

ELECTRON IMPACT IONIZATION OF HYDROGENLIKE SYSTEMS

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ABSTRACT

The electron impact single ionization cross sections, of hydrogen like H, He⁺, Li²⁺, B⁴⁺, C⁵⁺, N⁶⁺, O⁷⁺, Ne⁹⁺, Ar¹⁷⁺, Fe²⁵⁺, Mo⁴¹⁺, Dy⁶⁵⁺, Au⁷⁸⁺, Bi⁸²⁺, and U⁹¹⁺ targets with the atomic number $Z = 1 - 92$ and the incident electron energies from threshold to about 10^6 eV, are calculated using a modified version of the recently propounded simplified Bell (SBELL) model [M.R. Talukder, S. Bose, M.A.R. Patoary, A.K.F. Haque, M.A. Uddin, A.K. Basak, M. Kando, Eur. Phys. J. D 46, 281(2008)]. The results of the present analysis are compared with the available experimental results and theoretical calculations. The proposed model calculates reasonably accurate cross sections for any hydrogen like targets from H-U. This model may be a prudent selection for the application in applied sciences due to its simple inherent structure.

KEYWORDS: Single Ionization, Electron Impact Ionization, Cross Section, Hydrogen-Like