

Abstract Submitted
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Effects of external magnetization on probe-induced voids in complex plasmas¹ SPENCER LEBLANC, EDWARD THOMAS, Auburn Univ — Voids, or dust-free regions within a dust cloud in a complex plasma, have been observed and characterized for some time, both in microgravity settings [1] and in earth-based environments [2]. Created by a concentration of charge in the center of the void structure, the void boundary is formed at the point of equilibrium between the Coulomb force and ion-drag force on the dust grains. While there exists an extensive theoretical framework for understanding the dynamics of these voids [3,4], many mechanisms are still not completely understood. Of particular interest is the effect on void structure resulting from an externally implied magnetic field. Recently developed apparatus for studying complex plasmas within magnetic fields have allowed experimental observation of magnetized voids [5]. Recent results and analysis are presented from such experiments performed on the Magnetized Dusty Plasma Experiment (MDPX). [1] M. Klindworth, et al., Phys. Rev. Lett., 93, 195002 (2004). [2] G. Praburam and J. Goree, Phys. Plasmas, 3, 1212 (1996). [3] G. E. Morfill, et al., Phys. Rev. Lett., 83, 1598 (1999). [4] K. Avinash, et. al., Phys. Rev. Lett., 90, 075001 (2003). [5] B. Tadsen, et. al., Phys. Plasmas, 21, 103704 (2014).

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