

Abstract Submitted
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Plasma Electron Density Measurements Using Phase-Sensitive FTIR Interferometry¹ BRIAN NEISWANDER, ERIC MATLIS, THOMAS CORKE, University of Notre Dame — This work investigates the use of low-temperature plasma as an adaptive medium for high-bandwidth aero-optic wavefront control. To better understand plasma's optical properties (refractive index), a new diagnostic technique has been developed to simultaneously measure the average plasma electron density and heavy particle density. The technique uses phase-sensitive Fourier transform infrared (FTIR) interferometry to measure the optical dispersion of plasma across a spectrum of far-infrared wavelengths. The plasma electron density and heavy particle density values are determined using a least-squares analysis. This presentation describes the experimental setup and preliminary data from the measurement system.

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Brian Neiswander
University of Notre Dame

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