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Analysis of one-dimensional flows in a dc glow discharge dusty plasma¹ ZACHARY ALDEWERELD, EDWARD THOMAS, Auburn University — Dusty plasmas are four component plasmas consisting of ions, electrons, neutrals, and charged microparticles. The charged microparticles (i.e., the dust) are suspended and confined by potential wells in the plasma. This experiment utilizes a new segmented electrode that is used to control the plasma. The electrode is separated into two section: a well section that is used to form a stable cloud and a channel section which is used to create a linear path for dust flows. To actively control the dust motion, the two sides can be biased independently. The electrode has been used inside the Auburn Dusty Plasma Experiment (DPX) to investigate one-dimensional flows in a dusty plasma. Two-dimensional particle image velocimetry (PIV) techniques are used to illuminate the particles and measure their transport. By analyzing these flows along the direction of their motion, the motion of the dust is characterized. Results of this analysis will be presented.

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Prefer Oral Session
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