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Studies of Turbulence and Flow in Magnetized Plasma Using Visible Light Imaging DANIEL GUICE, DAVID SCHAFFNER, TROY CARTER, GIOVANNI ROSSI, STEVE VINCENA, UCLA — Studies of phenomena like turbulence and flow have traditionally been performed by probes in the Large Plasma Device (LAPD) at UCLA. In this work a fast framing camera was used to image the fluctuations in visible light emissions. The camera was placed at one end of the LAPD and aimed through a window at a Langmuir probe in the plasma. The signals from a single pixel and the Langmuir probe were compared showing high correlation. While a probe can only study one spatial location at a time, the camera is able to capture two-dimensional information in a single time series giving a wealth of information and enabling a noninvasive study of the plasma. The camera data has been used to measure flow using time delay estimation and to calculate k-spectra of turbulent fluctuations.

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