Abstract Submitted
for the GEC08 Meeting of
The American Physical Society

Presheaths are a useful concept; their role in establishing anisotropy at the sheath edge NOAH HERSHKOWITZ[1], Dept. Engineering Physics, UW-Madison, Madison, Wisconsin 53706, GREG SEVERN[2], Dept. Physics, USD, San Diego, California 92110 — Presheaths provide ion acceleration to the Bohm velocity. Presheaths are a useful concept for collisionless and weakly collisional plasmas, but their nature and their affects on ions depend on the neutral pressure and the mechanisms of ion production. Presheaths depend on chamber geometry and ion-neutral collisions as the neutral pressure is increased, and cease to be interesting when the collision lengths become comparable to the sheath thickness. They are certainly complicated by the presence of more than one ion species, positive or negative; the question is by how much. At the lowest pressures they affect the spread in the parallel ion velocity distribution function (IVDF), which can be interpreted as the ion "temperature". At higher pressures ion-neutral collisions determine the perpendicular ion temperature as well. This talk will consider modifications to the parallel and perpendicular IVDFs (measured with respect to the normal to wafer surfaces) associated with the presence of presheaths, and will try to make sense of out of lots of apparently contradictory experimental results.

[1]work funded by DOE grant No. DE-FG02-97ER54437
[2]work funded by DOE grant No. DE-FG02-03ER54728

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Date submitted: 12 Jun 2008 Electronic form version 1.4