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**Kr gas puff implosion experiments on the Z generator**[1] DAVID AMPLEFORD, CHRISTOPHER JENNINGS, STEPHANIE HANSEN, ADAM HARVEY-THOMPSON, GREGORY ROCHAU, DEREK LAMPPA, BRENT JONES, Sandia National Laboratories, ARATI DASGUPTA, JOHN GIULIANI, J. WARD THORNHILL, Naval Research Laboratory — We discuss experiments imploding large diameter Kr gas puffs on the Z generator. Thermalization of kinetic energy leads to high pinch temperatures; the plasma conditions achieved are conducive to 13-keV K-shell emission from Kr. By tailoring the density profile and designing experiments using hydrodynamic gas flow modeling coupled to MHD modeling [C.A. Jennings *et al.*, Phys. Plasmas 22, 056316 (2015)] we are able to implode these gas puffs at high velocities ($> 100 cm/\mu s$) from 12-cm initial diameters to a tight ($\sim$ 1 mm diameter) uniform stagnated pinch. Data indicates that changes to the initial density profile affect the implosion stability and significantly affect the radiated output, with the most stable implosion radiating $\sim$ 8 kJ at >10 keV, the majority of which is radiated in the Kr He$\alpha$ line. In this poster we will compare an extensive suite of yield, spectral, imaging and pulse shape diagnostics to MHD modeling, and discuss the plasma conditions inferred from comparing data to atomic modeling.

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