

(TG4) Plasma instability group report

Jan. 25, 2021 (Y. Takemura)

Date: Jan. 21, 2022

Time: 12:45 - 13:45, 17:30 - 18:45

Shot#: 176968 – 176986, 177044 – 177064 (40 shots)

Prior wall conditioning: None

Divertor pump: Off

Gas puff: H₂, D₂, Pellet: No

NBI#(1, 2, 3, 4, 5)=gas(H, H, H, H, H)=P(3.9, 4.0, 2.1, 3.8, 3.8)MW

ECH(77GHz)=ant(5.5-U, 2-OUR)=P(0.7, 0.8)MW

Neutron yield integrated over experiment = (1.5E+13)

Topics

1. Investigation of ion cyclotron emission in H beam plasmas (J. Lestz, K. Saito)

Investigation of ion cyclotron emission in H beam plasmas

J.B. Lestz, K. Saito...

January 21, 2022

ICE was investigated in the wide range of plasma parameters with the various combinations of NBIs.

The difference with the experiments on Dec. 8 is the beam species.

Deuterium beam (2021.12.08), Hydrogen beam (2022.01.21)

NBI power

#1: 3.9MW #2: 4MW #3: 2.1MW #4: 2×1.9MW #5: 2×1.9MW

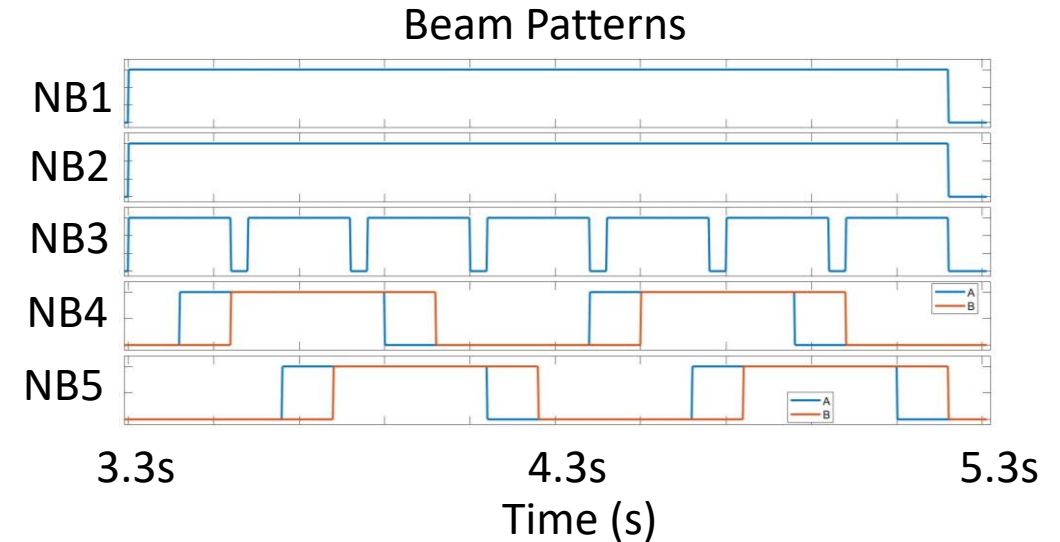
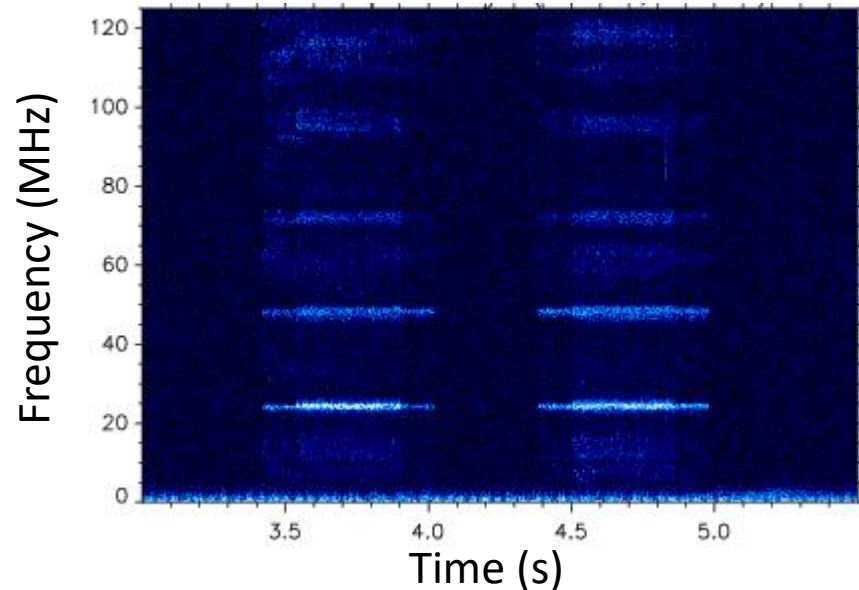
Magnetic field on axis: 2.75T and 1.375T (CCW, $R_{ax}=3.6m$)

Range of line averaged electron density: $1-6 \times 10^{19} m^{-3}$

Range of $n_D/(n_H+n_D)$ ratio: 10%-80%

Example of ICE

ICE measured with 5.5U probe (5.5u-pos)



- Shot: 176982
($B_0 = -2.75T$, $\bar{n}_e = 6 \times 10^{19} m^{-3}$, $n_D / (n_H + n_D) = 0.65$)
- ICE originated from NB4 is seen. ($f=n \times 24MHz$)
- ICEs will be analyzed in detail in various density, D-H ratio, magnetic field, beam species, probe position, etc.