(TG3) Spectroscopy Topical Group Report

Nov. 8, 2022 (M. Yoshinuma)

Date: Nov. 4, 2022
Time: 90:45-13:00
Shot#: 182512 – 182566 (54 shots)

Prior wall conditioning: No
Divertor pump: OFF
Gas puff: D2, Ar
Pellet: No

NBI#(1, 2, 3, 4, 5)=gas(D, D, H, D, D)=P(2., 2.1, 3.8, 5.9, 8.3)MW

ECH(77GHz)=ant(5.5-Uout (and 1.5U), 2-OUR)=P(209, 196)kW
ECH(154GHz)=ant(2-OLL, 2-OUL , 2-OLR)=P(205, 203, 237)kW
ECH(56GHz)=ant(1.5U)=P(-)kW
ICH(3.5U, 3.5L, 4.5U, 4.5L)=P(-)MW
Neutron yield integrated over the experiment = 3.3×10^{16}

Topics

1. Characterization and modelling of the parallel dynamics of impurity ions with perpendicular and parallel and anti-parallel collinear NBI injection in deuterium plasmas (J.R.Villén, N. Tamura)

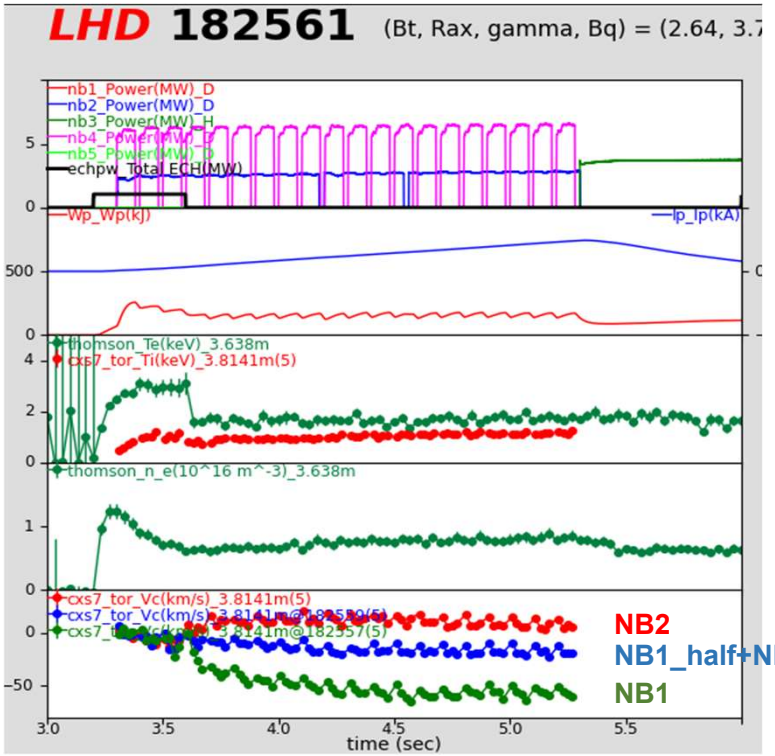
CHARACTERIZATION AND MODELLING OF THE PARALLEL DYNAMICS OF IMPURITY IONS WITH PERPENDICULAR AND PARALLEL AND ANTI-PARALLEL TANJENTIAL NBI INJECTION IN DEUTERIUM PLASMAS.

(J. R. Villén, M. Yoshinuma, N. Tamura)

Purpose: Study the transmission of momentum to the plasma produced by the NBI and other possible effects on the flow of impurities produced in deuterium plasma by measuring parallel ion flows and radial electric fields using CXS technique.

Experiment:

- Shots: 182512-182563
- Magnetic configuration:
  - 1)Rax=3.55 m, Bax=2.7887T, γ=1.2538,Bq=100.0%
  - 2)Rax=3.75 m, Bax=2.64T, γ=1.2538, Bq=100.0%
- NBI#1 and NBI#2 power varied for parallel and antiparallel injections experiment.
- NBI#5 power varied for perpendicular injections experiment.



Results:

- Plasmas with different NBI injections and densities for two configurations were produced successfully.
- Velocity and Er profiles obtained by CXS will be analyzed.

Future work:

Parallel experiments have been proposed in W7-X OP2.1. The flow measurements will be compared with those obtained in W7-X scenarios.