

Abstract Submitted
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Benchmark calculation of total cross sections for ionization-excitation of helium¹ OLEG ZATSARINNY, Drake University, KLAUS BARTSCHAT, Drake University and ITAMP — The total cross section for simultaneous ionization-excitation of helium by electron impact has been revisited within the framework of the fully nonperturbative B -spline R -matrix with pseudostates (BSRMPS) approach [1]. This is a highly challenging 4-body Coulomb problem that cannot be simplified by effectively treating one of the target electrons as a spectator. After successfully applying the BSRMPS method to the energy- and angle-differential problem [2], we investigated a long-standing discrepancy regarding the absolute normalization of the cross section for ionization with simultaneous excitation of the residual ion into the $\text{He}^+(2p)$ state. Our calculations strongly favor the values suggested in [3,4] rather than the renormalization proposed in [5].

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Klaus Bartschat
Drake University and ITAMP

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