

Abstract Submitted
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Heating scheme dependence of electron density profile measured with AM reflectometer in Heliotron J plasmas KIYOFUMI MUKAI, Grad. Sch. of Energy Science, Kyoto Univ., K. NAGASAKI, V. ZHURAVLEV, T. FUKUDA, T. MIZUUCHI, T. MINAMI, H. OKADA, S. KOBAYASHI, S. YAMAMOTO, Y. NAKAMURA, K. HANATANI, S. KONOSHIMA, S. OHSHIMA, M. TAKEUCHI, K. MIZUNO, H.Y. LEE, H. YASHIRO, F. SANO — Measurement of electron density profile is one of important issues for understanding plasma confinement and transport. A X-mode microwave amplitude modulation (AM) reflectometer for electron density profile measurement is applied to Heliotron J in the 2009 experimental campaign. The carrier frequency of the reflectometer ranges from 33 GHz to 56 GHz, and the modulation frequency is 200 MHz. In this study, time evolution of density profile was measured in 70 GHz ECH or balance-injected NBI plasma by the AM reflectometer. The injection powers are 270 kW (ECH) and 770 kW (NBI, total), respectively. As the results of measurements, in ECH plasma, the reconstructed profile has flat shape at $n_e \sim 0.8 \times 10^{19} \text{ m}^{-3}$ and has steep gradient at edge region in all measured density region ($n_e < 3.0 \times 10^{19} \text{ m}^{-3}$). The profile of NBI plasma is peaked at any line averaged density under $2.5 \times 10^{19} \text{ m}^{-3}$. In presentation, the profile of SMBI plasma will be discussed. In forthcoming experiment, another reflectometer by using O-mode for density fluctuation measurement is installed and the relation between density gradient length and fluctuation will be studied.

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