**First Measurements with an Imaging Neutral Particle Analyzer in the ASDEX Upgrade tokamak**

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A new Imaging Neutral Particle Analyser (INPA) [1-2] diagnostic has been installed and commissioned at the ASDEX Upgrade (AUG) tokamak. The AUG INPA diagnostic measures fast neutrals escaping the plasma after CX reactions. The neutrals are ionised by a 20 nm carbon foil and deflected towards a scintillator by the local magnetic field. The use of a neutral beam injector (NBI) as active source of neutrals provides radially resolved measurements while the use of a scintillator as active component allows us to cover the whole plasma along the NBI line with good phase-space resolution (~ 10 keV and 8 cm); making it suitable to study localized fast-ion redistribution in phase-space. The diagnostic explores pitch angles () close to 0.5 at the magnetic axis and close to 0.7 at the plasma edge in the low field side.

First measurements taken in MHD-quiescent plasmas are compared with neoclassical simulations to validate the synthetic diagnostic, showing a good agreement within errorbars. Energy and position localised redistributions of FI were found during phases with strong FI driven modes such as BAE and TAE, showing the capability of INPA to measure localized fast-ion transport.

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[1] X.D. Du et al., Nucl. Fusion **58** 082006 (2018)

[2] J. Rueda-Rueda et al., RSI **92**, 043554 (2021)