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X-ray Imaging of MagLIF Experiments Using a Spherically-Bent Crystal Optic[1] E.C. HARDING, M.R. GOMEZ, C.A. JENNINGS, P.F. KNAPP, S.A. SLUTZ, A.B. SEFKOW, T.J. AWE, S.B. HANSEN, K.J. PETERSON, K.D. HAHN, R.D. MCBRIDE, G.A. ROCHAU, D.B. SINARS, Sandia National Labs, I. GOLOVKIN, Prism Computational Sciences, Inc. — The recent Magnetized Liner Inertial Fusion (MagLIF) experiments performed on Sandia's Z-machine produced significant thermonuclear DD fusion yields that were accompanied by observable x-ray emission [M.R. Gomez *et. al.,* PRL (2014)]. The MagLIF experiments relied on a spherically-bent crystal optic to image portions of the x-ray continuum that were generated by the hot stagnation plasma. The images of stagnation show a long (6 to 8 mm) and narrow (∼100 micron) column of x-ray emission with structure in both directions. This structure may be caused by variations in the electron temperature (T_e) and density (n_e), as well as opacity variations in the surrounding Be pusher. Here we investigate the possible contributions from each of these effects. We will also discuss the development of a diagnostic technique in which T_e and n_e of the DD fuel are inferred from spectra emitted by Fe impurities that become ionized to a He-like charge state.

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E.C. Harding
Sandia National Labs

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