FusionEPTalks

Click for the last updated version Click to Add to Calender

Click to Join via ZOOM Password: 6D11131A

Title: SOLPS-ITER studies of neon seeding in EAST

Speaker: Dieter Boeyaert

When: 2022-01-25 16:00:00

Abstract: In order to decrease power and particle loads towards the divertor targets in future fusion devices, active extrinsic impurity seeding is required [1]. A dedicated experimental program on neon seeding in H-mode plasmas was performed at EAST [2]. Experimental observations show a factor of three reduction of the power flux towards the targets, but this is not sufficient to determine whether detachment is reached. Therefore, the SOLPS-ITER code package [3] is employed for assessing the plasma edge transport in the EAST discharges of ref. [2]. Drift terms are successfully included, resulting in upstream agreement within the experimental error bars and downstream agreement within a factor three or better between simulations and experiments, and showing that Ne seeding induces detachment. Sensitivity studies towards the main unknown input parameters for the code are executed. In order to quantify the precision of the performed simulations, the numerical errors affecting the simulation results are examined. Similar to previous ITER simulations with B2-EIRENE [4], the main error is the discretization error due to the finite plasma grid. By making an appropriate choice of the remaining numerical input parameters, the error contributions induced by the Monte Carlo noise of the EIRENE code are kept sufficiently small. [1] M. Wischmeier et al., J. Nucl. Mater. 463 (2015) 22-29 [2] D. Boeyaert et al., Nucl. Mater. Energy 26 (2021) 100926 [3] S. Wiesen et al., J. Nucl. Mater. 463 (2015) 480-484 [4] K. Ghoos et al., Nucl. Fusion 59 (2018) 026001

Email: fusionep-talks@egyplasma.com

Website: fusionep-talks.egyplasma.com