

Abstract Submitted
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Ion Flows and Ion Temperature in Magnetized Dusty Plasmas

EVAN AGUIRRE, EDWARD THOMAS, Auburn University — We report measurements of the ion velocity distribution function (IVDF) in magnetized and unmagnetized dusty plasmas. Measurements were obtained using laser induced fluorescence (LIF) by injecting the laser perpendicular and parallel to the background magnetic field for a variety of plasma conditions. We present measurements of the ion flow in three locations of interest: the bulk plasma, the dust cloud, and the plasma sheath just above the electrode. The spatial region surrounding the dust cloud is studied in detail with resolution of 3 mm. Current theories of the equilibrium flow have not been firmly established by experimental results, which are currently lacking. We also discuss implementation of LIF to the Magnetized Dusty Plasma Experiment (MDPX) and other dusty plasmas with high magnetic fields ($B > 1$ T) and pressure ($P > 20$ mTorr) where LIF generally ceases to function.

Evan Aguirre
Auburn University

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