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A Broadband Reflectance Diagnostic for Matter at Extreme Conditions BRIAN HENDERSON, MOHAMED ZAGHOO, RYAN RYGG, DANAE POLSIN, TOM BOEHLY, University of Rochester, LLE, GILBERT COLLINS, None, SUZANNE ALI, PETER CELLIERS, AMY LAZICKI, MARTIN GORMAN, MARIUS MILLOT, RICHARD BRIGGS, JON EGGERT, Lawrence Livermore National Laboratory, MALCOLM MCMAHON, University of Edinburgh, UNIVERSITY OF EDINBURGH COLLABORATION, LAWRENCE LIVERMORE NATIONAL LABORATORY COLLABORATION, UNIVERSITY OF ROCHESTER, LLE TEAM — In dynamic compression experiments, materials experience dramatic changes in their physical and chemical properties, manifesting in the material's optical properties. Reflectivity measurements are integral to detecting changes in chemical bonding and electronic structure for experiments involving high density and temperature. To this end, our work developed a normal-incidence, visible optical-reflectivity diagnostic for the OMEGA EP Laser System at the University of Rochester's Laboratory for Laser Energetics. This diagnostic measures the time- and wavelength-resolved reflectivity of laser-compressed materials. We present the design of the system, its performance, and experiments on compressed materials. 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.

Brian Henderson
University of Rochester, LLE

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