Abstract Submitted
for the SHOCK15 Meeting of
The American Physical Society

Spectroscopic Analysis of Time-Resolved Emission from Shocked Explosive Samples JEFFREY KAY, BROOK JILEK, RYAN WIXOM, ROBERT KNEPPER, ALEXANDER TAPPAN, DAVID DAMM, Sandia National Laboratories — We report a series of time-resolved spectroscopic measurements that aim to characterize the reactions that occur during shock initiation of high explosives. The experiments employ time- and wavelength-resolved emission spectroscopy to analyze light emitted from shocked and detonating thin explosive films. In this talk we present analysis of optical emission spectra from hexanitroazobenzene (HNAB), hexanitrostilbene (HNS), and pentaerythritol tetranitrate (PETN) samples. The emission features observed in the spectra are assigned to electronic transitions of molecular fragments, and the implications of these findings on our understanding of the underlying reaction mechanisms are discussed.

Jeffrey Kay
Sandia National Laboratories

Date submitted: 29 Jan 2015 Electronic form version 1.4