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Design and Fabrication of a Magnetic System to Investigate Magnetized Dusty Plasmas EVAN M. BATES, CARLOS A. ROMERO-TALAMAS, University of Maryland, Baltimore County (UMBC) — The interest in researching the dynamics and equilibrium of magnetized dusty plasma crystallization has led to the design and fabrication of a novel experimental setup at UMBC. The proposed magnets will be an important subsystem of this setup, and will produce a uniform magnetic field of several tesla for a duration of several seconds. The magnets will be arranged in the Helmholtz configuration and will have a cooling system for temperature compensation of the coils, as well as the ability to adjust the orientation of the magnetic field with respect to gravity. Planned experiments include propagation of magnetized waves in dusty plasma crystals under various boundary conditions.

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