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Transport increase and confinement degradation caused by MARFE PENG SHI, Huazhong University of Science Technology, GE ZHUANG, University of Science and Technology of China, LI GAO, YINAN ZHOU, Huazhong University of Science Technology — Recently, the MARFE phenomenon associated with high density plasmas has been observed on J-TEXT Ohmically heated discharges. The MARFE on J-TEXT is characterized by the poloidally local region at high field side (HFS) edge with high density and strong radiation. At the almost same time of MARFE appearance, the density peaking factor and sawtooth oscillation reach maximum and decrease with density increasing, infers that the plasma confinement is saturated. By analyzing the far-forward scattering signals from polarimeter-interferometer, it is found that the local radial density turbulence at high field edge increases significantly after MARFE onset. It is inferred that the local particle transport at MARFE affected region (HFS edge) is enhanced. The enhancement of radial transport at MARFE affected region is considered as the possible reason for confinement saturation on J-TEXT. Furthermore, the trapped electron mode (TEM) with quasi-coherent characteristics is measured by far-forward scattering. The TEMs are always observed in plasmas with low density, and disappear after the plasma density exceeds a threshold. The density threshold of TEM disappearance is consistent with the density threshold of MARFE onset. The evolution of turbulences affirms that the MARFE may be the cause of energy confinement transition from LOC to SOC.

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