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Study of Pedestal Turbulence on EAST Tokamak

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Pedestal turbulence was studied by a microwave reflectometry on EAST tokamak. The characteristics of edge pedestal turbulence during L-I-H transition, ELM-free H-mode phase and inter-ELM phase have been studied on EAST recently. (1) An edge spatial structure of density fluctuation and its dithering temporal evolution is observed on EAST tokamak during the L-H transition phase. (2) A coherent mode and/or a multi-harmonic mode often appears during the ELM-free phase before the first ELM on EAST tokamak. Analysis shows that there is a critical density for two modes on EAST. (3) In plasma with type-III ELMs, a precursor mode before ELM is usually observed. The frequency of the precursor was born about 150 kHz and gradually decreased up to the ELM. The mode amplitude increases or shows saturation before ELM. In the plasma with compound ELMs composed of high and low frequency ELMs, the precursor was also available before the high frequency ELM while the harmonic oscillations with frequencies of 20, 40 and 60 kHz appears before the low frequency ELM.

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