

Abstract Submitted
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A Consistent Model of Plasma- The Potential in a Glass Box¹

LORI SCOTT, LORIN MATTHEWS, TRUELL HYDE, CASPER, Baylor University — Numerical modeling has become a valuable diagnostic tool for experiments in the modern physical world. In modeling the dynamics of dust particles confined in a glass box placed on the lower electrode of a GEC cell, there are many interactions between the dust, plasma, and boundaries that need to be accounted for more accurately. The lower electrode affects the plasma conditions in the sheath, altering the electron and ion densities. These local variations in the plasma determine the charge accumulated on the surface of the glass box and the resulting electrostatic potential within it. This work describes the steps taken to build a consistent model of the relationship between the plasma conditions and the confining electric potential due to the glass box in order to more accurately model the charging and dynamics of dust clusters and strings.

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