

Abstract Submitted  
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**A Single Particle Deflection Experiment for MDPX<sup>1</sup>** BRIAN LYNCH, UWE KONOPKA, EDWARD THOMAS, Auburn University — Complex plasmas contain, in addition to the usual electrons, ions, and neutral atoms, macroscopic electrically charged (nanometer to micrometer) sized “dust” particles. Based on the ratio of the electrostatic potential to kinetic energy, these micro-particles can exhibit gaseous, fluid, and crystal-like behavior. For this reason, complex plasmas are a unique testing ground to study multi-particle systems. In spite of the large charge that can be acquired by the dust grains, their charge-to-mass ratio can be quite low compared to other plasma particles. Thus, the direct impact of electric and magnetic fields on dust dynamics is relatively small, and as a result, direct measurements of the particle charge is quite difficult. However, a charge measurement using dust motion in magnetic field still seems possible - although challenging. In this presentation we discuss our initial efforts to perform a single particle  $g \times B$  deflection measurement to determine the particle charge. We use the Magnetized Dusty Plasma Experiment (MDPX) with a magnetic field orientation perpendicular to gravity and observe the deflection of particles dropped vertically downward.

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Brian Lynch  
Auburn University

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