

Abstract Submitted  
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**Spatially resolved energy distribution measurements in a weakly-coupled dusty plasma** ROSS FISHER, EDWARD THOMAS, Auburn University — The phase space distribution (PSD) for the dust component of a fluid-like dusty plasma was measured using the stereoscopic particle image velocimetry (stereo-PIV) diagnostic. The spatially resolved PSD measurements allowed the distributions of the drift, thermal, and gravitational potential energy densities to be directly calculated throughout the dust cloud structure. The three dimensional spatial distributions of the PSD components (the number density, drift velocity, and distribution width/shape) and the energy density distributions are shown. Additionally, it is shown that the tri-normal probability distribution function provides a substantially better fit to the stereo-PIV measurements than the canonical Maxwellian distribution. This work is supported by the NSF and NASA.

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