

(TC) Report

Date: Mar. 19, 2024

Time: 10:42 - 14:33

Shot#: 187660 – 187737 (78 shots)

Prior wall conditioning: NO

Divertor pump: ON

Gas puff: H₂, Ar , Pellet: NO

Mar. 20, 2024 (T. Tokuzawa)

NBI#(1, 2, 3, 4, 5)=gas(H, H, H, H, H)=P(2.4, 2.4, 2.2, 4.3, 5.6)MW

ECH(77GHz)=ant(5.5-Uout (or 1.5U), 2-OUR)=P(698, 496)kW

ECH(154GHz)=ant(2-OLL, 2-OUL , 2-OLR)=P(389, 445, 110)kW

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

ICH(3.5U, 3.5L, 4.5U, 4.5L)=P(0.5, 0.4, 0.4, 0.5)MW

Remarks

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Topics

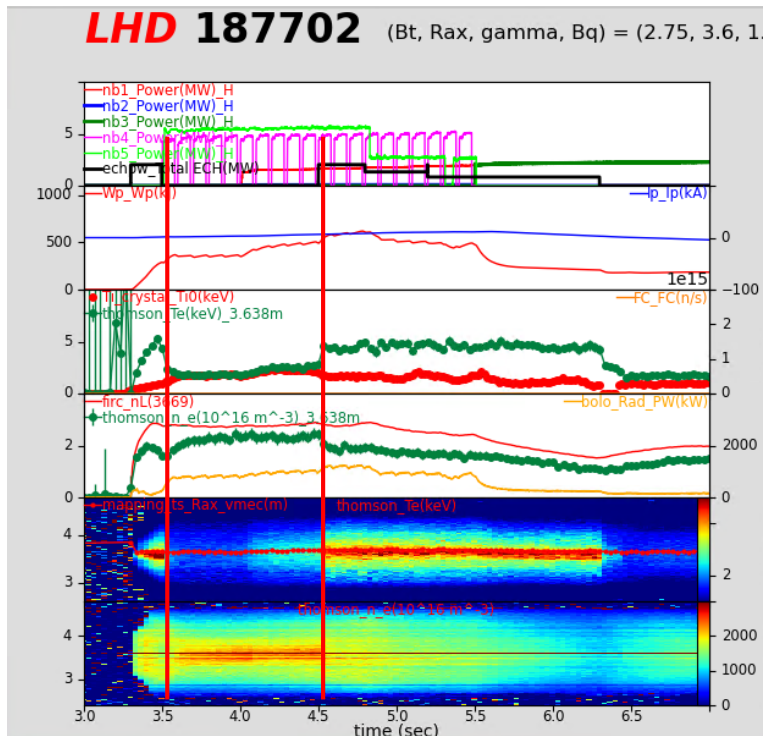
1. ECH/ICH commissioning (M. Nishiura, T. Seki) [#187660 - #187693] → will report next week by R. Yanai
2. Study on core density peaking and flattening in plasmas (M. Nishiura) [#187694 - #187717]
3. Investigation of electron heat pulse propagation in density peaking plasma in LHD (R. Yanai) [#187718 - #187737]

Purpose

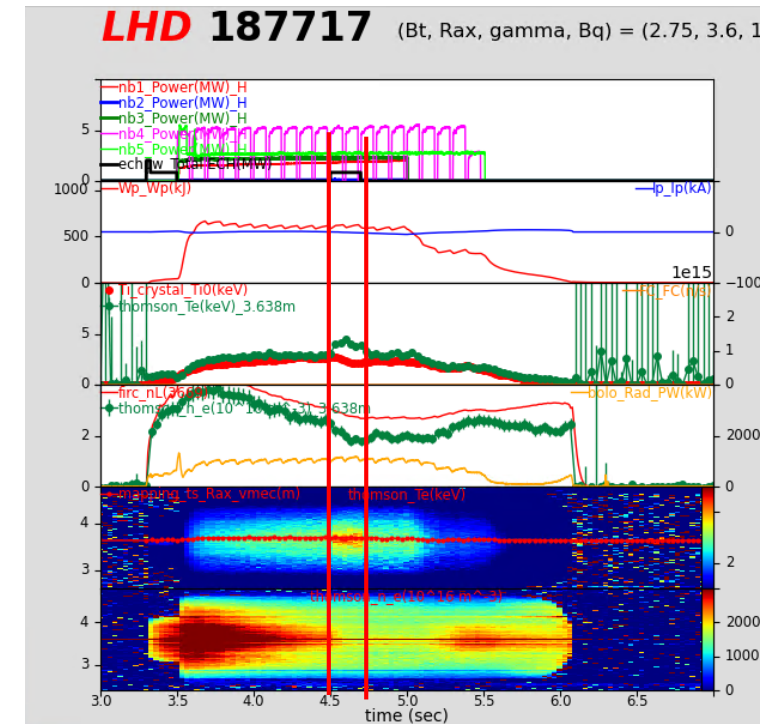
The feature of density peaking on energetic ion anisotropy is evaluated by using an EC heating to change a neoclassical / turbulence transport.

Result

ECH is superimposed on plasmas during the peaked density profile.



Density peaking appears at t=3.5-4.5s. After the ECH is applied at t=4.5s, the profile becomes flatten.



After the ECH is applied at t=4.5-4.7s, the profile becomes flatten, and the back transition emerges at t=5.3s. The peaked profile seems to be related with Te.

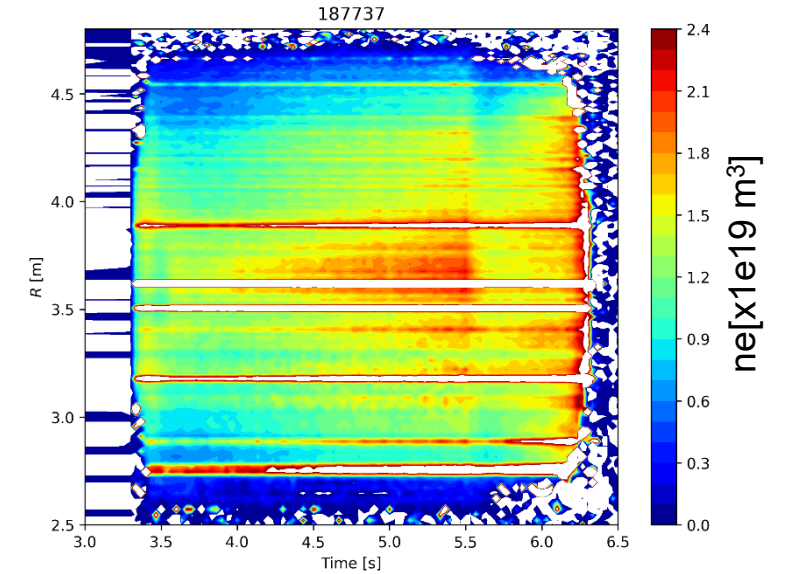
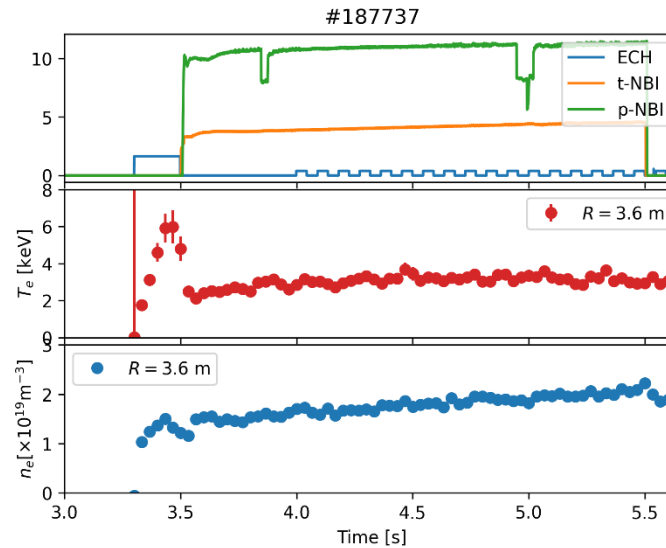
Investigation of electron heat pulse propagation in density peaking plasma in LHD (R. Yanai et al.)

Experimental conditions: (R_{ax} , Polarity, B_t , γ , B_q) = (3.60 m, CW, 2.75 T, 1.2538, 100.0%)

Shots: #187718 - #187737

Goal of this experiment:

- Investigating the characteristics of heat pulse propagation in density-peaking plasma to confirm the influence on heat transport.



Results:

- We conducted MECH focusing on $\rho \sim 0$ and $\rho \sim 0.5$ in density-peaking plasmas.
- We will analyze heat pulse propagation observed by ECE in detail.

