

Abstract Submitted
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K-shell photoionization of Cl: Theory and experiment¹ ZINEB FELFLI, Clark Atlanta University, STEVEN MANSON, Georgia State University, ALFRED MSEZANE, Clark Atlanta University — Recent measurements of the photoionization cross sections of atomic Cl in the vicinity of the 1s thresholds have been made [1] which have stimulated us to perform R-matrix calculations wherein relativistic effects are taken into account *via* the Breit-Pauli (BP) operator. The discrete wavefunctions are constructed with orbitals generated from a carefully-chosen large scale configuration interaction (CI) expansion. The calculation, which also includes relativistic corrections, uses the CIV3 code of Hibbert [2] and Glass and Hibbert [3]. Owing to the open-shell nature of the Cl atom there are actually four 1s thresholds, $^3P_{0,1,2}$ and 1P_1 . The results are analyzed with particular focus on the resonances leading up to the four thresholds, and the various effects that dominate the cross sections in this energy range are disentangled.

[1] W. Stolte *et al*, Phys Rev A **88**, 053425 (2013)

[2] A. Hibbert, *Comput. Phys. Commun.* **9**, 141 (1975)

[3] R. Glass and A. Hibbert, *Comput. Phys. Commun.* **16**, 19 (1978)

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