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Wall Shocks as Diagnostic Features of High-Energy-Density Experiments F.W. DOSS, R.P. DRAKE, University of Michigan, H.F. ROBEY, Lawrence Livermore National Laboratory, C.C. KURANZ, University of Michigan — Shock tube experiments in which intense heating ahead of the shock is present, by radiation transfer or other mechanisms, can exhibit heating and ablation of the tube material, driving an inwardly directed radial shock, which we call a wall shock. Both the wall shock and its interaction with the experiment's primary shock can be observed. From this interaction, various parameters related to shock speeds and temperatures may be inferred. Because wall shocks may also be driven by laser preheat, they appear not only in experiments containing strongly radiating shocks, but in other laser driven shock experiments. We present several examples of wall shocks obtained in multiple experimental settings and observed by x-ray radiography, computational support generated from the radiation hydrodynamics code HYDRA, and work detailing how shock parameters may be estimated from wall-shock observations. Supported by the DOE National Nuclear Security Administration under the Predictive Science Academic Alliance Program by grant DE-FC52-08NA28616, under the Stewardship Sciences Academic Alliances program by grant DE-FG52-04NA00064, under the National Laser User Facility by grant DE-FG03-00SF22021, and by the Stewardship Science Graduate Fellowship Program.

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