

Study of sawtooth oscillations on Aditya tokamak by Electron Cyclotron Emission measurements

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Abstract

Experimentally investigation of the sawtooth oscillations in ohmic plasma of medium size Aditya tokamak has been performed by electron cyclotron emission measurement diagnostics. A multi-channel Ka-Band radiometer, which measures second harmonic frequencies (30 – 40 GHz) and other multi-channel E-Band radiometer, which measures third harmonic frequencies (63 – 84 GHz) have been utilized for these measurements. The sawtooth oscillation features are presented. The sawtooth period and amplitude dependency on measurable plasma parameters is determined by using appropriate scaling laws. Many radial location measurements of the sawtooth oscillation have been found to be advantageous for heat pulse propagation study. A correlation study and temporal and spatial propagation of the heat pulse has been discussed[2].