

Abstract Submitted
for the GEC19 Meeting of
The American Physical Society

A comprehensive collisional-radiative model for Xe^+ and Xe excited species¹ YAN-FEI WANG, XI-MING ZHU, YANG WANG, DA-REN YU, Harbin Institute of Technology, OLEG ZATSARINNY, KLAUS BARTSCHAT, Drake University, TSANKO TSANKOV, UWE CZARNETZKI, Ruhr University Bochum — Xenon is the most widely used propellant in Electric Propulsion (EP) systems. A collisional-radiative (CR) model for xenon excited species is needed for a better understanding of the kinetic mechanisms and to support optical emission spectroscopy in xenon plasmas. However, CR models concerning the kinetics of xenon ionic states are currently not available in the literature due to the lack of reliable cross section data. In this work, a CR model for atomic and ionic processes based on cross sections calculated by the Dirac B-Spline R-Matrix method is used to study the kinetic mechanisms of ionic 6s, 5d, and 6p states in electric propulsion discharges.

¹The work of OZ and KB was supported by the United States National Science Foundation under grants PHY-1520970, PHY-1803844, OAC-1834740, and the XSEDE allocation PHY-090031.

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Date submitted: 01 Jun 2019

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