

(MAP) Session Report



Date: Apr. 10, 2024
Time: 12:48 – 16:42
Shot#: 189266 – 189332 (67 shots)
Prior wall conditioning: None
Divertor pump: Off
Gas puff: H₂

Apr. 11, 2024 (K. Mukai)

NBI#(1, 2, 3, 4, 5) = gas(H, H, H, -, -)=P(3.9, 4.5, 4.3, 4.9, 3.4) MW
ECH(77GHz) = ant(1.5-Uo, 5.5-U, 2-OUR)=P(-, 0.70, 0.38) MW
ECH(154GHz) = ant(2-OLL, 2-OUL, 2-OLR)=P(0.71, 0.89, 0.98) MW
ICH(3.5U, 3.5L, 4.5U, 4.5L) = P(-, -, -, -) MW

Topics

1. Spectroscopic analysis of detached plasma (M. Goto)
2. Boron ion intensity lines for measurements of the electron temperature and density (M. Goto)

Spectroscopic analysis of detached plasma

M. Goto and M. Kobayashi

Experimental conditions:

$(R_{ax}, \text{Polarity}, B_t, \gamma, B_q) = (3.75 \text{ m, CW, 2.64 T, 1.2538, 100\%),$
 $(3.9 \text{ m, CW, 2.538 T, 1.2538, 100\%)$

LID: 3000 A (6-O, 7-O, 1-O, 2-O)

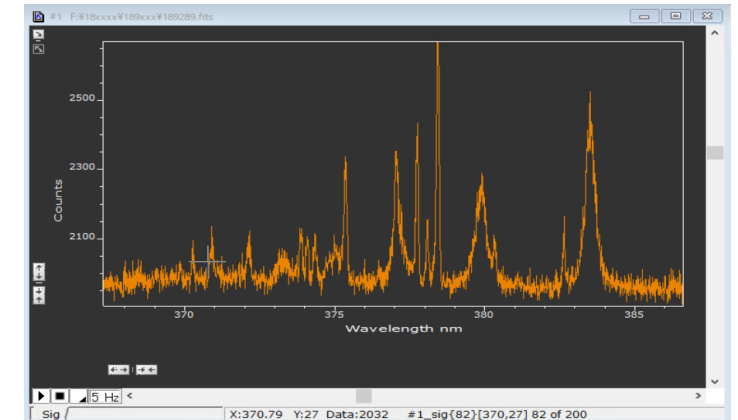
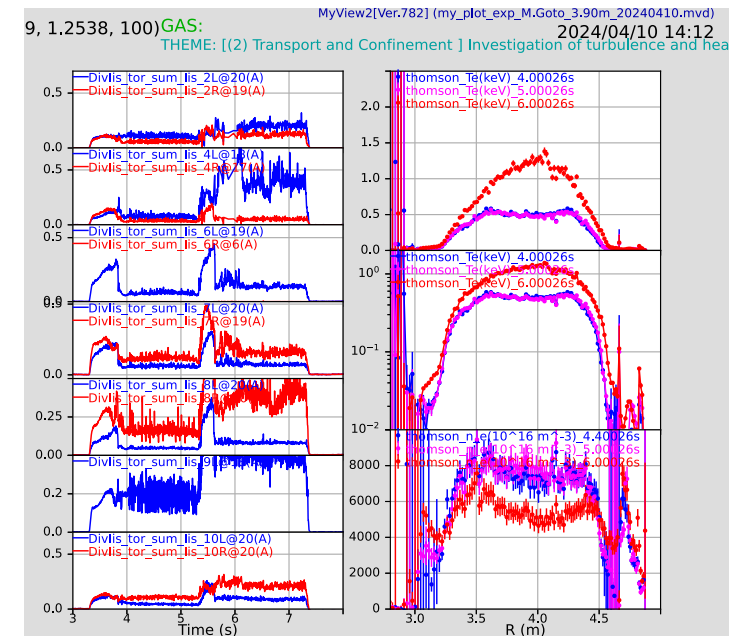
#189266 - #189323

Motivation and method:

- The Balmer series spectrum shows typical recombining plasma characteristics when plasma is detached due to strong hydrogen gas puff.
- We investigate such plasmas with a spectroscopic method.

Results:

- The detachment was observed only for $R_{ax} = 3.9$ m configuration.
- The recombining plasma formation is confirmed to be localized in the area close to the X-point.
- The location of the recombining plasma formation looks to be changed depending on the LID pattern.



Boron ion intensity lines for measurements of the electron temperature and density

M. Goto, K. Nojiri (QST) and T. Kawate

Experimental conditions:

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

#189324 - #189332

Motivation and method:

- ITER-DIM (Divertor Impurity Monitor) consider to use Boron emission lines for plasma parameter measurement.
- Boron pellet is injected and emission lines which can be used for diagnostics are looked for.

Results:

- Unfortunately, no clear boron lines were identified in the spectrum in the divertor region.
- However, because many unidentified lines were observed for the spectrum of the pellet ablation cloud, we will look for boron lines in that spectrum.

