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P4.1060 The variation of the radial and poloidal coherency after middle-amplitude sawteeth crashes in T-10 regimes with central ECRH

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Small scale turbulence widely treated as one of the causes of abnormal transport genesis. The variation of the turbulence amplitude at T-10 is correlated with the variations of the particle flow mainly [1]. The enhanced heat transport with quick reduction along the time was observed during “ballistic” stage and typical enhanced heat pulse propagation during diffusive stage of the pulse propagation induced by sawteeth crush [2, 3]. The scope of this report is the study of the correlation of heat flux perturbation with the variation of poloidal and radial coherences of small scale density perturbations.. The middle-level sawtooth oscillations without nonlocal “ballistic” phase have been analyzed in series of shorts with 250kA/2.45T, n_lineav (0) = 2.3, P_ECRH=0.8 MW. ECE diagnostics is used for electron temperature observations while the electron density measured by 15-channel interferometer. Density fluctuations are measured by heterodyne correlation reflectometry at the low field side. The probing frequency was changed from shot to shot to vary the radial position of reflection point. Special sawtooth selection procedure was used to achieve averaging over 20-25 “good” sawteeth in each shot and decrease noise levels that is crucial for reflectometry signals analysis. Reflectometry data demonstrate the fluctuation amplitude level growth after internal crash accompanied by radial and poloidal fluctuations coherency increase. The maximum value of the turbulence amplitude locates near the peak value of the growth of Te after crash. The spacetime evolution of the turbulence amplitude, radial and poloidal coherence are sophisticated and all variations propagate outwards. The correlation of the heat flux perturbation and the variation of radial and poloidal coherency is under analysis now.

[1] V.A. Vershkov, D.A. Shelukhin, G.F. Subbotin, Yu.N. Dnestrovskij et al, Density fluctuations as an intrinsic mechanism of pressure profile formation, Nucl. Fusion 55 (2015) [2] N.J. Lopes Cardozo and A.C.C. Sips Plasma Phys. Control. Fusion 33 1337(1991) [3] Neudatchin S.V., Cordey J.G. and Muir D.J. 1993 20th EPS Conf. (Lisboa, 1993) vol.I (EPS), p 83

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