## Observation of MHD Instabilities and Improved Particle Confinement during IBW Heating in HT-7 Tokamak

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The Experiment with Ion Berstein Wave (IBW) heating was carried out in HT-7 Superconducting Tokamak, in which an improved particle confinement mode and suppression of MHD was observed. A five-channel far-infrared (FIR) hydrogen cyanide (HCN) laser interferometer was used to measure the electron density profile. The peaked density profile was formed gradually, and the Ha radiation intensity was decreased abruptly in IBW heating phase. The electron density diffusion coefficient decreased at the region of r/a>0.6 in IBW heating discharges. The fluctuation and transport in the SOL of HT-7 Tokamak have been investigated using a Langmuir probe array. During the IBW phase, the density fluctuation is suppressed markedly in the whole frequency domain and the local outward particle flux and heat flux induced by electrostatic fluctuation decrease to almost zero. At the same time, shearing of the plasma poloidal rotation velocity at around r/a~0.6 was also observed with charge exchange recombination spectrometer diagnostic (CXRS). The polodial shear flow induced by IBW maybe the reason for improved particle confinement and the suppression of MHD.