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Measurement of Spherically Converging Shock Waves on OMEGA JOHN RUBY, J. RYAN RYGG, GILBERT COLLINS, CHAD FORREST, VLADMIR GLEBOV, Laboratory for Laser Energetics, BENJAMIN BACHMANN, YUAN PING, Lawrence Livermore National Laboratory, HONG SIO, NEEL KABADI, Massachusetts Institute of Technology — A platform on the OMEGA laser at the Laboratory for Laser Energetics is being developed to measure spherically converging shock waves in solid-density targets. A spherical strong shock is driven in a solid spherical target, and measurements are made in flight and around the time of shock collapse. The primary in-flight–measurement technique is x-ray radiography using pointprojection x-ray backlighting. Radiography measures the trajectory of the ingoing wave, and the point-projection scheme allows for contrast enhancement caused by refraction that could also result in a density measurement at the location of the shock front. Around the time of shock collapse, a set of hot-dense-plasma states is created and measured via self-emission. X-ray continuum radiation and fusion products are used to constrain the states at the center of the target. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0003856, the University of Rochester, and the New York State Energy Research and Development Authority.

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