Abstract Submitted for the SHOCK11 Meeting of The American Physical Society

Confocal microscopy of fluids under static pressure¹ M.D. MC-CLUSKEY, G.J. HANNA, Washington State University — There are few reliable methods for obtaining equations of state for fluids under extreme conditions. We have used *confocal microscopy* to investigate water and argon under large hydrostatic pressures. Unlike conventional optical microscopy, confocal microscopes collect data point-by-point, enabling three-dimensional image reconstruction. Using this method, we produced three-dimensional images of fluids under large hydrostatic pressures. By combining these images with Fabry-Perot interference measurements, we determined the volume and refractive index, as a function of pressure, in the same experiment.

¹Supported by DOE/NNSA and NSF.

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Date submitted: 14 Feb 2011

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