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Double ionization of helium by impact of fast protons. LORENZO UGO ANCARANI, Universite de Lorraine, E L GAGGIOLI, IAFE, Buenos Aires, M J AMBROSIO, Kansas State University, D M MITNIK, IAFE, Buenos Aires, G GASANEO, Universidad Nacional del Sur, Bahia Blanca — In comparison with the electron impact case, fully differential cross sections for the double ionization of helium by proton impact have been little investigated. The reasons are quite simple: experimentally, the measurement requires a long time as the count rates are very low; theoretically, the full four-body problem poses a formidable challenge. The present theoretical investigation is a contribution towards understanding this process. We performed [1] ab initio first Born calculations for proton impinging with 6 MeV, in the experimental configuration investigated in [2]. We solve a three-body scattering driven equation with the Generalized Sturmian Functions method [3]. Using the asymptotic behavior of the solution, we extract directly the transition matrix and thus the corresponding fully differential cross section. A detailed comparison with the relative experimental data will be presented at the conference. [1] Ambrosio M J et al (2015) Phys. Rev. A 92, 042704. [2] Fischer D et al (2003) Phys. Rev. Lett. 90, 243201. [3] Gasaneo G et al (2013) Adv. Quantum Chem. 57, 153

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