

Abstract Submitted  
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**X-ray sources such as metallic liner inside plastic cavities are used to test atomic physics models for LMJ simulations** FREDERIC GIRARD, L. JACQUET, M. PRIMOUT, D. BABONNEAU, B. VILLETTE, PH. STEMMLER, CEA/DAM/DIF — Bright multi-keV K-shell emission sources [1-3] are necessary for ICF studies such as radiography of dense materials. Our recent works with titanium ( $\text{He}_\alpha$  at 4.7 keV) and germanium ( $\text{He}_\alpha$  at 10.3 keV) lined cavities showed very high multi-keV x-ray conversion efficiencies up to 14.0% and 0.8% (respectively) [3]. Cavities with a titanium, copper or germanium liner have been used on the OMEGA laser facility in Rochester to test specifically atomic physics models coupled to hydrodynamic codes. Simulation results differ significantly from experimental conversion efficiencies for titanium liner but they are close together for germanium one. Atomic physics models do have great impact on X-ray output. The need for accurate predictive simulation is important in order to set up relevant radiography sources for experiments on the path to ignition. Multi-keV emission is diagnosed by a full set of diagnostics giving conversion efficiencies, time dependant x-ray power and imaging, time integrated imaging and high resolution spectra of titanium.

[1] D. Babonneau et al., Phys. Plasmas, **15**, 092702, 2008

[2] K. B. Fournier et al., Phys. Plasmas, **16** 052703, 2009

[3] F. Girard et al., Phys. Plasmas, **16**, 052704, 2009

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