

Abstract Submitted  
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**Ultrafast 25 keV backlighting for experiments on Z**<sup>1</sup> M. GEISSEL, M. SCHOLLMEIER, T. PITTS, P. RAMBO, J. SCHWARZ, A.B. SEFKOW, B.W. ATHERTON, Sandia National Laboratories — To extend the backlighting capabilities for Sandia's Z- Accelerator, Z-Petawatt, a laser which can provide laser pulses of 500 fs length and up to 120 J (100TW target area) or up to 450 J (Z / Petawatt target area) has been built over the last years. The main mission of this facility focuses on the generation of high energy X-rays, such as tin  $K\alpha$  at 25 keV in ultra-short bursts. Achieving 25 keV radiographs with decent resolution and contrast required addressing multiple problems such as blocking of hot electrons, minimization of the source, development of suitable filters, and optimization of laser intensity. Due to the violent environment inside of Z, an additional very challenging task is finding massive debris and radiation protection measures without losing the functionality of the backlighting system. We will present the first experiments on 25 keV backlighting including an analysis of image quality and X-ray efficiency.

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