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Modeling of the Weak Dependence of Core Plasma Carbon Content on the Wall Sputtering Rates in DIII-D using the 2D Multifluid Code UEDGE[1] W.P. WEST, T.E. EVANS, N.H. BROOKS, General Atomics, D.G. WHYTE, University of California, San Diego, R.C. ISLER, Oak Ridge National Laboratory, G.D. PORTER, N. WOLF, Lawrence Livermore National Laboratory — The 2D multifluid code UEDGE has been used to model carbon transport in the edge and divertor plasma in DIII–D under H–mode conditions. Recent analysis of spectroscopic data from DIII–D has shown that over the past several years, as boronization of the DIII–D walls has been repeated many times, the total carbon sputtering rates have decreased by over a factor of four, yet the typical core plasma carbon content has not changed. Within the UEDGE code, the carbon sputtering rate has been changed by a factor of six, while keeping the other code inputs constant. Over this range of carbon sputtering, the carbon concentration in the core plasma changed by less than 30%. Examination of the parallel forces that transport carbon ions from the divertor walls to the core plasma will be presented for the several UEDGE solutions over the range of sputtering coefficients. The implications for reducing core contamination will be discussed.

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☐ Prefer Oral Session
☒ Prefer Poster Session

Special instructions: DIII-D Poster Session 2, immediately following N Jalufka

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