(MAP) Session Report

June 6, 2024 (G. Motojima)

Date: June 5, 2024
Time: 10:27 – 12:15
14:42 – 16:42
Shot#: 192609 – 192645 (37 shots)
192690 – 192728 (39 shots)
Prior wall conditioning: H glow
Divertor pump: On
Gas puff: H_2
Pellet: No

NBI#(1, 2, 3, 4, 5) = gas(H, H, H, H, H)=P(4.4, 4.1, 4.3, 3.3, 2.7) MW
ECH(77GHz) = ant(1.5-Uo, 5.5-U, 2-OUR)=P(0.698, 0, 0.308) MW
ECH(154GHz) = ant(2-OLL, 2-OUL, 2-OLR)=P(0.705, 0.806, 0.982) MW
ICH(3.5U, 3.5L, 4.5U, 4.5L) = P(-,-,-,-)MW

Topics
1. Impurity flow reversal in open field lines (T. Nishizawa (Kyushu Univ.), T. Kobayashi)
2. Influence of the magnetic configuration on the subdivertor pressure(U. Wenzel(IPP), G. Motojima)

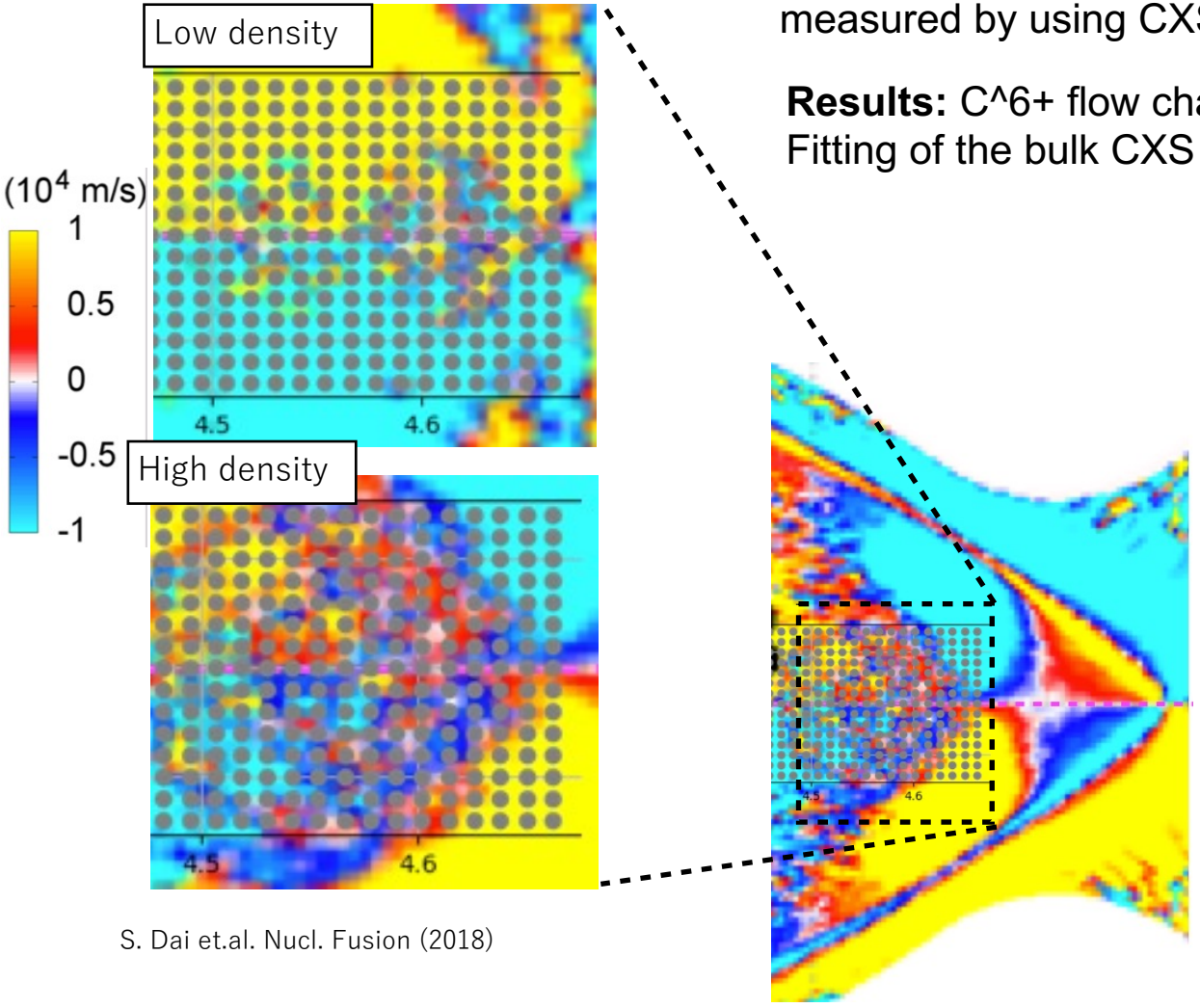
Impurity flow reveal in open field lines

(T. Nishizawa, T. Kobayashi, M. Kobayashi, Y. Yoshinura, T. Oishi, and K. Ida)

Shot #: 192609 –192645 **Jun 5, 2024**

objective: To measure the upstream flow of impurities driven by thermal force

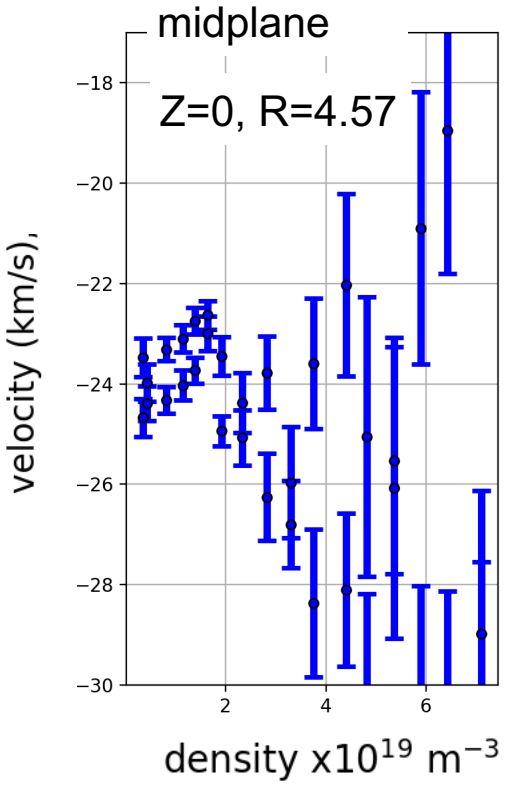
C^3+ toroidal velocity (EMC3-eirene)

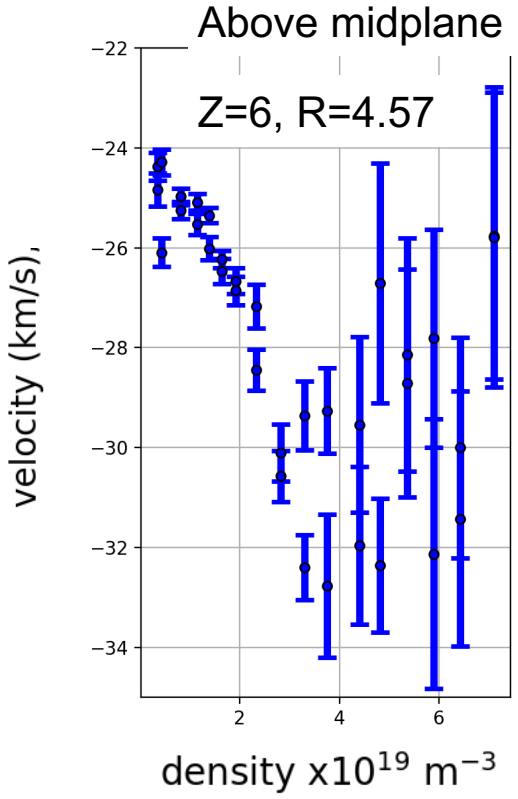


S. Dai et.al. Nucl. Fusion (2018)

method: The toroidal velocity of C^6+ and bulk ions near the LCFS are measured by using CXS.

Results: C^6+ flow changes as a function of density above the midplane. Fitting of the bulk CXS is now underway.





Influence of the magnetic configuration on the sub-divertor pressure (U. Wenzel (IPP), G. Motojima)

✓ Experimental conditions:

#192691-192710: R_{ax}=3.55m, CW, B=2.78T, γ=1.254, B_q=100%

#192711-192728: R_{ax}=3.53m, CW, B=2.804T, γ =1.254, B_q=100%

✓ Motivation

- ❖ In the 24th LHD campaign, very high neutral pressures were measured in the sub-divertor region (Wenzel et al., Nuclear Fusion 2024). The divertor went into a low temperature mode (LTM).
- ❖ It is proposed to
  1) Verify the result and determine the threshold for the transition
  2) Generate a steady-state shot with the LTM.

✓ Experiments

- ❖Density ramp up for confirmation of reproducibility
- ❖Density steady state (6-13x10^{19} m^{-3})

✓ Results

- ❖We could reproduce high neutral pressure in the density ramp up of R=3.55m, CW condition.
- ❖High neutral pressure (>2Pa) is observed in density steady state of R=3.55m, CW condition.