

Abstract Submitted  
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**Spaced Nano-Foil Laser Targets as Bright High-Energy X-ray Sources**<sup>1</sup> J.D. COLVIN, J.M. MCNANEY, Lawrence Livermore National Laboratory, J.L. PORTER, L.E. RUGGLES, Sandia National Laboratories — Colvin and Felter (Bull. A.P.S. 48/7, 288, 2003) first showed the feasibility of using very low-density (density  $\sim 0.1\%$  solid) pure-metal foams as bright high-energy x-ray sources based on simulations of K-shell x-ray output under high-power laser illumination. They also presented preliminary results of a novel fabrication process for making such very low-density foams (Bull. A.P.S. 49/8, 285, 2004). In this talk we present some results of an intermediate step: fabrication of spaced nano-foil targets, simulations of how these targets turn into a near-homogeneous under-dense plasma when illuminated by a high-power laser, and spectroscopic measurements taken on the Z-Beamlet laser at Sandia National Laboratories. Preliminary results suggest that it may be possible to get a higher x-ray conversion efficiency from these targets than from a solid metal disc under identical illumination conditions.

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Jeff Colvin  
Lawrence Livermore National Laboratory

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