

Abstract Submitted  
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**Thermal Characteristics of Dust Particles in Complex Plasmas  
with Dust Acoustic Waves<sup>1</sup>** R. FISHER, E. THOMAS, Auburn University —

In a complex (dusty) plasma, charged micron-sized particles are suspended in a dc glow discharge plasma. The velocity space distribution of particles in the dust cloud was measured using stereoscopic particle image velocimetry (StereoPIV). As has been shown previously [J. Williams and E. Thomas, Jr., *Phys Plasmas*, **14**, 063702 (2007)] the velocity distribution of stable dust clouds can be modeled with a maxwellian distribution function, from which a characteristic kinetic temperature of the dust cloud can be obtained. In this study, the velocity distribution of dust particles was measured in dusty plasmas which contained driven dust acoustic waves (DAW). It was found that the measured velocity distributions of regions of the dust cloud containing DAW could not be adequately described by a maxwellian distribution function. This presentation describes the first attempts to find and interpret a suitable alternative velocity distribution model.

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