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Electron thermal fluctuation and transport in the ITB and L-mode plasmas

M. J. Choi¹, J. Chung¹, S. H. Ko¹, H. S. Kim¹, C. Bae¹, M. H. Woo¹, J.-M. Kwon¹, J. Seol¹, H. K. Park^{1,2}, B. H. Park¹, H. Jhang¹, G. S. Yun³

¹ National Fusion Research Institute, 169-148 Gwahak-ro, Deajeon 34133, Korea

² Ulsan National Institute of Science and Technology, Ulsan 689-798, Korea

³ Pohang University of Science and Technology, Ulsan 689-798, Korea

Preliminary observations and analysis of electron thermal fluctuations and transport in the ITB and L-mode plasmas will be presented. The ITB and L-mode plasmas both are limited plasmas heated by similar NBI power (above the H-mode threshold power for the diverted plasma), and the auxiliary ECRH is applied in the L-mode plasma to suppress the $m/n=2/1$ tearing mode. Periods without the large scale MHD instabilities such as sawtooth or tearing modes are compared.

In the ITB plasmas the electron temperature profile evolves in time slowly to have a more peaked profile, whereas it does not change in time in the L-mode plasmas unless the ECRH vertical target position, or

current profile, is changed. The strong electron temperature fluctuation over the broad frequency band (0~130 kHz) is observed with the increased electron temperature gradient in the L-mode plasma, but the only weak 60 kHz fluctuation is detected in the ITB plasmas. Interestingly, the intermittent electron heat transport event across the $q=2$ flux surface is observed both in the ITB and L-mode plasmas (more clearly in the ITB plasmas). Note that in the ITB plasmas the electron temperature profile, the 60 kHz fluctuation amplitude, and the intermittent transport event size are found to be related.