

Abstract Submitted
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Modeling and Spectroscopic Analysis of non-LTE Krypton Plasmas¹ A. DASGUPTA, R.W. CLARK, Y.K. CHONG, J. DAVIS, Plasma Physics Division, Naval Research Laboratory — We have developed a detailed multilevel atomic model for K-, L- and M-shell krypton, and investigated its impact on the radiation hydrodynamics on a krypton gas puff driven by the redesigned Sandia National Laboratory ZR accelerator. The atomic model employs an extensive atomic level structure, which is necessary to accurately model the pinch dynamics and the spectroscopic details of the emitted radiation. The atomic data was obtained using the state-of-the-art Flexible Atomic Code, and all relevant radiative atomic processes were included in generating the model. The enormous number of fine-structure levels were judiciously lumped to create a database that is detailed but manageable. We have analyzed the behavior in the krypton K- through M-shell ionization stages using temperature and density conditions that have been predicted in 1-D and 2-D MHD calculations of implosions on ZR

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