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A 1.5D coupled RF / transport model for ponderomotive density modification of the SOL near high power RF actuators.[1] RHEA BARNETT, University of Newcastle, DAVID GREEN, JEREMY LORE, Oak Ridge National Laboratory, DAVID SMITHE, Tech-X, JAMES MYRA, Lodestar, COLIN WATERS, University of Newcastle — Efficient coupling of RF power to a magnetically confined fusion plasma is essential for robust operation of future devices (e.g. ITER). The scrape off layer density profile directly affects RF wave propagation, where the RF waves themselves can also modify the plasma density via the ponderomotive force. A 1D (parallel to the confining magnetic field), coupled full-wave RF and plasma transport solver was previously developed. Here we present an extension of this work via the inclusion of perpendicular components of the ponderomotive force in a 1.5D plasma transport code. Simulation results are compared with experimental data from the LArge Plasma Device (LAPD). The description of perpendicular flows driven by the ponderomotive force necessitates extension to higher dimensions, and progress on the development of this capability will be discussed.

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