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Formation, transport and effects of UV light on a fluorescent dust cloud.[1] ENRIQUE MERINO, Ramapo College of New Jersey, ANDREW POSTZWICKER, Princeton Plasma Physics Laboratories — Typically, the behavior of laboratory dusty plasmas is studied by laser scattering techniques, which give a 2D slice of the dust cloud, or by the use of scanning techniques through the cloud's volume. A new diagnostic technique has been devised to study 3D behavior and cloud formation with a single charge-coupled device (CCD) camera. A fluorescent organic dust is used to create a dust cloud in an argon DC glow discharge plasma. By using a 100W ultra-violet (UV) light, the fluorescent particles can be clearly seen during and after cloud formation. Rapid upward motion of particles (Vmax=100mm/s) is observed during formation, followed by an expansion of the cloud (Vmax=30mm/s) and transport along the boundary of the plasma. After the dust cloud has formed, the UV light causes rotation of the edge of the cloud ($\approx$ 3mm/s), while particles in the center of the cloud remain stable. Displacements of several millimeters up and towards the UV light have also been recorded by modulating the UV light. Results from observations and probe measurements will be presented.

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