

LHDにおけるロックドモード様不安定性発現時の
プラズマ回転速度変化の観測

Observation of plasma rotation velocity in locked-mode like phenomena in LHD

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Newly installed toroidally-correlated microwave Doppler reflectometers [1, 2] give some interesting oscillatory phenomenon of perpendicular velocity V_p in LHD. In this conference, we report the observation results of the locked-mode like minor-collapse discharge, because the changes of V_p oscillation is successfully observed just before the minor collapse for the first time.

In the previous study, the V_p measurements by CXRS in the enlarged static island by RMP coils had been carried out [3] and this is showed that the large V_p shear is formed around the magnetic island. Also, we have discovered the magnetic island formation during the locked-mode like phenomena. In this time, we try to understand when the spontaneous rotation of magnetic island happens and how velocity changes. Figure 1 shows the spatio-temporal behavior of V_p profile just before the locked-phase. The value of V_p changed back and forth from the finite negative value to 0 km/s during the locking-phase (just before the locked-phase) is clearly observed. The finite negative value is agreement with the background flow velocity. The V_p changes to almost

0 km/s when the O-point of the rotating magnetic island is coming. It is also found that this rotating structure is gradually distorted just before the locked-phase. In the conference, we will present the detail of this interesting phenomenon with precise observation results.

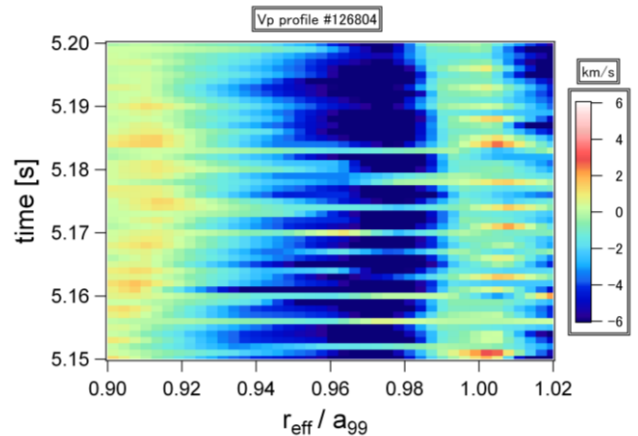


Fig. 1. Spatio-temporal V_p profile just before the minor-collapse

References:

1. T. Tokuzawa *et al.*, Rev. Sci. Instrum. **83** (2012) 10E322
2. T. Tokuzawa *et al.*, Plasma Fusion Res. **9** (2014) 1402149
3. K. Ida *et al.*, Phys. Rev. Lett. **88** (2002) 015002