

Abstract Submitted
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Equal-Channel-Angular-Extrusion Be-Cu as a NIF Ablator¹ J.A. COBBLE, T.E. TIERNEY, B.G. DEVOLDER, I.L. TREGILLIS, N.M. HOFFMAN, R.D. DAY, A. NOBILE, LANL — Equal channel angular extrusion (ECAE) Be-Cu is an alloy that may be useful as an ignition target ablator at the National Ignition Facility (NIF). Planar samples have been diamond turned to create a $0.25\text{-}\mu\text{m}$ amplitude sinusoid on one side. These have been mounted in hohlraum targets at the OMEGA laser and driven by a pressure approaching 2 Mbar and a radiation temperature that peaks near 160 eV in ~ 6 ns. The resulting growth of the Rayleigh-Taylor instability has been examined with x-ray backlighting. With face-on imaging, we see no growth. However, with side-on radiography, parallel the grooves of the sinusoid, the twenty-times-greater ρr permits us with a 16-frame gated x-ray imager to see modulation of the Be-Cu foil as it is launched out of the end of the hohlraum. The x-ray transmission is deduced. Hydrodynamic modeling matches the radiation temperature of the hohlraum, and calculations are compared to the velocity of ejection of the sample. A 2D-Rad-Hydro code is used to calculate the sample mean x-ray mass absorption coefficient for the broadband backlighter energy. The time-dependent growth factor of the instability is estimated.

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