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Determination of Plasma Sheath and Dust Parameters from Dust Particle Oscillation Modes KE QIAO, JORGE CARMONA-REYES, BERNARD SMITH, MIKE COOK, JIMMY SCHMOKE, TRUELL HYDE, CASPER - Baylor University — The fundamental parameters of a complex dusty plasma system, including particle charge and dust Debye length, can be determined from the thermally excited oscillation modes of an arbitrary number of dust particles (either a dust cluster or plasma crystal) confined on a 2D plane within the plasma sheath produced above the lower electrode of a GEC reference cell [Ref. 1-2]. This paper will discuss an experimental technique allowing the strength of the confining potential well on the horizontal direction to be determined in the same manner. This technique will be further applied to systems of dust grains comprised of both melamine formaldehyde and ferromagnetic monodisperse particles.

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