

Abstract Submitted
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Updates on the Optical Emission Spectroscopy and Thomson Scattering Investigations on the Helicon Plasma Experiment (HPX)¹

OMAR DUKE-TINSON, JACKSON KARAMA, PHILLIP AZZARI, JAMES ROYCE, ERIC PAGE, CARTER SCHLANK, JUSTIN SHERMAN, BROOKE STUTZMAN, JONATHAN ZUNIGA, Coast Guard Academy Plasma Physics Laboratories — HPX at the Coast Guard Academy Plasma Laboratory (CGAPL) have set up spectral probes to verify plasma mode transitions to the W-mode. These optical probes utilize movable filters, and ccd cameras to gather data at selected spectral frequency bands. Raw data collected will be used to measure the plasma's relative density, temperature, structure, and behavior during experiments. Direct measurements of the plasma's properties can be determined through modeling and by comparison with the state transition tables, using Optical Emission Spectroscopy (OES). The spectral probes will take advantage of HPX's magnetic field structure to define and measure the plasma's radiation temp as a function of time and space. In addition, the Thomson Scattering (TS) device will measure internal temperature and density data as the HPX plasma transitions through capacitive and inductive modes while developing into helicon plasma. Currently CGAPL is focused on building its laser beam transport and scattered light collection optical systems. Recently, HPX has acquired an Andor ICCD spectrometer for the spectral analysis. Data collected by the TS system will be logged in real time by CGAPL's Data Acquisition (DAQ) system with LabView remote access. Further progress on HPX will be reported.

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Omar Duke-Tinson
Coast Guard Academy Plasma Physics Laboratories

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