 (2 hours)*

See full abstract here <http://ocs.ciemat.es/EPS2019ABS/pdf/P5.1080.pdf>

This work uses an integrated predictive simulation code CRONOS to simulate plasma profiles of JET discharge. Simulations are carried out with ion and electron temperatures, electron density and toroidal velocity profiles predicted both individually and simultaneously. Core transport models used in these simulations is a combination of an anomalous transport model semi-empirical Mixed Bohm/gyro-Bohm (Mixed B/gB) or the gyro-Landau fluid (GLF23) that includes ITB effects and a neoclassical transport model NCLASS. A simple linear pedestal model is used based on an international scaling to estimate the top of pedestal. Time evolution of plasma temperatures, density and toroidal velocity profiles of JET optimized shear discharge 40542 are compared between experimental measurements and simulation results. Qualitatively, ITB formations are identified and evaluated. Quantitatively, statistical analysis including root mean square errors (RMSE) and offsets are used for comparison. Additionally, roles of toroidal rotation on ITB formation and plasma performance are investigated.

**pppo**

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**Session Classification:** Poster P5