

# Peripheral plasma measurement in Heliotron J using fast cameras

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In this paper the measurement of peripheral plasma behaviour using Langmuir probes, magnetic probes, and fast cameras were reported [1-4]. Topics are turbulence behaviour during ECH(70GHz, 450kW), NBI(30keV,700kW), and ICRF(19-22MHz,200kW). ECH is used to get the first discharge in Heliotron J plasma. In general turbulence was easily observed during additional heating (or during high power heating). However, it was found that turbulence was suppressed under some conditions during ICRF and/or NBI. Also, the super molecular beam injection (SMBI)[5-7] is used in Heliotron J plasmas to increase the electron density and to reduce the total recycling. In SMBI experiment even the electron density raise over the threshold density to the H-mode, the transition does not occur frequently. Peripheral turbulence behaviour seems to be “dithering to transit from the L-mode to the H-mode” before and after SMBI. In helical system the radiation collapse occurs sometimes in the H-mode, and it is not favourable phenomenon. Therefore, it is very important to understand the relationship between peripheral turbulence behaviour and the H-mode.

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