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Characterization of the Horizontal Confinement Produced by a Glass Box in a Complex Plasma JACE BRADSHAW, ANGELA DOUGLASS, Ouachita Baptist University — The majority of plasmas in the visible universe are complex plasmas, consisting of not only electrons, ions, and neutral particles, but also small, usually micron-sized particles called "dust." Recent complex plasma experiments have placed a glass box on the lower electrode of a GEC RF reference cell in order to alter the electric confinement experienced by micrometer-sized particles in the plasma. While this has led to interesting observations, such as vertical chains and Coulomb balls, the nature of the confinement is not well understood. In this experiment, a single melamine formaldehyde dust particle was levitated in the plasma sheath and contained by a glass box. The dust particle was then struck by a laser pulse to perturb the particle from its equilibrium position. The trajectory of the particle was analyzed to determine the nature of the electric potential produced by the walls of the glass box. Trials were run with varying pressures, particle sizes, box sizes, and plasma powers to determine the effect of each parameter on the confinement.

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