

(TG2) Turbulence Topical Group Report

Dec. 8, 2022 (T. Tokuzawa)

Date: Dec. 7, 2022

Time: 10:00 - 13:05

Shot#: 185261 – 185317 (57 shots)

Prior wall conditioning: H2 (3 hours)

Divertor pump: ON

Gas puff: H2

Pellet: None IPD: None

NBI#(1, 2, 3, 4, 5)=gas(H, H, H, H, H)=P(3.5, 3.8, 3.7, 3.6, 3.6)MW

ECH(77GHz)=ant(5.5-Uout (or 1.5U), 2-OUR)=P(-, -)kW

ECH(154GHz)=ant(2-OLL, 2-OUL , 2-OLR)=P(-, -, -)kW

ECH(56GHz)=ant(1.5U)=P(288)kW

ICH(3.5U, 3.5L, 4.5U, 4.5L)=P(-, -, -, -)MW

Neutron yield integrated over the experiment = 2.2×10^{13}

Remarks

Delayed start for maintenance of CO2 laser interferometer

Topics

1. Measurement of harmonic plasma density fluctuations with L-H mode transition using beam emission spectroscopy systems (W. Hu)

BES measurements of fluctuations (W. Hu and T. Kobayashi)

Shot #: 185259 – 185317 (59 shots)

Experimental conditions: (R_{ax} , Polarity, B_t , γ , B_q) = (3.55/3.75/3.6 m, CW, 1 T, 1.2538, 100 %)

Motivation and objective:

- Using the new BES system on 9-O port to investigate characteristics of MHD fluctuations in LHD plasma.
- High R-axis resolution measurements.
- Different toroidal angle with 6-O BES system and different NBI probe beam for correlation analysis.

Results:

- We successfully reproduced the reference shot (#156774) with L-H mode transition.
- BES covers from 4.6 to 3.88 in R with 32 Channels. Diagnostic name: lhdbesapd4_raw
- Mode transition is most obvious when $R_{ax} = 3.6$ m.
- Measured various MHD modes with NB1 and NB2 as BES probe beam by switching filters.

