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Measurements of Rayleigh-Taylor growth in solid and liquid copper in the Mbar regime[1] JAMES MCNANEY, SHON PRISBREY, CHANNING HUNTINGTON, HYE-SOOK PARK, Lawrence Livermore National Laboratory, BRUCE REMINGTON, None, DAMIAN SWIFT, CHRIS WEHRENBERG, TOM ARSENLIS, Lawrence Livermore National Laboratory — Face-on radiographic measurements of ripple growth in solid and liquid copper have been performed at the OmegaEP laser facility. Pre-imposed ripples of 80m wavelength were accelerated by the stagnation of a releasing shocked plastic "reservoir" which was directly driven by 3-9kJ of laser energy. The state of the copper was varied from solid to liquid by increasing the initial shock amplitude of the loading wave from below to above the Hugoniot shock-melting limit. A comparison with 2-dimensional hydrodynamic simulations indicates that growth in the solid phase is consistent with a strength roughly 2.5-5x that predicted by the commonly used Steinberg-Guinan model while growth in the liquid phase is consistent with simulated no-strength ripple growth.

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