

Abstract Submitted  
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**Far field radio-frequency sheath modeling**<sup>1</sup> D.A. D'IPPOLITO, J.R. MYRA, Lodestar Research Corp., H. KOHNO, Kyushu University, R. OCHOUKOV, D.G. WHYTE, MIT — Recent probe data on Alcator C-Mod suggests that fast wave propagation to regions far from the antenna can produce large rf sheaths ( $\sim 100$  V). This data provides a good test case for 1D and 2D models of far field sheath generation. The 1D model [D. D'Ippolito et al., Phys. Plasmas 15, 102501 (2008)] shows that coupling between the fast and slow waves at the limiter can drive sheath potentials when rapid spatial variation (associated with the limiter geometry) is assumed. Using the rfSOL code [H. Kohno et al., Phys. Plasmas 19, 012508 (2012)] a new 2D simulation shows that rapid spatial variation in the magnetic field direction relative to the limiter can produce slow waves and rf sheath potentials varying rapidly along the sheath. While neither of these models treats the actual experimental geometry, they provide support for the idea that the observed potentials are driven by fast wave – slow wave coupling at the limiter. Understanding this physics is important for minimizing rf-enhanced impurities in rf experiments.

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