

(SG2, TC) Session Report

Mar. 26, 2024 (M.Yoshinuma)

Date: Mar. 22, 2024

Time: 10:48 – 14:43

Shot#: 188015 – 188093 (79 shots)

Prior wall conditioning: None

Divertor pump: Off

Gas puff: H₂, He

Pellet: None

NBI#(1, 2, 3, 4, 5) = gas(H, H, H, H, H)=P(-, 4.1, 4.2, 3.2, 3.0) MW

ECH(77GHz) = ant(1.5-Uo, 5.5-U, 2-OUR)=P(-, 0.698, 0.380) MW

ECH(154GHz) = ant(2-OLL, 2-OUL, 2-OLR)=P(0.389, 0.806, -) MW

ICH(3.5U, 3.5L, 4.5U, 4.5L) = P(0.45, 0.4, 0.4, 0.43) MW

Topics

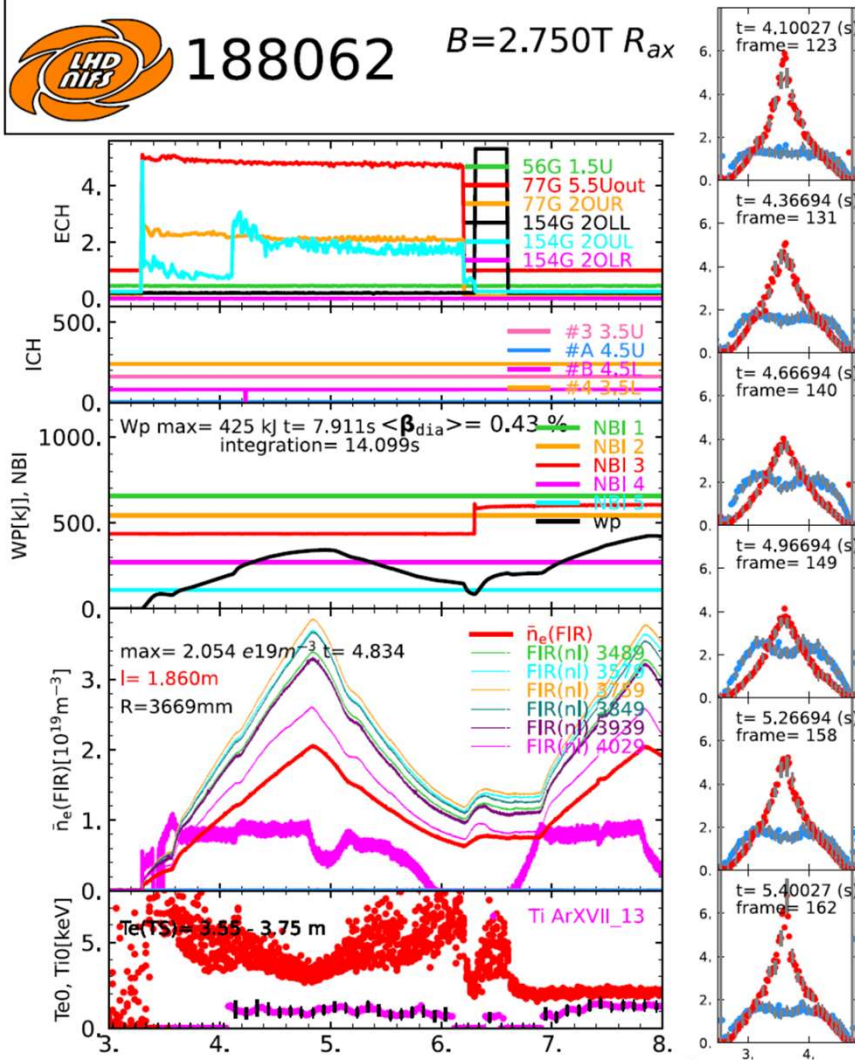
0. ECH, ICH commissioning (M.Nishiura, T. Seki)

Series of ICH Commissioning confirmed that there were no problems with antenna drive, monitoring cameras, impedance matching, and power modulation, and power injection up to 2.6 MW was possible.

1. Investigation of turbulence and heat propagation characteristics during e-ITB formation transition and back transition (N. Kenmochi)
2. Non-local heat transport from the peripheral region with using 1st X-mode ECH (H. Igami)

Investigation of turbulence and heat propagation characteristics during e-ITB formation transition and back transition

(N. Kenmochi)



Experimental conditions:

$(R_{ax}, \text{Polarity}, B_t, \gamma, B_q) = (3.6 \text{ m}, \text{CW}, 2.75 \text{ T}, 1.2538, 100.0\%)$
 (# 188050 - #188073)

Objective:

- ✓ To investigate the turbulence and heat propagation characteristics during e-ITB transition and back transition.
- ✓ This experiment aim to investigate the density thresholds for e-ITB formation for the main experiment on 3rd April.

Results:

- ✓ The formation and disappearance of e-ITBs was confirmed by ramping up and down the density during a single shot discharge.
- ✓ BS measurements have also been successfully taken.
- ✓ The density threshold of e-ITB formation for each heating power will be investigated in future analyses.

Non-local heat transport from the peripheral region with using 1st X-mode ECH

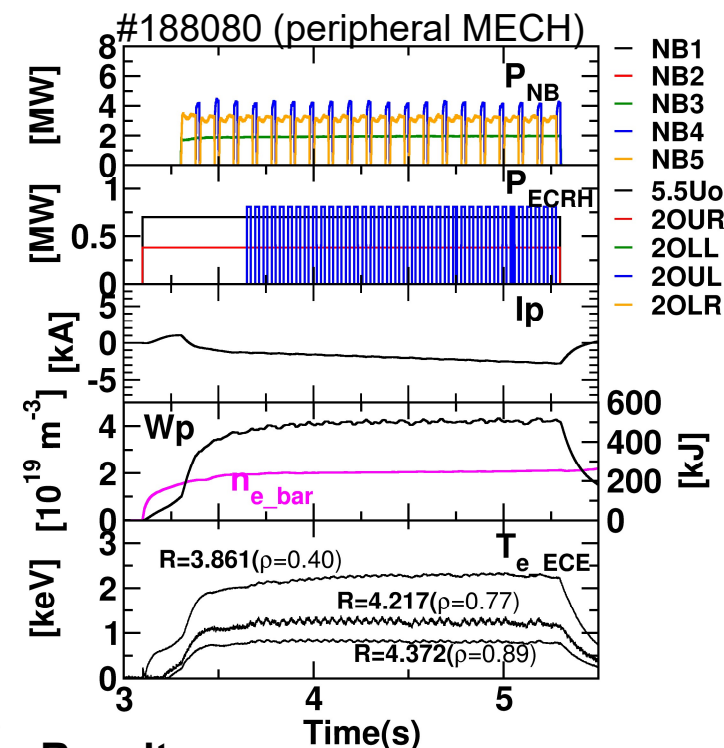
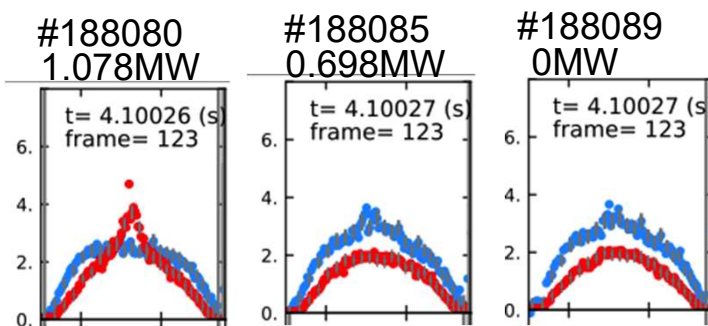
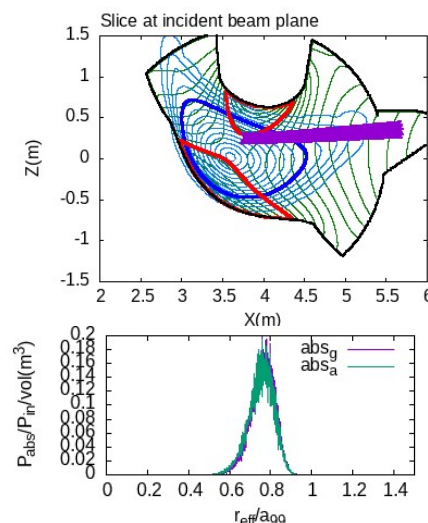
H. Igami

Shot #: 188073 - 188092 **Experimental conditions:** (R_{ax} , Polarity, B_t , γ , B_q) = (3.6 m, CW, 2.75 T, 1.2538, 100.0%)

Background & Purpose:

- The “backward” heat transport that might be caused by turbulent transport can be investigated with effective MECH at the peripheral region
- The peripheral MECH (0.806MW) was conducted by 2nd X-mode launched by 2OUL antenna instead of 1st X-mode for the first time
- Superimposed ECH power was changed (0, 0.698MW, 1.078MW) to investigate the effect of temperature gradient on the turbulent transport

Peripheral ECRH with aiming the 2nd ECR at the outboard side



Result:

- Effective peripheral MECH was conducted
- Heat and turbulent transport will be analyzed