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OEDGE Modeling of Collector Probe measurements in L-mode from the DIII-D tungsten ring campaign[1] J.D. ELDER, Elder Fusion Incorporated, P.C. STANGEBY, UofToronto, Z. UNTERBERG, ORNL, D. DONOVAN, UTK, W.R. WAMPLER, J. WATKINS, SNL, T. ABRAMS, GA, A.G. MCLEAN, LLNL — During the tungsten ring campaign on DIII-D, a collector probe system with multiple diameter, dual-facing collector rods was inserted into the far scrape off layer (SOL) near the outer midplane to measure the plasma tungsten content. For most probes more tungsten was observed on the side connected along field lines to the inner divertor, with the larger probes showing largest divertor-facing asymmetries The OEDGE code is used to model the tungsten erosion, transport and deposition. It has been enhanced with (i) a peripheral particle transport and deposition model to record the impurity content in the peripheral region outside the regular mesh, and (ii) a collector probe model. The OEDGE results approximately reproduce both the divertor-facing asymmetries and the radial decay of each collector probe profile. The effect of changing impurity transport assumptions and wall location are examined. The measured divertor-facing asymmetries imply a higher tungsten density in the plasma upstream of the probe; this was expected theoretically from the effect of the parallel ion temperature gradient force driving upstream transport of tungsten from the outer divertor and was also found in the code analysis.

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