Abstract Submitted
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Progress in modeling radiation drive in uranium-based cocktail hohlraums[1] O. JONES, J. SCHEIN, M. ROSEN, L. SUTER, R. WALLACE, J. GUNTHER, K. CAMPBELL, LLNL, H. WILKENS, A. NIKROO, General Atomics, R. OLSON, G. ROCHAU, SNL — Although standard gold hohlraums have proven to be effective for generating and confining soft x-rays for indirect drive ICF experiments, it is theoretically possible to make hohlraums more efficient by using mixtures of materials, known as "cocktails". Calculations show that by suitably choosing a mixture of two or three materials, one can reduce the radiation energy lost into the hohlraum wall by simultaneously increasing the opacity and decreasing the heat capacity of the wall material relative to a pure gold wall. We report on recent experiments done at Omega in which we measured the radiation drive of cocktail and gold hohlraums with a filtered x-ray diode array. The hohlraums, which were made of gold, uranium-gold cocktail, or uranium-gold-dysprosium cocktail, reached peak radiation temperatures ranging from 270 to 310 eV. The radiation escaping through the laser entrance hole was calculated and compared to the measured values. The measured increase in radiation drive for the cocktail hohlraums compared to gold hohlraums was found to be in good agreement with our modeling.

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