

Abstract Submitted
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Campaign for Levitation in LDX¹ D.T. GARNIER, A.K. HANSEN, M.E. MAUEL, E.E. ORTIZ, Columbia University, A.C. BOXER, J.L. ELLSWORTH, I. KARIM, J. KESNER, P.C. MICHAEL, A. ZHUKOVSKY, MIT Plasma Science & Fusion Center — In the past year, preparations have been made for the first flight of the Levitated Dipole Experiment (LDX). LDX, which consists of a 560 kg superconducting coil floating within a 5 m diameter vacuum chamber, is designed to study fusion relevant plasmas confined in a dipole magnetic field. During the spring, a high temperature superconducting levitation coil was integrated into the LDX facility. Testing was undertaken to verify the thermal performance of the coil under expected levitation conditions. In addition, a real-time operating system digital control system was developed that will be used for the levitation control. In July, plasma experiments were conducted with all superconducting magnets in operation. While still supported, roughly 75% of the weight of the floating coil was magnetically lifted by the levitation coil above. A series of plasma experiments were conducted with the same magnetic geometry as will be the case during levitation. During August, the second generation launcher system will be installed. The launcher, which retracts beyond the plasma's last closed field lines during operation, is designed to safely catch the floating coil following an unexpected loss of control. After this installation, levitation experiments will commence.

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