Abstract Submitted
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A reliable Collisional Radiative Model for Xenon Plasma[1] PRITI PRITI, Indian Institute of Technology Roorkee, India, REETESH GANGWAR, Visvesvaraya National Institute of Technology Nagpur, India, RAJESH SRIVASTAVA, Indian Institute of Technology Roorkee, India — Xenon is used nearly in all modern HETs as propellant [1] and it is also added as a trace gas to characterize the low temperature plasmas. Our aim is to obtain highly needed detailed fine-structure resolved cross sections for the electron impact excitation of xenon using relativistic distorted wave (RDW) approach and demonstrate the application of the calculated data in modelling of low temperature xenon plasma by developing a C-R model following our earlier work on Kr [2]. Various transitions from the ground $5p^6$ state to the excited $5p^5 6s$, $5p^5 6p$, $5p^5 5d$, $5p^5 7s$ and $5p^5 7p$ states as well as among these excited states are considered and their cross sections are calculated. The cross sections are incorporated in a C-R model which is coupled with OES measurements of Czerwiec *et al.*[3] for diagnostics of low temperature inductively coupled Xe plasma (ICP). [1] Y. H. Chiu *et al.*, *J. Appl. Phys.* **99**, 113304, 2006 [2] R.K. Gangwar *et al.*, *Plasma Sources Sci. Technol.* **25**, 35025, 2016 [3]T. Czerwiec and D.B. Graves, *J. Phys. D. Appl. Phys.* **37**, 2827, 2004.

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