Non-perturbative B-spline R-matrix with pseudo-states calculations for electron-impact excitation-ionization of helium to the $n = 3$ states of $\text{He}^{+1}$ KLAUS BARTSCHAT, OLEG ZATSARINNY, Drake University

— We present fully-differential cross sections for electron-impact ionization plus simultaneous excitation of helium obtained from a non-perturbative close-coupling formalism with our B-spline R-matrix approach [1,2]. Using a large number of pseudo-states we obtain excellent agreement with directly measured cross-section ratios [3,4] for ionization leaving the residual $\text{He}^+$ ion in either the $1s$ ground state, the $n = 2$ ($2s + 2p$) excited states, or the $n = 3$ ($3s + 3p + 3d$) excited states.


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