

Abstract Submitted  
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**Experimental investigation of the fast-ion transport in the AS-DEX Upgrade tokamak** BENEDIKT GEIGER, RALPH DUX, FRANCOIS RYTER, GIOVANNI TARDINI, Max Planck Institute for Plasma Physics, Garching, Germany, MANUEL GARCIA-MUNOZ, University of Sevilla, Sevilla, Spain, ASDEX UPGRADE TEAM — The radial transport of fast-ions is an active field of investigation in fusion devices. In particular, in the presence of MHD instabilities, fast-ions can be redistributed and even ejected from the plasma. This reduces the plasma heating and current drive efficiencies and must consequently be investigated and avoided in view of future fusion devices. In ASDEX Upgrade, sawtooth crashes in NBI heated plasmas have been observed to induce a very strong radial redistribution of the fast-ion population, as measured by fast-ion D-alpha (FIDA) spectroscopy. Modelling done with TRANSP assuming the Kadomtsev sawtooth model very well reproduces the experimental measurements. In contrast to the strong anomalous fast-ion transport due to sawtooth crashes, the transport of the fast ions is found to be neo-classical in the absence of significant MHD activity. This is shown by the measurement of the redistributed fast-ions in the time interval following the crashes and by dedicated experiments with off-axis NBI deposition. All the measurements in MHD quiescent plasmas are well reproduced by the neo-classical fast-ion distribution functions from the TRANSP code.

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