Main-ion thermal transport and poloidal rotation in the H-mode pedestal SHAUN HASKEY, BRIAN GRIERSON, PPPL, COLIN CHRYSTAL, GA, ARASH ASHOURVAN, DEVON BATTAGLIA, TIMOTHY STOLTZFUS-DUECK, PPPL, EMILY BELLI, GA, LOTHAR SCHMITZ, UCLA — Measurements in DIII-D of the main-ions (D+) show that the ion thermal diffusivity ($\chi_i$) is approximately neoclassical (NC) in the H-mode pedestal, whereas the poloidal rotation ($V\theta$) is significantly larger than predicted by NC theory. D+ temperatures ($T_i$) can be half the value of the standard impurity measurements ($T_{imp}$) in the steep gradient region of the pedestal on DIII-D. These new measurements greatly improve the accuracy of the electron and ion heat flux ($Q_i$) calculations, resolving historical issues such as negative $Q_i$, which could occur when the ion-electron power exchange was overestimated using $T_{imp}$. The experimental power balance $\chi_i$ is approximately at the NC level in an ITER baseline shot and will be presented across a range of collisionalities and compared with modeling using NCLASS, NEO, and XGC0. NC ion thermal transport suggests that an MHD-like mode (i.e KBM), which would be expected to drive transport in all channels including ion thermal, is not the dominant mechanism for transport in the pedestal.

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