

Abstract Submitted  
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**Design and Assembly of the Magnetized Dusty Plasma Experiment (MDPX)**<sup>1</sup> ROSS FISHER, DARRICK ARTIS, BRIAN LYNCH, KEITH WOOD, Auburn University, JOSEPH SHAW, University of Texas at Austin, KEVIN GILMORE, University of Colorado, DANIEL ROBINSON, CHRISTIAN POLKA, UWE KONOPKA, EDWARD THOMAS, Auburn University, ROBERT MERLINO, The University of Iowa, MARLENE ROSENBERG, University of California - San Diego — Over the last two years, the Magnetized Dusty Plasma Experiment (MDPX) has been under construction at Auburn University. This new research device, whose assembly will be completed in late Summer, 2013, uses a four-coil, superconducting, high magnetic field system ( $|B| \geq 4$  Tesla) to investigate the confinement, charging, transport, and instabilities in a dusty plasma. A new feature of the MDPX device is the ability to operate the magnetic coils independently to allow a variety of magnetic configurations from highly uniform to quadrupole-like. Envisioned as a multi-user facility, the MDPX device features a cylindrical vacuum vessel whose primary experimental region is an octagonal chamber that has a 35.5 cm inner diameter and is 19 cm tall. There is substantial diagnostics and optical access through eight, 10.2 cm x 12.7 cm side ports. The chamber can also be equipped with two 15.2 cm diameter, 76 cm long extensions to allow long plasma column experiments, particularly long wavelength dust wave studies. This presentation will discuss the final design, assembly, and installation of the MDPX device and will describe its supporting laboratory facility.

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