

# (TG3) Spectroscopy group report



Nov. 25, 2021 (T. Oishi)

Date: Nov. 24, 2021

Time: 9:52 – 12:43

Shot#: 173242 – 173289 (48 shots)

Prior wall conditioning: D<sub>2</sub> GD

Divertor pump: ON

Gas puff: D<sub>2</sub>

Pellet: No

NBI#(1, 2, 3, 4, 5)=gas(D, D, D, D, D)=P(2.6, 2.6, 2.3, 7.8, 6.8)MW

ECH(77GHz)=ant(5.5-U, 2-OUR)=P(0.703, 0.792)MW

ECH(154GHz)=ant(2-OLL, 2-OUL, 2-OLR)=P(0, 0.930, 0.986)MW

ICH(3.5U, 3.5L, 4.5U, 4.5L)=P(0, 0, 0, 0)MW

Neutron yield integrated over the experiment =  $4.4 \times 10^{16}$

## Topics

1. Diagnosis of fast ions produced by NNBI with FIDA spectroscopy (C.M. Muscatello (GA), W.W. Heidbrink (UCI), S. Kamio)

# Diagnosis of fast ions produced by NNBI with FIDA spectroscopy

## C.M. Muscatello and W.W. Heidbrink

### Objectives

- Validation of FIDA technique applied to very high-energy (>100keV) ions produced by N-NBI
- Verification of theoretical distribution functions with synthetic diagnostic modeling (GNET & FIDASIM)

### Approach and Outcome

- Steady-state distribution functions from NB #1 (A&B separately), 2 (A&B separately), 3, and 4 at 3 different values of  $R_{ax}$  and 2 densities
- 40 shots total
- Polarity = CW,  $R_{ax}=(3.55,3.6,3,75)$  and  $B=(2.79,2.75,2.64)$  D beams into D gas
- Beam modulation for active NPA and FIDA spectroscopy
- Thorough scans with best MHD-quietest shots at  $R_{ax}=3.55$

