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Experimental Design: Rayleigh-Taylor Instability Growth to High Froude Number in the Non-Linear Regime at OMEGA LAURA ELGIN, University of Michigan, G. MALAMUD, Nuclear Research Center, Negev and University of Michigan, C.M. HUNTINGTON, Lawrence Livermore National Laboratory, T. HANDY, M.R. TRANTHAM, S.R. KLEIN, R.P. DRAKE, D. SHVARTS, C.C. KURANZ, University of Michigan — Potential flow models predict that a Rayleigh-Taylor unstable system will reach a terminal velocity (and constant Froude number) at low Atwood numbers. Numerical simulations by Ramaprabhu et al. predict a reacceleration phase of Rayleigh-Taylor Instability (RTI) and higher Froude number at late times [1]. We are planning a series of experiments at OMEGA 60 to measure RTI growth at low and high Atwood numbers and late times in order to observe this effect. The evolution of this system will be diagnosed with dual, x-ray radiography. Experimental design and diagnostic challenges are discussed here.

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[1] P. Ramaprabhu et al., "The late-time dynamics of the single-mode Rayleigh-Taylor instability," Phys. Fluids 24, 074107 (2012).

Carolyn Kuranz
University of Michigan

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