

Abstract Submitted  
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**Dynamic hohlraums as x-ray sources in high-energy density science**<sup>1</sup> J.F. HANSEN, S.G. GLENDINNING, R.F. HEETER, Lawrence Livermore National Laboratory — A new laser driven dynamic hohlraum (LDDH) backlighter has been evaluated using 10 of 60 beams of the Omega laser. The LDDH is filled with krypton that implodes to create an x-ray flash that satisfies requirements imposed by future experiments: (1) the flash spectrum extends  $> 5.5$  keV, well above the maximum x-ray energy ( $\sim 3.5$  keV) obtained from the previously “best” opacity backlighters (uranium M-shell emission backlighters); (2) the spectrum is smooth and featureless (intensity variation  $< 6\%$  RMS), allowing absorption spectrometry through experimental samples; (3) the flash size is sufficiently small ( $< 50$   $\mu\text{m}$ ) for projection backlighting through future samples; (4) the flash is bright enough (and twice as bright as imploding hydrogen-filled capsules) for gated spectrometer measurements; and (5) the flash duration is optimized ( $\approx 100$  ps) for current and future generations of spectrometers. This enables opacity and temperature measurements through absorption spectrometry of materials in LTE at temperatures  $> 150$  eV, a crucial regime for future astrophysics and ignition fusion experiments at NIF.

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