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Electron impact ionization–excitation of Helium. LORENZO UGO ANCARANI, Universite de Lorraine, A I GOMEZ, IAFE, Buenos Aires, G GASANEO, Universidad Nacional del Sur, Bahia Blanca, D M MITNIK, IAFE, Buenos Aires, M J AMBROSIO, Kansas State University — We calculate triple differential cross sections (TDCS) for the process of ionization–excitation of Helium by fast electron impact in which the residual ion is left in the n=2 excited state. We chose the strongly asymmetric kinematics used in the experiment performed by Dupré et al. [1]. In a perturbative scheme, for high projectile energies the four–body problem reduces to a three–body one [2] and, within that framework, we solve the time- independent Schrödinger equation with a Sturmian approach [3]. The method, based on Generalized Sturmian Functions (GSF), is employed to obtain the initial ground state of Helium, the single-continuum state and the scattering wave function; for each of them, the GSF basis is constructed with the corresponding adequate asymptotic conditions. Besides, the method presents the following advantage: the scattering amplitudes can be extracted directly in the asymptotic region of the scattering solution, and thus the TDCS can be obtained without requiring a matrix element evaluation. [1] C. Dupré et al. (1992) J. Phys. B 25, 259. [2] M.J. Ambrosio et al. (2014) Phys. Rev. A 89, 012713. [3] G. Gasaneo et al. (2013) Adv. Quantum Chem. 67, 153.

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