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Development of a Platform for High Growth-Factor Rayleigh-Taylor Experiments on the Omega Laser DAVID BRAUN, DAVID BRADLEY, KELLY CAMPBELL, GILBERT COLLINS, JOHN EDWARDS, Lawrence Livermore National Laboratory — Current plans for the NIF ignition target call for the use of Beryllium as the capsule ablator. There is a concern however, that the Beryllium microstructure will provide a seed for the growth of Rayleigh-Taylor instabilities. We present here a platform being developed to perform high growth factor RT experiments with Beryllium on Omega. The platform consists of a horizontal halfraum, with the RT target centered on-axis over a hole in the back wall. The RT growth of the sample is backlit and viewed along the halfraum axis through the LEH. The halfraum is driven by a series of staggered 2.4 ns laser pulses, timed to produce a 2-step drive consisting of a 3 ns foot (Tr=100 eV), followed by an extended main drive (Tr=150 eV). Simulations show that very small amplitude initial perturbations have linear RT growth factors of up to 1000 over the 10 ns laser drive. A gas fill is used to avoid Au penetration to the halfraum axis where it can obscure the backlighter view of the RT package. The talk will also compare the predicted Tr drive to that measured in the initial Omega experiments.

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