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A Study of the Resonance Frequency of Conductive Grains in a Dusty Plasma ZHUANHAO ZHANG, TRUELL HYDE, LORIN MATTHEWS, JIE KONG, JORGE CARMONA REYES, CASPER - Baylor University, KE QIAO, JIMMY SCHMOKE, MIKE COOK, CASPER-Baylor University — Over the past decade, the dynamic behavior of insulating (melamine formaldehyde) dust particles immersed in a complex plasma have been studied extensively. Phenomena such as disordered or ordered structures, the interaction of dust particles with the wake field produced by the ion flow, and the interaction between particles have all been the subject of both experimental and numerical investigation. However, the investigation of conducting materials in dusty plasmas has not yet received the same attention. In this work, the resonance frequency of conductive grains at various pressures and powers within a standard GEC reference cell is examined and the results compared to those for insulating grains (MF). Since the resonance frequency of a dust grain is proportional to its charge-to-mass ratio, such studies are beneficial in helping determine the particle charge. Preliminary results will be presented showing that in similar plasma environments, conducting grains do not exhibit the same behavior as non-conducting grains possibly due to differences in the charging process.

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