Abstract Submitted
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Imposed, ordered dust structures and other plasma features in a strongly magnetized plasma[1] EDWARD THOMAS, SPENCER LEBLANC, BRIAN LYNCH, UWE KONOPKA, Auburn University, ROBERT MERLINO, University of Iowa, MARLENE ROSENBERG, UCSD — The Magnetized Dusty Plasma Experiment (MDPX) device has been in operation for just over one year. In that time, the MDPX device has been operating using a uniform magnetic field configuration up to 3.0 Tesla and has successfully produced plasmas and dusty plasmas at high magnetic fields. In these experimental studies, we have made observations of a new type of imposed, ordered structure in a dusty plasma at magnetic fields above 1 T [E. Thomas, Jr., et al., Phys. Plasmas, 22, 030701 (2015)]. These dusty plasma structures are shown to scale inversely with neutral pressure and are shown to reflect the spatial structure of a wire mesh placed in the plasma. Additionally, recent measurements have been made that give insights into the effective potential that establishes the ordered structures in the plasma. In this presentation, we report on details of the imposed, ordered dusty plasma structure as well as filamentary features that also appear in the plasma and modify the confinement of the dusty plasma.

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Edward Thomas
Auburn University

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