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Explicit Representation of Main-Chamber Recycling in the OEDGE Boundary Code[1] S. LISGO, P.C. STANGEBY, A.G. MCLEAN, J.D. ELDER, U. Toronto, M.E. FENSTERMACHER, M. GROTH, LLNL, B.D. BRAY, N.H. BROOKS, W.P. WEST, GA, D.L. RUDAKOV, UCSD, J.G. WATKINS, SNL, D.G. WHYTE, UW — Recent tokamak experiments indicate that significant plasma contact with the main-chamber walls can occur in some operating regimes, in addition to recycling at the divertor targets. In order to investigate the role of main-chamber recycling on core fuelling and impurity behavior, the OSM-EIRENE-DIVIMP (OEDGE) code has been modified to explicitly include magnetic field lines that terminate on $toroidally-symmetric$ main-chamber surfaces, which allows the model to include simultaneous plasma contact for both the divertor targets and the wall. This generalization of the computational mesh is made feasible by the 1D nature of the numerical methods employed in the OSM plasma solver. The analysis is restricted to discharges where the majority of the main-chamber plasma contact occurs on a toroidally-symmetric limiter surface ("window-frame" geometry). Results are presented for a low-density, L-mode DIII-D plasma.

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