

Abstract Submitted
for the SHOCK19 Meeting of
The American Physical Society

Recent BLR development at CEA AURLIE AZZOLINA, PATRICK MERCIER, ESTELLE DUBREUIL, CEA-DAM-DIF, 91297, Arpajon, France, CEA-DIF-DAM TEAM — In shock physics experiments, the knowledge of displacement versus time is very useful. Since 2015, the CEA is designing BLR (Broadband Laser Ranging) diagnostic, in addition to PDV (Photonic Doppler Velocimetry) measurements. This first set up is composed of a 20 MHz locked modes picosecond laser, delivering an infrared beam ($\lambda = 1.55 \mu\text{m}$) with a broad spectrum ($\Delta\lambda = 40 \text{ nm}$), followed by a Mach-Zehnder interferometer and a dispersion fiber, which expands the spectrum versus time. The signal is recorded by a 33 GHz-bandwidth detector and digitizer. The system is designed to sample every 50 ns for a few tens mm target displacement range. In the poster, we will present the BLR setup, the calibration method and the post-processing software. The system was qualified on a powder gun experiment (target velocity: 2 km/s). The results are discussed and compared to the PDV measurements.

Aurlie Azzolina
CEA-DAM-DIF, 91297, Arpajon, France

Date submitted: 02 Mar 2019

Electronic form version 1.4