

Abstract Submitted
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Experimental Study of RF Sheaths due to Shear Alfvén Waves in the LAPD¹ MICHAEL MARTIN, BART VAN COMPERNOLLE, TROY CARTER, WALTER GEKELMAN, PATRICK PRIBYL, UCLA, Dept. of Physics, DANIEL A. D'IPPOLITO, JAMES R. MYRA, Lodestar Research Corp. — Ion cyclotron resonance frequency (ICRF) heating is an important tool in current fusion experiments and will be an essential part of the heating power in ITER. A current limitation of ICRF heating is impurity generation through the formation of radiofrequency (RF) sheaths, both near-field (at the antenna) and far-field (e.g. in the divertor region). Far-field sheaths are thought to be generated through the direct launch of or mode conversion to shear Alfvén waves. Shear Alfvén waves have an electric field component parallel to the background magnetic field near the wall that drives an RF sheath.² In this study we directly launch the shear Alfvén wave and measure the plasma potential oscillations and DC potential in the bulk plasma of the LAPD using emissive and Langmuir probes. Measured changes in the DC plasma potential can serve as an indirect measurement of the formation of an RF sheath because of rectification. These measurements will be useful in guiding future experiments to measure the plasma potential profile inside RF sheaths as part of an ongoing campaign.

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²D. A. D'Ippolito and J. R. Myra, *Phys. Plasmas* **19**, 034504 (2012)

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