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Results from Direct-Drive Shock-Timing Experiments at the National Ignition Facility P.B. RADHA, M.J. ROSENBERG, M. HOHENBERGER, T.R. BOEHLY, E.M. CAMPBELL, D.H. FROULA, V.N. GONCHAROV, S.X. HU, J.A. MAROZAS, J.F. MYATT, S.P. REGAN, T.C. SANGSTER, Laboratory for Laser Energetics, U. of Rochester, S. DIXIT, LLNL — The timing of multiple shocks is critical to set an inertial confinement capsule on a desired adiabat. Several factors including laser-energy deposition, heat conduction, and equation of state determine the adiabat of the compressing shell. Dual-axis cone-in-shell experiments, performed with plastic, (CH) shells and solid spheres, are used to diagnose the first shock velocity and the catch up of subsequent shocks at the National Ignition Facility. The shocks are launched with multiple pickets, expected to be used in ignition-relevant designs, at two different intensities. In separate experiments, continuous pulse shapes are also diagnosed. The measurements are compared to two-dimensional *DRACO* simulations that include the effects of nonlocal heat transport,[1] cross-beam energy transfer,[2] and the first-principles equation of state of CH.[3] Designs that could potentially diagnose late-time energy coupling through shocks are also presented. This material is based upon work supported by the Department Of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

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[3]S. X. Hu *et al.*, Phys. Rev. E **92**, 043104 (2015).

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