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Investigation of Turbulence and Driven Flow in Magnetized Plasma Using Visible light Imaging DANIEL GUICE, UCLA, DAVID SCHAFFNER, UCLA, Swarthmore College, TROY CARTER, BRETT FRIEDMAN, GIOVANNI ROSSI, STEVE VINCENA, UCLA — A fast framing camera is used to image plasma in the Large Plasma Device (LAPD) at UCLA. The use of a camera enables high spatial resolution in a single plasma discharge, without perturbing the plasma. Correlation between light fluctuations and plasma density is high, giving a physical link to what the camera records. From the light fluctuations instantaneous velocity fields are calculated using a wavelet based method that gives us the ability to estimate particle flux and Reynolds stress. These quantities are compared with results obtained with probes. Flow is continuously varied on the LAPD using bias able limiters; this allows for a detailed study of how flow and flow shear modify turbulence and transport. BOUT ++ simulation code of the LAPD is compared against the fast camera data, and shows similar results.

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