Abstract Submitted
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Experimental measurement of plasma sheath overlap T.E. SHERIDAN, Ohio Northern University — The plasma sheath is the boundary layer that separates a plasma from a surface such as an electrode or wall. The sheath adjacent to a large flat surface has a characteristic width s_0, which is the planar sheath width. If the surface has a step of height d, then some length scale t_0 describes the lateral transition at the sheath edge from one level to the other. Two parallel steps separated by a distance W form a trench. When $W < t_0$, we expect that the sheaths from the two steps overlap and the sheath is pushed out of the trench. We have measured sheath overlap for a trench with variable width W using a two dust particles. The dust particles float at the sheath edge, so their height above the electrode gives a quantitative measure of the sheath width. When $W \gg s_0$ the cluster height is independent of W. When $W < s_0$ the dust particles move upward, indicating that sheath overlap is occurring.

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