Particle Dynamics in a Gravitationally Variable Argon DC Glow Discharge Dusty Plasma\textsuperscript{1} MICHAEL HVASTA, BRANDON BENTZLEY, JUSTIN NIEUSMA, RACHEL SHERMAN, The College of New Jersey, ANDREW ZWICKER, Princeton Plasma Physics Lab, DPX TEAM\textsuperscript{2} — Dusty plasmas were studied in an experiment designed to investigate the impact of gravity on particle (80 micron) dynamics. The experiment used a CCD camera and thin laser-sheet to image silica dust clouds that were exposed to UV light (100W, 365nm) within an argon DC glow discharge plasma (300mT, 0.65ma) aboard NASA’s “Weightless Wonder.” The Weightless Wonder is a plane capable of creating a 0-1.8g environment for 10-25 seconds by flying through a series of parabolic trajectories. Interparticle spacing was studied for a variety of equilibrium positions (where gravitational and electrostatic forces offset) during the flight. Particle position and velocity were analyzed as a function of g. Theory and results are presented.

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