

Abstract Submitted  
for the DPP20 Meeting of  
The American Physical Society

**Transport comparison of ASDEX Upgrade and Wendelstein 7-X ECRH hydrogen plasmas**<sup>1</sup> EVAN SCOTT, BENEDIKT GEIGER, University of Wisconsin - Madison, MARC BEURSKENS, GREGOR BIRKENMEIER, EMILIANO FABLE, GOLO FUCHERT, JOACHIM GEIGER, ULRICH STROTH, YURIY TURKIN, GAVIN WEIR, Max-Planck-Institut für Plasmaphysik, ASDEX UPGRADE TEAM, W7-X TEAM — Turbulence-induced heat transport is a challenging field of study in fusion energy science due to inherently complex and non-linear behavior. Here, the heat transport in electron cyclotron-heated hydrogen plasmas has been compared between the ASDEX Upgrade (AUG) tokamak and the Wendelstein 7-X (W7-X) stellarator using the ASTRA code to shed light on the effect of magnetic configuration on transport. While the electron heat diffusivity  $\chi_e$  is comparable between AUG L-mode and W7-X plasmas when the input heating power is scaled to the plasma surface area, the ion heat diffusivity  $\chi_i$  is lower in W7-X at mid-radius by a factor of 3 or greater. This is also seen when the analysis is performed using matched AUG and W7-X density and temperature profiles. This may be indicative of the  $1/R$  dependence of interchange turbulence or reduced turbulent transport in the 3D magnetic field structure of W7-X.

<sup>1</sup>This work has been carried out within the framework of the EUROfusion Consortium and has received funding from the Euratom research and training programme 2014-2018 and 2019-2020 under grant agreement No 633053. The views and opinions expressed herein do not necessarily reflect those of the European Commission.

Evan Scott  
University of Wisconsin - Madison

Date submitted: 29 Jun 2020

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