

Abstract Submitted
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Helium Ion Emission Spectra in a Helicon Plasma Source

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To better understand the poor reproducibility of He II absorption spectroscopy measurements in our helicon source plasmas, we have numerically generated the expected level populations for He II for a wide range of helicon source parameters. The plasma parameters are obtained with a radially scanning Langmuir probe and the level populations generated with the CHIANTI astrophysical spectra code. The CHIANTI code's focus on hydrogen-like ions is ideally suited for these helicon source plasmas. We will present comparison of the experimentally measured emission spectra of the $n=5$ to $n=4$ He II transition at 1012.36 nm and the $n=4$ to $n=3$ He II transition at 468.57 nm with the CHIANTI code predictions, as well as absorption spectra for the 1012.36 nm line. The effects of trace impurities on the emission spectra at each wavelength will also be reviewed.

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