

Abstract Submitted
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The Relationship between Dust Particle Structures and Confinement.¹ MUDI CHEN, JIE KONG, KE QIAO, JORGE CARMONA-REYES, LORIN MATTHEWS, TRUELL HYDE, CASPER - Baylor University — The structure of dust particle systems immersed in plasma is determined by both the particle-particle interaction and the external confinement. Here we present recent experimental results obtained from exploring the relationship between the external confinement and the symmetry of the structures formed by the dust particles. Various structures such as vertical chains, zigzag and helical structures, and horizontal layers have previously been formed experimentally [1] using varying confinement methods (e.g. a circular cutout placed on the lower electrode and a 1/2or 1_glass box placed on the lower electrode). In the case at hand, after forming a specific structure single dust particles were used as probes to map the local confinement allowing determination of the ratio between the horizontal and vertical confinement. [1] Truell Hyde, Jie Kong and Lorin Matthews, Physical Review E,87 053106 (2013).

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