(TG4) Plasma instability group report

Feb. 4, 2022 (Y. Takemura)

Date: Feb. 3, 2022
Time: 9:40 - 13:20
Shot#: 178076 – 178149 (74 shots)

Prior wall conditioning: None
Divertor pump: On
Gas puff: H2, Pellet: No
NBI#(1, 2, 3, 4, 5)=gas(H, H, H, H, H)=P(4.2, 0.0, 4.0, 4.1, 4.4)MW
ECH(77GHz)=ant(5.5-U, 2-OUR)=P(0.70, 0.79)MW
Neutron yield integrated over experiment = (2.3×10^{11})

Topics

1. Mode structure of slowing down magnetic island (Y. Takemura)

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Experimental conditions:

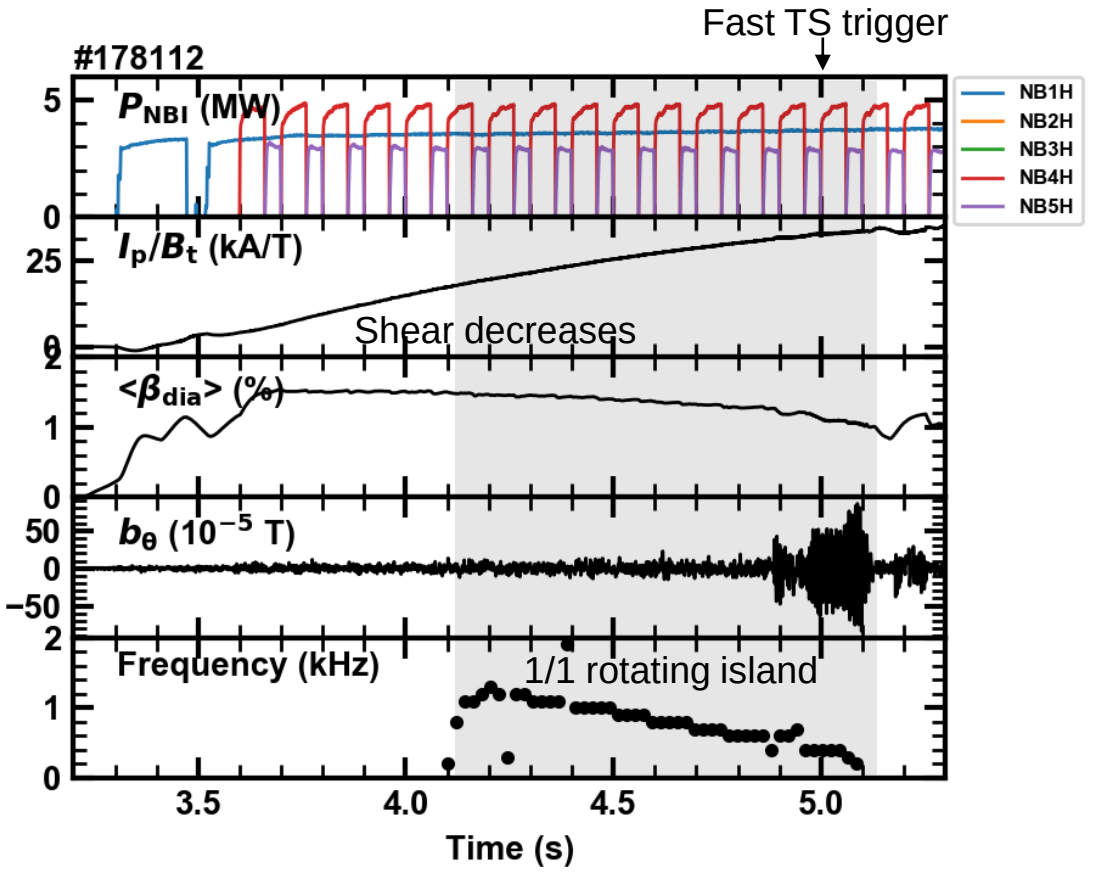
(R_{ax}, Polarity, B_t, γ, B_q) = (3.6 m, CCW, 1.30 T, 1.1739, 100 %)

Background and motivation:

- In the low magnetic shear regime, the flattening structure at the X-point of the rotating island in T_e profile has been found by using the fast TS system.
- A candidate mechanism for the formation of the flattening structure is the residual error field after the cancelation of the error field by RMP coils, and the flattening structure might lead to the $\mathbf{j} \times \mathbf{B}_{EF}$ braking force and enhance the slowing down of the island.

Results:

- T_e fluctuation profile was measured when the various external RMP is imposed to change the residual error field (see Table).
- In addition, T_e fluctuation profile at mode locking was obtained by using the event trigger system developed for the fast TS system in order to investigate the process of the mode locking.



I_{RMP} (A)	120	140	160	180
7O	178144	178112	178142	178146
6O	178134	178125	178136	—