

Characteristics of electromagnetic turbulence on KTX experiment device

Thursday 25 October 2018 08:30 (20 minutes)

Electrostatic turbulence is the main constrain of confinement improvement on low β toroidal magnetic confinement devices. With the development of high β operation scenario, electromagnetic turbulence is expected to become important for development of resistive tearing mode and resistive wall mode. The characteristics of electromagnetic turbulence on KTX are studied in low current tokamak and in reversed field pinch plasma operations. Electron density fluctuations in the core are measured based on forward scattering signal collection with multi-channel interferometer system. The edge electric and magnetic field fluctuations are measured using movable multi-functional probe arrays. The 3D spectral characteristics of the electromagnetic turbulence are present in our research. Biased electrode is applied at the edge of plasma for changing the edge electric field profile, and significant suppression of turbulence and reduction of radial particle flux are observed after applying high biasing voltage.

Country or International Organization

China, People's Republic of

Paper Number

EX/P5-9

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Session Classification: P5 Posters