

Abstract Submitted
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Advances in Simulating Detached Plasmas in DIII-D Using UEDGE¹ M.E. GROTH, Aalto University, E.T. MEYER, G.D. PORTER, M.E. FENSTERMACHER, D.N. HILL, C.J. LASNIER, M.E. RENSINK, T.D. ROGNLIEN, LLNL, N.H. BROOKS, A.W. LEONARD, General Atomics, J.G. WATKINS, SNL — Simulations of detached divertor plasmas in lower single-null L-mode discharges in DIII-D with the fluid edge code UEDGE show that the measured total radiated power, total ion current and total power to both the inner and outer targets can be reproduced by the simulations within the uncertainty of the measurements. These results were obtained by including cross-field drifts and assuming chemical sputtering yields twice as high as published by Davis et al. [1]. However, by assuming higher chemical sputtering yields, the divertor carbon source, as indicated by low charge-state carbon emission, is overestimated by almost an order of magnitude indicating that deuterium radiation may play a dominant role. The impact of these imposed radiative losses on the electron density and temperature, as well as deuterium radiation across the outer divertor leg will be presented.

[1] J.W. Davis, A.A. Haasz, J. Nucl. Mater. **241-243**, 37 (1997).

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