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QED Corrections to the Tune-out Wavelength for the 1s2s ^{3}S – 1s3p ^{3}P Transition of Helium[1] GORDON DRAKE, JACOB MANALO, University of Windsor — We have previously reported high precision calculations for the nonrelativistic tune-out wavelength of helium near the $1s2s\ ^3S - 1s3p\ ^3P$ transition at 413 nm, and the corresponding relativistic corrections [1]. The calculations have now been extended to include the lowest-order quantum electrodynamic (QED) corrections due to electron self-energy and vacuum polarization. The tune-out wavelength is the wavelength at which the frequency dependent polarizability vanishes. It can be measured to very high precision by means of an interferometric comparison between two atomic beams. This paper is part of a joint theoretical/ experimental project with K. Baldwin et al. (Australian National University) [2] and L.-Y. Tang et al. (Wuhan Institute of Physics and Mathematics) [3]. The results will be compared with experiment and recent relativistic CI calculations [3].
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[3] Y.-H. Zhang et al., Phys. Rev. A **93**, 052516 (2016).

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