

Abstract Submitted
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Density fluctuation measurements with the microwave imaging reflectometry on TPE-RX¹ Z.B. SHI, Grad. Univ. Adv. Studies, Y. NAGAYAMA, S. YAMAGUCHI, NIFS, Y. HIRANO, S. KIYAMA, H. KOGUCHI, H. SAKAKITA, K. YAMBE, AIST — Electron density fluctuation in a large reversed-field pinch device TPE-RX has been investigated by using the microwave imaging reflectometry (MIR) system for the first time. This system illuminates the TPE-RX plasma with the 20 GHz microwave beam in O-mode and measures the reflection by a two dimensional detector array with spatial resolution of 4cm and temporal resolution of 1ms. Each detector signal has 3 components, such as the amplitude, the in-phase (I) and the quadrature (Q). The reflection surface motion is obtained from the rotation of the I-Q components of the MIR signals. Cross-spectral method is used for the analysis of the amplitude of the reflected wave. We investigate four different types of RFP plasma, such as the quasi-single-helicity (QSH) plasma, the pulsed poloidal current drive (PPCD) plasma, the sawtoothing high theta plasma and the NBI heated plasma. The fluctuations indicate that the plasma turbulence is dominated by the low frequency and long wavelength fluctuation components and the statistical dispersion relation shows the typical electron drift wave characteristics.

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