

Abstract Submitted
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Double Shock in Polystyrene ZAIRE SPROWAL, TOM BOEHLI, DANA POLSIN, RYAN RYGG, GILBERT COLLINS, LINDA CRANDALL, Laboratory for Laser Energetics, DAMIEN HICKS, Swinburne University of Technology, LABORATORY FOR LASER ENERGETICS, ROCHESTER, NY, USA COLLABORATION, SWINBURNE UNIVERSITY OF TECHNOLOGY, AUSTRALIA COLLABORATION — We present the findings of a double-shock experiment in polystyrene, where the reflectance of the second shock behind the transparent first shock was observed in addition to the resulting coalesced shock. We deduce mechanical, thermal, and transport, properties of the double-shocked material to pressures of up to 8 Mbar with reflectivity, shock velocity, and temperature data obtained from the VISAR (velocity interferometer system for any reflector) and the SOP (streaked optical pyrometer) diagnostics. From these data we explore the off-Hugoniot behavior of polystyrene and conclude with a comparison of our findings to previous experiments. 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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