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Modelling Ar II spectral emission from the ASTRAL helicon plasma JORGE MUNOZ BURGOS, ROBERT BOIVIN, STUART LOCH, OLA KAMAR, Auburn University, CONNOR BALLANCE, Rollins College, MITCH PINDZOLA, Auburn University — We describe our spectral modeling of ArII emission from the ASTRAL helicon plasma at Auburn University. Collisional-radiative theory is used to model the emitted spectrum, with account being taken for the density and temperature variation along the line of sight. This study has two main aims. Firstly to test the atomic data used in the model and secondly to identify spectral line ratios in the 200 nm - 1000 nm range that could be used as temperature diagnostics. Using the temperature at which Ar II emission starts to be seen we have been able to test recent ionization and recombination data. Using selected spectral lines we were then able to test the importance of the continuum-coupling effects included in the most recent Ar+ electron impact excitation data. Selected spectral line ratios have been identified that show a strong temperature variation and have potential as a temperature diagnostic.

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