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Spectral diagnostics for the HelCat helicon/cathode linear plasma device CHRISTOPHER LEACH, JAKSA OSINSKI, EDL SCHAMILOGLU, CHRISTOPHER WATTS, Dept. of Electrical and Computer Engineering, University of New Mexico, Albuquerque, NM 87131-0001 — Several new optical spectroscopy diagnostics installed on the HelCat (Helicon-Cathode) device expand the measurement capabilities of the plasma characteristics to include ion temperature, neutral characteristics, as well as alternative and convenient ways to determine drift velocities, temperatures, densities, and species recognition. These are in addition to the numerous probe diagnostics that provide density, potential, temperature, saturation current, and other data for HelCat. A highly directive lens system allow analysis of specific regions of the plasma by a survey spectrometer and a 4m McPherson spectrometer inputted by a compact and finely tunable optical slit input apparatus that allows adjustment along three separate axes. We present an overview of the system design and initial data.

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