

**AAPPS-DPP2018 Poster**1. **Session:** MF2. **Type:** Poster3. **Abstract:**

Title: Indirect measurement of poloidal rotation and comparison with neoclassical theory on EAST

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Content:

Poloidal rotation is typically measured with the poloidal charge exchange recombination spectroscopy (CXRS) in tokamak plasmas. However, direct measurement of poloidal velocity is somewhat more challenging due to much smaller velocities and more complicated atomic physics issues. On EAST, the measurement of poloidal rotation is not yet performed until now. An indirect method to obtain more accurate poloidal rotation is based on the inboard-outboard asymmetry of toroidal rotation on the same flux surface. The measurement technique has been successfully applied at DIII-D, TCV and ASDEX Upgrade recently. The existing core toroidal CXRS system on EAST covers a radial region from R=1.55 m (high field side, HFS) to R=2.33 m (low field side, LFS) on the midplane and can provide the HFS-LFS profiles of the CXRS parameters, and thus enabling the indirect measurement of poloidal rotation. The derived poloidal rotation is less than 5km/s in the radial range of normalized radius $\rho < 0.8$ at the present plasma conditions on EAST, consistent with the neoclassical calculation. In the paper, results from the indirect measurement of the poloidal rotation are presented, and comparisons of measured poloidal rotation with the neoclassical prediction are given.

4. **List of related published papers (if applicable)**

[1] C. Chrystal et al, Rev. of Sc. Instruments 83,10D501 (2012)

[2] A. Bortolon et al, Nucl. Fusion 53, 023002 (2013)

[3] A. Lebschy et al, 42nd EPS Conference on Plasma Physics, P1.137

[4] Y.Y.Li et al, Rev. of Sc. Instruments 85, 11E428 (2014)