

P2.1060 Impact of plasma pressure on the edge magnetic field of Wendelstein 7-X

Tuesday, 9 July 2019 14:00 (2 hours)

see full abstract here

<http://ocs.ciemat.es/EPS2019ABS/pdf/P2.1060.pdf>

The Wendelstein-7X (W7-X) experiment aims to demonstrate steady-state long-pulse discharges at high power and high performance. For heat- and particle-exhaust, W7-X makes use of an island divertor, which relies on a magnetic island chain between the divertor plates and the last closed flux surface. The strike-line shape on the divertor plates inherently depends on the shape and position of the magnetic islands. At high performance, the pressure-gradient driven plasma response can modify the magnetic islands, and therefore the heat-flux distribution onto the divertor plates. It is therefore essential to gain an understanding of the 3D plasma equilibrium to determine if - and how - changes in the edge magnetic topology need to be countered. In this work, the impact of plasma pressure on the edge magnetic field has been identified using a reciprocating magnetic probe on W7-X. A comparison between the measured field and finite-beta resistive MHD equilibria predicted using the HINT code will be reported.

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Session Classification: Poster P2

Track Classification: MCF