

Abstract Submitted
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Transport and Imaging of Fluorescent Dust in a DC Glow Discharge Plasma¹ WILL GANNETT², EMILY MARGOLIS, EVERETT SCHLAWIN, ANDREW POST-ZWICKER, Princeton Plasma Physics Laboratory — A fluorescent dust cloud illuminated by a longwave mercury UV lamp rather than the traditional laser has been produced in a DC glow discharge plasma. The luminescence of the dust particles in the wide UV beam allows imaging anywhere in the chamber, making it possible to observe the initial formation of a cloud as well as dust phenomena not in anticipated locations. The luminescence of the dust particles is sufficiently intense to be recorded by a charge coupled device (CCD) camera at 30 fps, which can be analyzed to obtain a two-dimensional velocity profile for the cloud. This velocimetry is far simpler than contemporary laser methods yet provides temporal and spatial resolution sufficient to analyze a variety of dust phenomena, including dust acoustic waves. A comparison of dust types and illumination sources will be presented, as well as observations of dust cloud formation and transport.

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