

Abstract Submitted
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Calculation of electron scattering from the ground state of ytterbium¹ DMITRY FURSA, CHRISTOPHER BOSTOCK, IGOR BRAY, Curtin University — We report on the application of the convergent close-coupling method (Phys. Rev. A **83**(2011)052710), in both relativistic and nonrelativistic formulations, to electron scattering from ytterbium. Angle-differential and integrated cross sections are presented for elastic scattering and excitation of the states $(6s6p)^3P_{0,1,2}^o$, $(6s6p)^1P_1^o$, $(6s7p)^1P_1^o$ and $(6s5d)^1D_2^e$ for a range of incident electron energies. We also present calculations of the total cross section, and angle-differential Stokes parameters for excitation of the $(6s6p)^3P_1^o$ state from the ground state. A comparison is made with the relativistic distorted-wave method and experiments. Good agreement was found between the RCCC and CCC (with semirelativistic corrections) results indicating that relativistic effects do not dominate except for the $(6s6p)^3P_1^o$ DCS at forward-scattering angles, which indicates that the fully relativistic RCCC formalism is more accurate in this case. Discrepancies between experiments in normalization of the $(6s6p)^1P_1^o$ DCS have been analyzed and suggestions for cross section renormalization have been presented.

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