

(Special, MAP) Session Report



Date: Mar. 14, 2024

Mar. 15, 2024 (K. Mukai)

Time: 10:42 – 16:43

Shot#: 187470 – 187573 (104 shots)

Prior wall conditioning: None

Divertor pump: Off

Gas puff: H₂

Pellet: H pellet, impurity pellet

NBI#(1, 2, 3, 4, 5) = gas(H, H, H, H, H)=P(3.1, 3.5, 3.9, 5.1, 5.4) MW

ECH(77GHz) = ant(1.5-Uo, 5.5-U, 2-OUR)=P(-, 0.337, 0.232) MW

ECH(154GHz) = ant(2-OLL, 2-OUL, 2-OLR)=P(0.192, 0.204, 0.355) MW

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

Remarks

EGFTP1 server was down for a while. Shot summaries and other information should be registered again.

Topics

1. Plasma/Device Commissioning (N. Tamura)
2. Effects of boronization on plasma facing surface (S. Masuzaki)

Plasma/Device Commissioning (Day 2) (N. Tamura et al.)

Experimental conditions: (R_{ax} , Polarity, B_t , γ , B_q) =

(3.75 m, CW, 1.375 T, 1.2538, 100.0%) Shots: #187474 - #187490

(3.60 m, CW, 1.375 T, 1.2538, 100.0%) Shots: #187491 - #187509

(3.60 m, CW, 2.75 T, 1.2538, 100.0%) Shots: #187510 - #187527

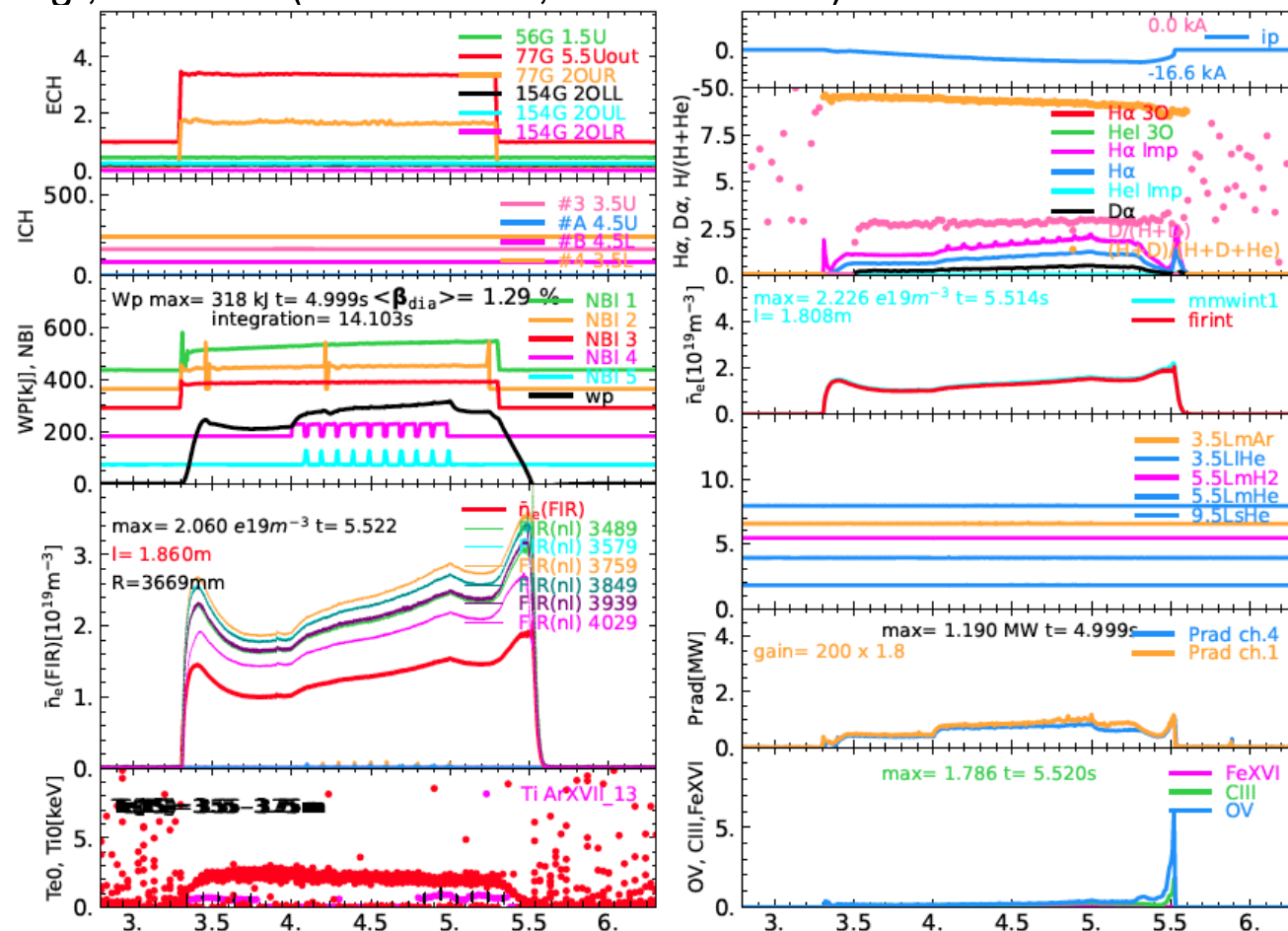
Goal of this experiment:

- To confirm the plasma startup and the stable sustainment of the plasmas
- To confirm the operation of diagnostics, data collection/display system, and each heating device (ECH, and NBI)

Results:

- We have finally confirmed **the stable sustainment of the EC-heated plasma and NBI (tang.) + ECH heated plasmas at low-field configurations ($R_{ax} = 3.6, 3.75$ m)**
- Commissioning is still needed to get of NBI (tang.+flat perp.)-heated plasmas with controllable density
- Injections of the impurity pellet and sequential (double, triple) H pellets were successfully performed.

e.g., #187507 ($R_{ax} = 3.6$ m, $B_{ax} = 1.375$ T)



Effects of boronization on plasma facing surface

S. Masuzaki

Shot #: 187530-187570

$(R_{ax}, B_t, \gamma, B_q) = (3.6 \text{ m}, 2.75 \text{ T}, 1.2538, 100.0\%)$

Working gas: H2

$P_{ECH} \sim 0.9 \text{ MW}$, $P_{NBI-1} \sim 3 \text{ MW}$, $P_{NBI-2} \sim 3.5 \text{ MW}$, $P_{NBI-3} \sim 3.9 \text{ MW}$

Objectives

- To evaluate the lifetime of the effects of boron films on vacuum conditions.

Method

- Discharges with the same heating conditions and the same densities were repeated. B powder was dropped during the NBI phase.
- Changes in impurities contents in plasma were observed.

Results

- Oxygen and carbon decreased shot by shot even without the B powder dropping.
- The B powder dropping enhances the decreases of O and C.
- The effects of B films formed by the dropping lasted several shots.

