

Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

MHD induced fast ion losses in ASDEX Upgrade MANUEL GARCIA-MUNOZ, HANS-ULRICH FAHRBACH, HARTMUT ZOHN, JOSEF NEUHAUSER, MARC MARASCHEK, SIBYLLE GUENTER, PIERO MARTIN, KARL SASSENBERG, VALENTIN IGOCHINE, Max-Planck Institute for Plasma Physics, EURATOM Association, D-85748 Garching, Germany, ASDEX UPGRADE TEAM — We present the first results obtained with the new Fast Ion Loss Detector (FILD) installed recently in ASDEX Upgrade. An overview of the measurements and their preliminary conclusions is presented. FILD provides energy and pitch-angle ($\arccos(v_{\parallel}/v)$) resolved FIL measurements with a bandwidth of 1 MHz, which comfortably covers all the dynamics up to Alfvén modes. The energy range covers from 60 keV up to 700 keV for deuterium ions at a central magnetic field of 2T while the pitch-angle ranges from 20° up to 87° . Lost particles have been observed in the presence of a rich variety of MHD phenomena, from low frequency MHD modes like NTMs to high frequency modes i.e. TAEs. A strong correlation between mode amplitude and amount of particle losses is observed. The loss mechanisms involved in the ejection of fast ions due to ELMs, NTMs and TAEs are discussed. In addition, a new MHD mode has been identified for the first time. A strong and deleterious influence on the energetic deuterium ion population was established.

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Date submitted: 20 Jul 2006

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