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Using a One-Dimensional Dust String as an In-Situ Probe in a Complex Plasma JAY KONG, KE QIAO, BRANDON HARRIS, ANGELA DOUGLASS, ZHUANHAO ZHANG, LORIN MATTHEWS, TRUELL HYDE, CASPER - Baylor University — It has recently been shown that dust particles within a complex plasma can be employed as an in-situ diagnostic. In this work a single, a one-dimensional dust string, formed inside a glass box placed on the lower powered electrode within a GEC rf reference cell, is used to investigate the ion drag effect within the sheath inside the box. The dynamic behavior for dust particles located above and below the ion rich region will be shown to be different and an oscillation phase change for dust particles located on opposite sides of this region is shown to exist. The manner in which the ion rich region, which is a function of the ion drifting speed, varies with applied DC bias and/or background pressure and its affect on the dynamic behavior of the dust particles will also be examined.

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