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Computational Analysis of Late-Time, Low Atwood Rayleigh-Taylor Experiments at OMEGA[1] TIMOTHY HANDY, LAURA ELGIN, Univ of Michigan - Ann Arbor, CHANNING HUNTINGTON, Lawrence Livermore National Laboratory, CAROLYN KURANZ, R. PAUL DRAKE, DOV SHVARTS, Univ of Michigan - Ann Arbor, GUY MALAMUD, NRCN, Israel — Numerical simulations have shown a reacceleration phase of the Rayleigh-Taylor instability (RTI) at low Atwood numbers, during which the bubble and spike Froude numbers deviate from their expected asymptotic values [1]. Currently, there is no experimental validation of those results. In this work, we present the design and computational analysis of a laser-driven RTI experiment on OMEGA 60. The design considered enables us to experimentally probe both high Atwood numbers (for validation against previous experiments), and low Atwood numbers, which may allow us to validate theoretical results [1]. Our analyses focus on the behavior of the full target system, as well as simplified models for studying the impact of large-scale expansion effects due to the post-shock pressure profile. [1] P. Ramaprabhu et al., Phys. Fluids 24, 074107 (2012)

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