

Abstract Submitted  
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**Development of a High Fluence, High Conversion Efficiency X-Ray Silver Metal Foam Source at the NIF** M. J. MAY, J.D. COLVIN, G.E. KEMP, LLNL, D. THORN, Akima, K WIDMANN, B.E, BLUE, LLNL — High x-ray conversion efficiency (XRCE) L-shell Ag sources are being developed for High Energy Density experiments. The targets are nominally 4 mm in diameter, 4 mm tall cylinders of free standing Ag metal foam with densities of 10 - 30 mg/cm<sup>3</sup> and made by a new technique of freeze drying an aqueous suspension of Ag nano wires. 192 laser beams from NIF are used to heat the targets with ~150 TW of power in a 4 ns square in time pulse depositing ~600 kJ into the target. XRCEs from these targets have been measured by using the Dante diode spectrometer to be ~7% which is much less than the predictions from simulations. The nano wires at nominal solid density might not be homogenized sufficiently by the laser heating pulse which could limit the XRCE. To increase the XRCE, we plan to use a laser prepulse of ~1 kJ to preheat the nano wires in the target before the main laser heating pulse. The results of these experiments will be discussed. This work was performed under the auspices of the US Department of Energy by University of California Lawrence Livermore National Laboratory under Contract No. W-7405-Eng-48.

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