

Abstract Submitted  
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**Construction and Calibration of a Streaked Optical Spectrometer for Shock Temperature** DYLAN SPAULDING, ERIK DAVIES, SARAH STEWART, University of California, Davis — The UC Davis Shock Compression lab houses two light gas guns which are primarily applied towards equation-of-state and dynamic temperature measurements on shock and release to study mechanical and thermodynamic properties of geophysical samples. Here we describe the implementation and calibration of a temporally and spectrally-resolved spectrometer for studies of shock temperature, optical properties and/or emission/absorption spectroscopy. The system is based on an Optronis SC20 streak camera (permitting observation windows from 280ns to 700usec with 2K x 2K, 16-bit resolution) coupled to a Princeton Instruments SpectraPro HRS300 spectrometer with custom injection optics and secondary beam path for alignment and calibration. The overall system response permits observation from 400 - 850 nm with  $\sim$ nm spectral resolution. Fiber-optic coupling to the sample enables a small diagnostic footprint on the target and flexibility and operation on either of our light gas gun platforms without the need for open optics. We present details of absolute calibration using a tungsten-halogen spectral radiance standard as well as tunable blackbody source, line emission sources and optical comb generator.

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