

Abstract Submitted
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Gatling gun approach to long duration x-ray drives for laboratory astrophysics studies¹ DAVID MARTINEZ, J.O. KANE, R.F. HEETER, Lawrence Livermore National Laboratory, Livermore, CA 94550, USA, A. CASNER, B. VILLETTE, CEA, DAM, DIF, F-91297 Arpajon, France, R.C. MANCINI, University of Nevada, Reno, NV, 89557, USA, B.A. REMINGTON, Lawrence Livermore National Laboratory, Livermore, CA 94550, USA — Laboratory astrophysics studies investigating the pillar structures in the Eagle Nebula, or photoionization studies require a steady light source of sufficient duration to recreate relevant physics. To address these experimental requirements we successfully developed a 30ns, 90eV x-ray radiation drive using a foam-filled multi-barrel (“Gatling Gun”) hohlraum driven with three 10ns pulse UV beams on the Omega EP laser system located at LLE. The multi-barrel hohlraum consisted of three adjacent Cu cavities, heated in succession to generate long duration x-ray source. The Gatling gun approach mitigated the issues of LEH closure from a single hohlraum heated for extended durations. Characterization of the Gatling gun hohlraum, using uDMX and VISAR diagnostics, will be presented.

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