Including RF Antenna Effects in Scrape-Off-Layer-Turbulence Simulations[1] A.M. DIMITS, M.V. UMANSKY, I. JOSEPH, T. ROGNLIEN, LLNL, J. MYRA, Lodestar Corp., D. SMITHE, Tech-X Corp. — Capabilities for including RF-sheath boundary conditions and ponderomotive forces associated with RF launching structures on turbulent solutions such as those from SOLT3D, a 3D BOUT++-based extension of the SOLT model [1], are being developed. Inclusion of ponderomotive effects involves a straightforward implementation of appropriate source terms in the model equations. The simplest implementation of RF-sheath boundary conditions involves regions on the outer flux surface biased at an effective potential relative to other parts of the surface and other boundary surfaces. In order to apply this capability to more complicated domains, e.g., with indentations representing antenna and shielding structures and boundaries not conformal with flux surfaces, a Finite-Element-Method (FEM) calculation of steady solutions of the SOLT3D model has been implemented. The values of fields on a flux surface in the FEM-based solutions can be used as boundary conditions in SOLT3D or other BOUT++-based simulations. Progress on developing such a simulation workflow will be discussed, and results from verification studies and initial simulations will be presented. [1] J. R. Myra, D. A. Russell, D. A. D'Ippolito, Phys. Plasmas **15**, 032304 (2008)

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