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**Experimental Investigation of the Interaction of Blast Waves  
Generated by Exploding Wires using Background Oriented Schlieren**

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— Work has been performed to experimentally characterize the interaction of a multiple blast waves. The blast waves were generated using an exploding wire system. This system can store up to 400 J of energy in a high voltage capacitor bank. By discharging the capacitors through wires of a diameter of 150  $\mu\text{m}$  it was possible to produce blast waves with Mach numbers as high as 2.3 at a distance of 40 mm from the center of the blast. A parametric study was performed to measure the behavior of the shocks for a variety of wire thicknesses, voltages, and separation distances. Additionally a background oriented schlieren system was used to quantify the flowfield behind the shocks. The interaction of the shocks featured expected non-linear phenomena such as the presence of Mach stems, and showed good agreement with results in the shock wave literature. This investigation lays the groundwork for subsequent research that will use exploding wires to experimentally reproduce conditions investigated numerically, in which the effects of multiple converging blast waves on a central target were investigated.

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