

Effect of RMP on boundary plasma turbulence in JTEXT tokamak

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Abstract:

The effect of RMP on the boundary plasma turbulence has been investigated experimentally in J-TEXT tokamak with Ohmic heating. It has been found that plasma turbulence in the edge region and Scrape Off Layer (SOL) region has been reduced with RMP current 6 kA compared to that with no RMP current (0 kA). In the edge region, strong sheared flow has formed with its magnitude as much as 10^6 s^{-1} , which may lead to sharp decrease of radial turbulent flux. In addition, the reduced radial turbulent flux is mainly due to the drop of the amplitude of fluctuated density and radial velocity rather their cross phase. In the SOL region, the frequency spectrum of fluctuated ion saturation current, skewness and kurtosis, the amplitude and velocity of blob has been decreased with RMP 6 kA.