

Abstract Submitted  
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**Electron impact fine structure excitation cross sections of Xe<sup>+1</sup>**

RAJESH SRIVASTAVA, SHIVAM GUPTA, LALITA SHARMA, Indian Institute of Technology Roorkee, Roorkee, India — Xenon is an ideal and preferred propellant for Hall thrusters..... and ion thrusters. The observed emitted spectra from xenon thruster plasma show also lines from Xe<sup>+</sup> [1]. For the diagnostics of such plasma a collisional-radiative (CR) model is required which involve the dominant process of electron impact excitation (EIE). There are no experimental and theoretical results available for EIE of Xe<sup>+</sup>. We report detailed EIE results of Xe<sup>+</sup> using our fully relativistic distorted wave theory [2] from its ground  $5p^5(J=3/2)$  state to the fine structure excited states of  $5p^46s$ ,  $5p^46p$ ,  $5p^47s$ ,  $5p^47p$ ,  $5p^45d$  and  $5p^46d$  configurations. [1] Y. H. Chiu *et al.*, *J. Appl. Phys.* **99**, 113304, 2006 [2] Dipti and R. Srivastava, *JQRST.* **176**, 1223, 2016

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