

Abstract Submitted  
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**Eddy Currents and Magnetic Reconstruction in LDX**<sup>1</sup> D.P. BOYLE<sup>2</sup>, PPPL, M.E. MAUEL, D.T. GARNIER, Columbia Univ, J. KESNER, MIT PSFC — Operations of the Levitated Dipole Experiment (LDX) (<http://psfcwww2.psf.mit.edu/ldx/>) in which the superconducting current ring is magnetically levitated by a fixed external coil, rather than mechanically supported, have improved plasma confinement and created peaked plasma profiles. However, since the floating coil is vertically unstable and is maintained in position by feedback, small fluctuations in ring and plasma altitude and current are present. The eddy currents induced in the vacuum vessel by the plasma diamagnetic current and by ring motion must be measured and properly included in order to perform accurate plasma equilibrium magnetic reconstruction. The eddy currents produced by the current ring and external coil are measured by imposing vertical jogs on the ring during vacuum shots. In order to estimate eddy currents produced by the plasma, coils of wire with dimensions similar to the peak plasma current were temporarily installed in vessel and excited by trapezoidal current pulses. Results of the eddy current measurements will be presented, as well as reconstructions of levitated plasma current and pressure profiles.

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