

Abstract Submitted
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The role of presheaths in establishing anisotropy at the sheath edge¹ NOAH HERSHKOWITZ, DONGSOO LEE, University of Wisconsin - Madison, GREG SEVERN, University of San Diego — Presheaths provide ion acceleration to the Bohm velocity. We consider modifications to the parallel and perpendicular IVDFs associated with the presheath. Laser-induced fluorescence (LIF) data obtained with a diode laser near a negatively-biased plate give the transverse and parallel metastable ion velocity distribution function profiles (measured with respect to the normal to the plate) in a low temperature, low pressure, DC multidipole argon discharge plasma. For a neutral pressure of 0.3 mTorr, the transverse temperature increases along the presheath from 0.026 eV in the bulk plasma to 0.058 eV at the presheath sheath boundary. This result is compared with PIC code simulations² and experimental results³ found in the literature. The general dependence on presheath characteristics on neutral pressure is discussed. Apparently contradictory experiments and PIC code results are resolved.

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²A. Meige et al., *Phys. Plasmas*, 14, 032104 (2007)

³N. Claire et al., *Phys. Plasmas*, 13, 062103 (2006)

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