Confocal microscopy of fluids under static pressure\textsuperscript{1} M.D. MCCLUSKEY, 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.

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