

Abstract Submitted
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Real-time MHD Mode Localization in ECE Measurements on ASDEX Upgrade N.K. HICKS, M. GARCIA-MUNOZ, V. IGOCHINE, M. MARASCHEK, M. REICH, J. STOBER, W. SUTTROP, W. TREUTTERER, Max Planck Insitut fuer Plasma Physik, Boltzmannstrasse 2, 85748 Garching, Germany, ASDEX UPGRADE TEAM — Electron cyclotron emission (ECE) measurements of the electron temperature (T_e) radial profile obtained with the 60-channel radiometer on the ASDEX Upgrade (AUG) tokamak are used to determine the locations of MHD modes that arise in the plasma. A neoclassical tearing mode (NTM) exhibits a phase reversal in T_e fluctuations, and localizing this signature in the ECE T_e profile identifies the radial position of the mode. This technique is part of the development at AUG of a real-time system for NTM suppression, as will be needed for successful operation of ITER. To improve the detection, ECE signals are correlated with magnetic signals. Results are presented on the performance of tracking NTMs in real-time during AUG discharges, and the prospects for the feasibility of this approach in closed-loop real-time NTM suppression are assessed. Building on the correlation approach for NTM tracking, a framework for correlation of ECE signals with other diagnostics is being developed, e.g. to localize Alfvén eigenmodes.

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