Parametrizations and dynamical analysis of angle-integrated cross sections for double photoionization[1] ANDREI Y. ISTOMIN, ANTHONY F. STARACE, University of Nebraska-Lincoln, N.L. MANAKOV, A.V. MEREMIANIN, Voronezh State University, Russia — As for one-electron ionization cross sections, the doubly and singly-differential cross sections (DDCSs and SDCSs) for double photoionization (DPI) may be conveniently described by four dipole and quadrupole asymmetry parameters, σ_0, β, γ, and δ. Here we derive two *ab initio* parametrizations for these parameters: (i) in terms of one- dimensional integrals of the polarization-invariant DPI amplitudes and (ii) in terms of the exact two-electron matrix elements. The dynamical parameters are calculated including electron correlations to lowest order. Our results for SDCSs and DDCSs of He for excess energies of 100 eV and 450 eV are in reasonable agreement with experimental measurements and other theoretical calculations. Agreement with results of others for ratios of double to single ionization cross sections for K-shell DPI from multi-electron atoms is excellent in most cases.

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