Electron impact ionization in the Temkin Poet model with Sturmian functions JUAN MARTIN RANDAZZO, ANA LAURA FRAPICCINI, Centro Atomico Bariloche, Argentina, GUSTAVO GASANEO, Universidad Nacional del Sur, Bahia Blanca, Argentina, DARIO MITNIK, Universidad de Buenos Aires, Argentina, LORENZO UGO ANCARANI, Universite Paul Verlaine - Metz, France, FLAVIO COLAVECCHIA, Centro Atomico Bariloche, Argentina — We present accurate results for the electron impact ionization of atomic hydrogen, within the Temkin Poet model, using Generalized Sturmian functions (GSF). The GSF are solutions of a two-body radial Schrodinger equation where the energy is fixed, and the magnitude of an interaction is considered as eigenvalue [1]. These functions are able to include almost any physically sound asymptotic conditions in the radial electron coordinates. In the present case, we set outgoing flux conditions with Coulomb phase. The GSF are used in a Configuration Interaction scheme to expand the scattering wave of the process. We present several benchmark tests, and compute single differential cross sections in terms of the energies of the ejected electron. Our results for 54.4 eV incident energy exhibit excellent agreement with those obtained within the External Complex Scaling [2] and Finite Difference Method [3]. [1] A. L. Frapiccini et al., J. Phys. B, 43 101001 (2010). [2] C. W. McCurdy and T. N. Rescigno, Phys. Rev. A 56, R4369 (1997). [3] S. Jones and A. T. Stelbovics, Phys. Rev. A 66, 032717 (2002).

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