

Abstract Submitted  
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**Imaging of low-frequency fluctuations in dipole confined plasma<sup>1</sup>**

JENNIFER ELLSWORTH, R.M. BERGMANN, A.C. BOXER, J. KESNER, MIT PSFC, D.T. GARNIER, M.E. MAUEL, Columbia University — Two 16-channel photodiodes arrays have been constructed to image the structure of low frequency (0.5-10 kHz) fluctuations observed in the LDX plasmas. Fluctuations in the 1-10 kHz range have previously been observed in LDX plasmas created with the internal coil supported [2]. We now report on observations of plasmas with the internal coil fully levitated. Fluctuations in this frequency range are still observed during multi-frequency heating and in addition fluctuations on the order of a few hundred Hz are also observed during 2.45 GHz only heating. Data from the 4-channel interferometer suggests these modes have some broad radial structure and electrostatic probes and Mirnov coils indicate an  $m=1$  toroidal mode structure. The photodiode arrays will provide better radial resolution while simultaneously providing a measure of the toroidal mode number. A Phantom fast camera also images the plasma and we will compare results from the photodiode array to images from the fast camera. 2. Garnier et al, “Stabilization of low frequency instability in a dipole plasma,” to be published in Journal of Plasma Physics (2008).

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