

NUMERICAL AND ANALYTICAL INVESTIGATION OF THE INTERACTION OF A BLAST WAVE WITH A HIGH DENSITY LAYER

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The interaction of a planar shock wave with a high density layer has been investigated both numerically and analytically. It has been shown that depending on the incident shock wave Mach number and the densities ratio across the interface the interaction results in either a stationary regular reflection or a stationary Mach reflection. However, even when a stationary regular rejection is established, it is preceded by a transient Mach reflection.

In addition it has been proven that in agreement with Hornung, Oertel and Sandeman's length scale concept the MR--->RR transition takes place at the normal shock point, i.e., the so-called mechanical-equilibrium condition.