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Calculation of He photoionization with excitation and de-excitation cross section MIRON YA. AMUSIA, EVGENY Z. LIVERTS, VICTOR B. MANDELZWEIG, Racah Institute of Physics, The Hebrew University of Jerusalem, Israel, RAJMUND KRIVEC, Department of Theoretical Physics, J.Stefan Institute, Ljubljana, Slovenia — We present calculation results for photo-ionization with de- excitation of excited He and helium-like ions at high but non-relativistic photon energies ω. The cross-section of this process is expressed in fact via integrals similar to that used already in description of two-electron ionization and ionization with excitation. In principle, the considered process can be separated pure experimentally from other two- electron processes, namely double ionization and ionization with excitation, if the photoelectrons's energy for a given incoming photon frequency ω is detected. Very accurate non-variation wave functions are used. As excited several lower ^1S and ^3S states are considered. We present the ratios R_d^{+*} of the cross sections "photo-ionization with de-excitation" $\sigma_{(d)}^{+*}(\omega)$ and "photo- ionization with excitation" $\sigma^{+*}(\omega)$. It is shown how R_d^{+*} depends upon the excitation of the target object and the charge of its nucleus.

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