

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

On Optimizing K-Shell X-ray Conversion Efficiencies with New Nano-structured Laser Targets¹ JEFFREY COLVIN, Lawrence Livermore National Laboratory, SUPAKIT CHARNVANICHBORIKARN, LLNL, TOM FELTER, Sandia National Laboratories-CA, CHAD FLORES, Univ. Calif. Davis, KEVIN FOURNIER, LLNL, DUSTIN GILBERT, UCD, SERGEI KUCHEYEV, LLNL, KAI LIU, UCD — We have begun developing new nano-fabrication techniques to make suitable laser targets that can form highly uniform high- Z non-LTE plasmas when illuminated by high-intensity laser light. In this presentation we first discuss progress in developing very low-density pure Cu foams via a four-step ion-lithography process and progress in mechanically trapping Cu nanowires in a silica aerogel foam. We then discuss the radiation-hydrodynamics and non-LTE atomic physics modeling of various targets we could assemble from these foams, and what the modeling reveals about how best to optimize Cu K-shell x-ray conversion efficiencies via target design.

¹This work was performed under the auspices of the U.S. Department of Energy by LLNL under Contract No. DE-AC52-07NA27344, with funding from a Basic Research grant from the U.S. Defense Threat Reduction Agency.

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Date submitted: 12 Jul 2011

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