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Spatial Diagnostic Techniques of Striations in a DC Glow Discharge. ZACHARY WHITE, RYAN GOTT, GABE XU, University of Alabama in Huntsville — A common phenomenon observed in DC glow discharges and other plasma applications is the appearance of striations, alternating light and dark regions in the plasma. Although the occurrence of striations has been observed for many decades, the underlying nature of these instabilities has not been completely understood quite yet. The goal of the current work is to characterize the electron temperature and density of the standing striations in a DC plasma discharge. Measurements on the center of the striation, corner of the striation, and the dark space within the discharge were taken to obtain a general idea of how the characteristics of the striation changed over the striation length. The methods used to measure these properties in the plasma were by measuring the neutral lines of the plasma using optical emission spectroscopy and backing out the temperature and density by using a simplified Corona model and using Langmuir probes. To get a better understanding of the plasma, the gas pressure was ranged from 100 mTorr – 1 Torr. The results of the current project were necessary to provide a comparison for the future diagnostic work that will be done using the Laser-Collisional Induced Fluorescence (LCIF) method.

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