

Abstract Submitted  
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**Photodiode Array Measurements in LDX**<sup>1</sup> E. MIMOUN, J. KESNER, MIT PSFC, D.T. GARNIER, M.E. MAUEL, Columbia University — In a plasma with closed field lines such as LDX, large scale convective motions are possible due to a charging up of magnetic field lines. This convection can play an important role in transporting plasma, including local microturbulence, from the plasma core to the edge region. In LDX the plasma density is sufficiently low that neutral atoms can penetrate deeply into the plasma. When these atoms are excited by plasma they emit light in the visible range. Analyzing this light gives information about the convective motions within the plasma. A photodiode gives much faster information than a regular digital video camera and the observation of fast changes in the visible light intensity caused by plasma turbulence can be observed. To obtain spacial resolution we have installed an array of 16 photodiodes in LDX. Using correlation techniques we observe a circulation of plasma such as would be caused by convective cells.

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