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Using radiation temperature to monitor plasma drive in materials strength experiments[1] LAURA ROBIN BENEDETTI, A.S. MOORE, H.-S. PARK, S.T. PRISBREY, C.M. HUNTINGTON, J.M. MCNANEY, R. SMITH, C.E. WEHRENBERG, B.A. REMINGTON, A. ARSENLIS, Lawrence Livermore National Laboratory — Materials strength experiments at the National Ignition Facility generate smooth loading in a material by the plasma drive of a shocked reservoir mounted on the side of a gold *hohlraum*. In these experiments, the loading profile of plasma unloading across a gap and then stagnating at the target is measured with VISAR. Geometric limitations preclude simultaneous measurement of VISAR and the Rayleigh-Taylor (RT) growth that is used to determine strength. We use *hohlraum* radiation temperatures measured with the Dante spectrometer to link the drive measured with VISAR to the stress condition when RT growth is measured. By combining Dante measurements from two different lines of sight with view factor calculations, we infer the radiation drive into the reservoir. With this method, we can account for spatial variations within the *hohlraum* and also reproduce observed variations due to changes in pointing and target orientation. We describe the simplified, physics-based analysis of Dante spectra and the methods of determining radiation drive to the reservoir. We then discuss the effectiveness of this method for inferring drive at the target material.

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