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Near-Field Optical Characterization of Explosions KEVIN MCNESBY, MATTHEW BISS, BARRIE HOMAN, VINCENT BOYLE, RICHARD BENJAMIN, U.S. Army Research Laboratory — High-speed framing cameras, emission spectroscopy, and laser illumination are combined to allow for simultaneous, real-time mapping of temperature, pressure, chemical species and blast energy during and following explosions. This work provides quantitative, simultaneous measurement in the explosive near and far-field (0-500 charge diameters) of surface temperatures, peak air-shock pressures, chemical species signatures and shock energy deposition that characterize explosions. Information on these events is used to evaluate the performance, lethality, and survivability of Army munitions.

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