Abstract Submitted
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Analysis of Laser-Cut Foil X-Pinch X-Ray Line Emission for Radiography Applications[1] G.S. JAAR, Florida Agricultural and Mechanical University, G.W. COLLINS IV, M. DOZIERES, F. CONTI, University of California, San Diego, L. CARLSON, General Atomics, R.K. APPARTAIM, Florida Agricultural and Mechanical University, F.N. BEG, University of California, San Diego — Previous studies of laser-cut foil x-pinches have shown that they are an improved radiation source over conventional wire x-pinches [1]. We present an analysis of additional foil x-pinch experiments on the GenASIS (150 ns, 250 kA) and LTD-III (150 ns, 800 kA) drivers located at the University of California, San Diego (UCSD). Various foil materials, such as Al, Ti, Mo, and W are tested to observe their x-ray line emission characteristics, particularly from K-shell and L-shell transitions. A comparison of the foil x-pinch's performance between the two drivers provide an assessment of its scaling properties. The radiation is studied with time-integrated x-ray spectrometers and filtered photo-conducting diodes (PCD) for time-resolved measurements. The global characteristics of the foil x-pinches are studied with optical laser probing techniques and extreme ultraviolet (XUV) framing images. [1] G.W Collin IV, et al., Physics of Plasmas 23, 101212 (2016)

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