

Abstract Submitted
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Understanding the Fabrication Process of Multi-layered Cocktail Coatings¹ H. WILKENS, A. NIKROO, D.R. WALL, GA, J. GUNTHER, J.S. HARPER, N.E. TESLICH, R.J. WALLACE, LLNL — Sputtered multi-layered depleted uranium (DU) and gold cocktail coatings created at General Atomics are being characterized in collaboration with Lawrence Livermore National Laboratory to elucidate how different process conditions affect the quality and composition of the sputtered films. Calculations have shown that adding a high Z material like DU to a gold hohlraum will improve the conversion efficiency to x-rays of the incoming laser energy incident on the hohlraum wall [1]. Transmission electron microscopy (TEM) images of coatings made on a variety of different materials are presented, including flat substrates such as cellulose acetate and silicon, as well as coatings on rotating cylindrical acrylic and aluminum mandrels which are used to fabricate hohlraums. TEM images typically show clear intermixing of the DU and Au layers, and depth-profiling Auger electron spectroscopy and energy dispersive x-ray analysis done in cross-section accurately measure the material composition profile.

[1] T.J. Orzechowski, et al., Phys. Rev. Lett. **77**, 3545 (1996).

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D.T. Goodin
General Atomics

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