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## 10.18 Laser Calibration of the DIII-D Coherence Imaging System

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In this paper we describe an in-situ calibration technique for the Coherence Imaging Systems (CIS) that measure 2-D images[1] of plasma ion flows[2] on DIII-D. A low power CW diode laser that is tuneable in the range 464-467 nm along with a precision wavemeter (0.01 pm resolution) is used to characterize the interferometer phase as a function of wavelength in the region of CIII (465 nm) and He II (468 nm). The interferometer is stabilized both mechanically and thermally to minimize drift during the calibration. Optical stirring and a labsphere are used to obtain spatially uniform calibration images. The quality of the calibration data enables a measurement of both linear and quadratic terms over approximately 10 fringes of the interferometer. These coefficients can also be related to the geometry of the optics and the birefringent crystal of the interferometer. On DIII-D, the labsphere is inserted into the CIS optical system between shots and the calibration data is automatically recorded. Work supported by the US DOE under DE-FC02-04ER54698 and DE-AC52-07NA27344. [1] W.H. Meyer, et al., these proceedings (invited). [2] C.M. Samuell, et al., these proceedings (invited).

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