

Abstract Submitted
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Toroidal rotation measurements in TJ-II and its relation with the bootstrap current DAVID RAPISARDA, EURATOM-CIEMAT, BERNARDO ZURRO, VICTOR TRIBALDOS, ALFONSO BACIERO, DAVID JIMENEZ, TJ-II TEAM — In this work, measurements have been made of toroidal rotation velocities for several ions in order to make an experimental estimation for the ionic contribution to the neoclassical bootstrap current in the TJ-II stellarator, because they are not consistent with the drift caused by a positive radial electric field. The experimental system and the absolute calibration method employed here to determine flow velocities averaged along lines of sight have been described previously [1], and the measurements were performed by means of passive emission spectroscopy. Typically, data from ECRH discharges show flow velocities, depending on the ion type, that range between -7 and 10 km/s across the plasma. The measures for rotation profiles obtained using the shot-to-shot technique suggest that the shape of these profiles might be related to, or influenced by, the local current density, and the orders of magnitude are in good agreement with bootstrap current neoclassical theory. In order to deduce the local current profiles we are used two different schemes, giving similar results (within a factor of two) but showing differences for small angles, i.e. near the magnetic axis.

[1] D. Rapisarda *et al*, Proc. 31st EPS Conf. Vol. **28G**, P-4.173 (2004).

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