Contribution ID: **905** Type: **Poster**

Kink Mode Study in EAST High β_{P} Plasma

Tuesday, October 23, 2018 2:20 PM (20 minutes)

Two types of kink modes, fishbone and long-lived mode are experimentally and numerically studied at EAST tokamak. In high β_{P} plasma, sawtooth instability was replaced by a saturated 1/1 internal kink mode which either manifests itself as a periodical burst energetic ion related fishbone or as a long-lived mode which is associated to the core safety factor at q_0~1. The present of those 1/1 internal modes are beneficial to the sustain of hybrid scenario with extended regions of low-magnetic shear profile and q_0~1, because of that they can expel high-Z impurity and can make flux pumping. The mechanism responsible for the flux pumping caused by kink mode was numerically in nonlinear 3 D magnetohydrodynamic simulations using the M3D code. Furthermore, M3D+K code hybrid simulation shows a good agreement to the fishbone activity in EAST.

Country or International Organization

China, People's Republic of

Paper Number

EX/P2-14

Primary author: Dr XU, Liqing

Co-authors: Prof. HU, Liqun; Dr SHEN, Wei; Mr YUAN, Yi

Presenter: Dr XU, Liqing

Session Classification: P2 Posters

Track Classification: EXW - Magnetic Confinement Experiments: Wave–plasma interactions; current drive; heating; energetic particles