

Abstract Submitted  
for the SHOCK13 Meeting of  
The American Physical Society

**Raman Temperature Measurement** DAVID MOORE, SHAWN MC-GRANE, Los Alamos National Lab — We are examining the experimental tradeoffs for the use of the spontaneous Raman Stokes/anti-Stokes intensity ratio as a fundamental temperature measurement at static and dynamic extreme conditions. The tradeoff space includes spatial resolution and temperature range versus vibrational frequency, as well as heating of the sample and nonlinear damage caused by the excitation laser. The experiments are being performed under a range of experimental conditions from picoseconds to seconds and from cryogenic (77 K) to elevated (ca. 1000 K) temperatures. The results are being compared to calculations for transparent metal oxide, polymer, and inorganic materials, with the aim to demonstrate their potential as temperature reporters when used as thin windows on opaque materials.

David Moore  
Los Alamos National Lab

Date submitted: 25 Feb 2013

Electronic form version 1.4