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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 (χi) is approximately neoclassical (NC) in the H-mode pedestal, whereas the poloidal rotation (Vθ) is significantly larger than predicted by NC theory. D+ temperatures (Ti) can be half the value of the standard impurity measurements (Timp) 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 (Qi) calculations, resolving historical issues such as negative Qi, which could occur when the ion-electron power exchange was overestimated using Timp. The experimental power balance χi 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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