

Abstract Submitted  
for the DPP20 Meeting of  
The American Physical Society

**Updates and Future Development of The He/Ne Beam Diagnostic for Line Ratio Spectroscopy in the Island Divertor of Wendelstein 7-X**<sup>1</sup> ERIK FLOM, O. SCHMITZ, UW-Madison, T. BARBUI, PPPL, M. JAKUBOWSKI, F. HENKE, C. KILLER, M. KRYCHOWIAK, R. KOENIG, Max Planck Institute for Plasma Physics, S. LOCH, J. SCHMITT, Auburn University, J.M. MUNOZ-BURGOS, Astro Fusion Spectre, THE W7-X TEAM TEAM — A line-ratio spectroscopy system based on a thermal helium collisional radiative model (CRM) has been implemented to enable measurement of  $n_e$  and  $T_e$  above the horizontal divertor targets in two modules of the Wendelstein 7-X optimized stellarator. Neon has also been implemented in select discharges to investigate the expansion of the measurement envelope of the diagnostic. In this work, modeling results are presented for standard attached and detached conditions in the divertor of Wendelstein 7-X to show the helium and neon emissivity as a function of radial position above the divertor target. Also shown is a first-time comparison between helium beam data and reciprocating Langmuir probe data using a novel flux coordinate system within the standard 5/5 island chain.

<sup>1</sup>Acknowledgement: This work has been funded by the Department of Energy under grant DE-SC0014210. 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

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Date submitted: 28 Jun 2020

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