

Abstract Submitted
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Nonlinear response of vertical particle chains to driven oscillations.¹ ZHIYUE DING, KE QIAO, JIE KONG, LORIN MATTHEWS, TRUPELL HYDE, CASPER - Baylor University — Vertical chain structures of two or more particles were formed inside a glass box placed on the lower electrode of a modified GEC reference cell. Vertical oscillations of the particles were driven by a sinusoidal potential applied to the lower electrode, and the particle response was studied for various driving parameters. While the particle response generally increases linearly with the driving amplitude, a range of driving amplitudes was found where the particle response is inversely proportional to the driving amplitude. The specific range can vary depending on the experiment parameters. This work explores the possibility that this behavior is due to two regions within the plasma sheath and the different characteristics of the electric field in each region.

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Truell Hyde
CASPER - Baylor University

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