

Abstract Submitted  
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**Changes in Electron Temperature Fluctuations and Transport with Isotropic Mass in L-mode Plasmas at ASDEX-Upgrade<sup>1</sup>** PEDRO MOLINA CABRERA, MIT Plasma Science and Fusion Center, Cambridge, USA, TOBIAS GOERLER, GARRARD CONWAY, Max Planck Institute for Plasma Physics, Garching, Germany, RACHEL BIELAJEW, PABLO RODRIGUEZ-FERNANDEZ, ANNE WHITE, CHRISTIAN YOO, MIT Plasma Science and Fusion Center, Cambridge, USA, ASDEX UPGRADE TEAM TEAM<sup>2</sup> — Recent experiments at ASDEX Upgrade (AUG) were performed to study the differences in turbulent transport between plasmas with varying ion masses, hydrogen and deuterium. These measurements are the first step in a rigorous gyrokinetic model validation effort, actively underway at AUG, to understand the effect of ion mass on turbulence and transport in the core of tokamaks. A 24-filter radial comb Correlation Electron Cyclotron Emission (CECE) has been recently upgraded with a new antenna that allows a beam radius of  $\sim 1.5$ cm at the resonance, enabling  $\delta T_e$  measurements with  $k_{\perp} < 2\text{cm}^{-1}$  ( $k_{\perp}\rho_s < 0.36$ ) resolution between  $\rho_{Tor}=0.65-0.8$ . Fluctuation measurements have been performed in hydrogen and deuterium ECH-heated L-mode plasmas ( $B_T=2.37\text{T}$ ,  $I_P=1\text{MA}$ ,  $600\text{kW ECH}$ ,  $\bar{n}_e=2.5e19\text{ m}^{-3}$ ). The  $n_e$ ,  $T_e$ ,  $T_i$ , and  $v_{Tor}$  profiles are well matched between the discharges, within error. The shape of the  $\delta T_e/T_e$  fluctuation spectra differ significantly, and the total fluctuation level (integrated between 0-100kHz) shows lower fluctuation levels in hydrogen compared to deuterium, in contrast to energy confinement scaling expectations.  $\delta T_e$  correlation lengths and linear stability analysis will also be presented.

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