

Abstract for an Invited Paper
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Updated compilations of electron scattering from ground-state, noble gas atoms¹

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An updated analysis of the cross sections for electron scattering from ground state atoms for noble gases in the energy range from thermal to 10 MeV is outlined. The work was driven by the necessity to understand the Penning transfers and light emission in detectors of high energy particles and dark matter. The published experimental data for electron scattering up to 2010 have been used in the analysis. Recent, theoretically improved cross sections have been used in the important threshold region for both the singlet and triplet states. Experimental or theoretical oscillator strengths and BEF scaling have been used above the resonance region for the singlet states. The number of excitation levels considered (typically about 40) is chosen so that the sum of the oscillator strengths for the considered levels is within a few percent of the theoretical sum rule. The resulting total cross sections are within a few percent of the measured values, and the calculated Fano factors are consistent with available data. These data are now available on the LXCat website.

¹This work is part of the RD51 collaboration at CERN.