

Abstract Submitted  
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**Observation of Dust Cloud Phenomena in an Argon D.C. Glow Discharge**<sup>1</sup> EMILY MARGOLIS, Pennsbury High School, Fairless, PA, ANDREW POST-ZWICKER, Princeton Plasma Physics Laboratory — A structural novelty has been observed in dust clouds in a low temperature D.C. glow discharge. A cloud comprised of silica particles 3 to 5 microns in diameter is levitated in an Argon plasma, illuminated with an 8 mW Helium-Neon laser. Striations, or dark bands, as well as various other voids have been previously documented in dusty plasmas. However, in this study, another configuration of empty space has been observed in which a void acts as a partition, dividing the cloud into two sections. Together the separate and distinct halves exhibit the qualities of a single cloud. The lower portion is organized into the typical lattice structure while the particles in the upper section only act as a liquid. An average cloud contains both lattice and liquid like regions. A scan over the cloud with a cylindrical lens expanded laser beam proves the existence of a void between the pieces. A qualitative analysis of the clouds will be presented, including plasma parameters and images.

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