

Abstract Submitted
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C-Mod Polarimeter Development and Application to Magnetic Fluctuation Measurements W.F. BERGERSON, UCLA, P. XU, MIT, D.L. BROWER, W.X. DING, UCLA, J.H. IRBY, MIT — The single chord polarimeter has been expanded to three chords with extensive engineering upgrades to address measurement phase errors associated with stray magnetic fields, vibrations, path length variations, and polarization sensitive beam splitters. Simultaneous multichord measurements allow for internal measurements of the equilibrium poloidal magnetic field which serve to constrain EFIT and identify current profile dynamics associated with lower hybrid current drive. With reduced system noise, fluctuations have been observed in the polarimetry signal that are associated with core tearing modes. Fluctuations due to the edge localized quasi-coherent mode are also seen. Efforts are underway to differentiate between density and magnetic fluctuations in the polarimetry measurement via cross correlation techniques and combined density measurements. Expanding the system bandwidth to >1 MHz will make it feasible to directly measure fluctuations related to fast particle instabilities driven by ICRH. This work supported by the DOE.

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