

Abstract Submitted
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Calculations and measurements of argon emission in a magnetized linear plasma column¹ IVAN ARNOLD, CONNOR BALLANCE, STUART LOCH, EDWARD THOMAS, Auburn University — Performing spectroscopic measurements of emission lines in relatively cold laboratory plasmas is challenging because the plasma is often neutral-dominated and is not in thermal equilibrium. However, these types of plasma do offer a unique opportunity for benchmarking the finer details of atomic physics codes. We report on new level-resolved calculations for the dielectronic recombination of low charge states of argon. The results are compared with existing configuration-average distorted-wave results and semi-empirical calculations. The recombination rates are processed into metastable-resolved recombination rate coefficients and used in non-equilibrium ionization balance modeling of an argon plasma experiment on the Auburn ALEXIS facility.

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