Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Properties of ordered structures with and without magnetic fields in the Magnetized Dusty Plasma Experiment[1] EDWARD THOMAS, UWE KONOPKA, Auburn University, ROBERT MERLINO, The University of Iowa, MARLENE ROSENBERG, University of California - San Diego — The Magnetized Dusty Plasma Experiment (MDPX) at Auburn University has observed the formation of ordered structures of dust particles (from 0.5 micron up to 3 micron diameter) at high magnetic field (above 1 T) in which the spatial pattern of the particles is determined by a wire mesh that is embedded in an electrode that is 30 to 40 mm away from the particles. The most recent experiments have shown the dust particles can mirror the shape of the electrode up to separations of 60 to 70 mm. However, it remains unclear what processes are present in the strongly magnetized background plasma that leads to this pattern formation. In this presentation, we will discuss the formation of a standard plasma crystal and compare it with the imposed, ordered structure. Results may be presented on the transition from one spatial configuration to the other.

[1]This work is supported by funding from the U. S. Department of Energy Grant Number DE - SC0010485

Edward Thomas
Auburn University

Date submitted: 14 Jul 2016 Electronic form version 1.4