EXPERIMENTAL CHARACTERIZATION OF A NEAR-FIELD HOB-DETONATION

T. Kisters , J. Kuder

Fraunhofer Institut für Kurzzeitdynamik, Ernst-Mach-Institut,
Am Klingelberg 1, D-79588 Efringen-Kirchen, Germany

In the near-field ($R \leq 1$ m/kg$^{1/3}$) of a near-surface detonation (HOB < 0.5 m/kg$^{1/3}$) interactions between the high pressure shock wave, the hot expanding detonation gases, and the ground surface produce high irregularities in the emerging blast field and render measurements exceptionally susceptible to variations in setup conditions and surrounding. Accurate predictions about peak pressures or impulse values become increasingly difficult, and available data, being scarce anyway, are frequently flawed with rather large statistical fluctuations. Thus, reliable data characterizing the near-field of a HOB-detonation are clearly needed, especially in view of the importance of this configuration in asymmetric warfare (IED attacks).

This paper describes experimental investigations which were part of a more general study initialized at the EMI to address this need. Salient features of the scenario are outlined and, thereof, particular requirements for test instrumentation derived. We present measurement techniques adapted to the scenario along with scaled and real size model experiments.