

Developments in HiZ Physics Package Fabrication

Gordy Field¹, Anna Murphy¹, Nam Lee¹, Gino Mercado¹, Jeff Stanford¹

¹Lawrence Livermore National Laboratory, Livermore, USA; *field14@llnl.gov

The High Energy Density (HED) Materials Physics program consists of a series of subcampaigns to investigate the structure and strength of relevant materials at high pressure regimes. Within the program there are a series of targets using Plutonium as the material of interest. The fabrication and assembly process we typically use for the production of lower-Z physics packages require several adjustments to accommodate safety requirements of working with Plutonium.

Improvements in the machining capabilities allow increased precision in thickness of the sample, and improvements in coating robustness allow removal of the sample/pusher glue bond which has allowed the physics drive to maintain better control and probe new regions of the equation of state. We have also successfully implanted helium into the metal matrix, based on an adjusted procedure used for Pb samples previously, which will allow investigation into the effects of aging plutonium in material structure and strength. We will discuss HiZ HED target requirements and how these have been met with current target design, fabrication, assembly and metrology.*

**Representative abstract from closely related work, final abstract pending internal document review*

Prepared by LLNL under Contract DE-AC52-07NA27344.

LLNL-POST-867206