

Abstract Submitted  
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**Simulations Of Xenon and Krypton Doped Gas Puff Z-Pinch Implosions\***<sup>1</sup> VARUN TANGRI, Berkeley Research Associates, J.L. GIULIANI, A. L. VELIKOVICH, N. D. OUART, A. DASGUPTA, Plasma Physics Division, Naval Research Laboratory, J. P. APRUZESE, Consultant to the NRL through Icarus/Syntek Technologies, A. J. HARVEY-THOMPSON, B. JONES, C.A. JENNINGS, Sandia National Laboratories — The intriguing result that the presence of a small fraction of Xe (0.8% by number in the center jet) in an Ar gas puff shot can have a significant impact on the emitted K-shell radiation is examined. Experimental indications of this result were recently obtained from a pair of experiments [1] on Sandia National Laboratories' Z machine. These shots were Z2603 (with Xe) and Z2605 (without Xe). The pair had similar initial density profile (outer shell, inner shell, and center jet) but one had the small aforementioned percentage of Xe dopant in the center jet. In addition, both shots had 1% Krypton in the middle shell. The resultant Ar K-shell yield considerably reduced from  $373\pm 9\%$  to  $129\pm 9\%$  kJ without an analogous change in the total radiation yield or emitted power. Simulations of this pair of shots will be presented using the Mach2-TCRE code. Detailed examination of the implosion dynamics and emitted radiation and its time- and space resolved K-shell synthetic spectra will be reported and compared with previous analysis [2]. The effect of varying the Xenon fraction as well as Krypton fraction on K-shell radiation and yield will also be examined. [1] Harvey-Thompson et. al., Phys. Plasmas **23**, 101203 (2016). [2] Apruzese et. al. Phys. Plasmas **23**, 123303 (2016)

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