

Abstract Submitted
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Research progress and status of the Magnetized Dusty Plasma Experiment (MDPX)¹ EDWARD THOMAS, UWE KONOPKA, Auburn Univ, ROBERT MERLINO, Univ. Iowa, MARLENE ROSENBERG, UCSD, MDPX TEAM — The addition of a magnetic field has a profound influence on the properties of a complex/dusty plasma. The Magnetized Dusty Plasma Experiment (MDPX) device at Auburn University is a flexible, high magnetic field research instrument with a mission to serve as an open access, multi-user facility for the dusty plasma and basic plasma research communities. In the last year, the MDPX device has performed a broad range of experimental studies at magnetic fields $B \approx 3$ T; these are conditions where the electron gyro-radius is comparable to the diameter of the microparticles and the ion gyro-radius is comparable to the spacing between the microparticles. A variety of emergent phenomena are observed including a new type of imposed spatial ordering, significantly modified particle charging, coupling between ion and microparticle/nanoparticle transport, and new regimes of nanoparticle behavior.

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