

P4.1024 Investigation of the Kelvin-Helmholtz instability in EAST

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See full abstract here

<http://ocs.ciemat.es/EPS2019ABS/pdf/P4.1024.pdf>

The KelvinHelmholtz (K-H) instability has been observed by Doppler Backscattering system(DBS) in EAST H-mode operation. The frequency range of the K-H instability is about 40-90 kHz, and is distinct in the E_r fluctuation. Although it can be hardly observed in density and magnetic field fluctuation, the coherences between them and the E_r fluctuation are quite strong, and the cross-phase between the density fluctuation and E_r fluctuation is between $\pi/2$ and π . The evolution of E_r and E_r shear during the appearance of K-H instability have been revealed, and it shows that the edge E_r shear is important to arouse the K-H instability. The electric density and stored energy decrease significantly and the ELMy H-mode becomes an ELM-free H-mode operation when the K-H instability is aroused. The GAM can sometimes be observed accompanying with the K-H instability, and the nonlinear interaction between them has been observed through the bi-coherence analysis.

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