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**Complex Plasma Studies on Ferromagnetic Dust** JORGE CARMONA, MATTHEW BENESH, CHELSEA CHAN, JIMMY SCHMOKE, MICHAEL COOK, TRUELL HYDE, CASPER Baylor University — Dust particles imbedded within plasma are charged through collisions with free electrons and ions. If the ratio of the inter-particle potential energy to the average kinetic energy is sufficient, the particles form disordered or ordered structures depending on whether short or long range ordering dominates. For dust particles forming crystalline structures residing within two-dimensionally extended lattice planes, various stable crystalline phases have been observed experimentally. The dynamics of this behavior is driven in large part by the charge on the particle. Although the charging process for insulating materials has been examined in detail, conducting materials have not yet been fully investigated. This study presents data for  $4.5 \mu\text{m}$  ferromagnetic dust examined under several pressure and power conditions within a standard GEC reference cell.

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