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The 1-D Campaign on OMEGA: A Systematic Approach to Find the Optimum Path to Ignition R. BETTI, A. BOSE, A.R. CHRISTOPHERSON, Laboratory of Laser Energetics and Fusion Science Center, U. of Rochester, E.M. CAMPBELL, T.J.B. COLLINS, J.P. KNAUER, A.V. MAXIMOV, P.B. RADHA, S.P. REGAN, W. SHANG, C. STOECKLL, Laboratory for Laser Energetics, U. of Rochester — A methodology is devised to make progress toward achieving ignition starting from a wellunderstood implosion. This technique uses several metrics that rely on trends in experimental observables rather than absolute values and their agreement with simulations. The flexibility of the OMEGA laser makes it ideal to implement such a platform. For direct-drive inertial fusion, this methodology is being implemented starting from high-adiabat, low-convergence implosions of DT cryogenic capsules. The first implosions of this campaign use single-parameter scans to determine trends in the experimental observables used to identify degradation mechanisms affecting implosion performance. In this implosion, short-wavelength perturbations or hot-electron preheat are turned on and off by using (a) laser smoothing on/off keeping identical laser pulse shapes and (b) low/high intensities keeping the shock timing fixed. Another pair of shots with identical laser pulse shapes but different payloads (DT and CH) is used to characterize the preheat level. The first results of this systematic approach are 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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