

Abstract Submitted  
for the SHOCK19 Meeting of  
The American Physical Society

**A direct comparison of transverse velocimetry techniques using photon Doppler velocimetry (PDV) in oblique impact experiments<sup>1</sup>**  
CHRISTOPHER JOHNSON, JOHN BORG, Marquette University, SCOTT ALEXANDER, Sandia National Laboratories — Photon Doppler velocimetry (PDV) has been used increasingly to measure transverse velocity in many dynamic studies. This work presents oblique impact experiments which were performed on Ti6Al4V using a slotted-barrel gas gun and an oblique nose projectile to generate normal and shear stress waves resulting in longitudinal and transverse components of particle velocity. Multiple unique transverse PDV configurations were implemented simultaneously and are directly compared. Results illustrate strong variability in measurement uncertainty between the explored velocimetry methods. Results will be presented along with uncertainty calculations for each approach. Implications of this study inform and directly compare the accuracy and uncertainty of the techniques, aiming to further advance transverse velocimetry measurements. SNL is managed and operated by NTESS under DOE NNSA contract DE-NA0003525

<sup>1</sup>SNL is managed and operated by NTESS under DOE NNSA contract DE-NA0003525

Christopher Johnson  
Marquette University

Date submitted: 27 Feb 2019

Electronic form version 1.4