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12.49 Implementation of Wollaston Interferometry Diagnostic on OMEGA EP

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A plasma-density diagnostic consisting of a Wollaston interferometer is presented for use in the measurement of plasma plumes created in experiments on the OMEGA EP laser. The diagnostic is installed as an additional arm on the 4-omega probe system, a suite of diagnostics that share a 10-ps pulse of 263-nm laser light captured by an imaging system of cone angle $f/4$. In order to form fringes, the interferometer utilizes a Wollaston prism to create two orthogonally polarized wavefronts from a single beam. These two wavefronts form overlapping images from separate regions in space, yielding an interference pattern indicative of changes in plasma density in one region relative to the other. Initial results will be presented in which this system has been used to characterize radially symmetric plasma densities in the ablation of flat plastic targets. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

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