

## **EVALUATION OF THE PROPERTIES OF AIR IN A SHOCK WAVE USING A BETA-DENSITOMETER AND NUMERICAL METHODS**

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The knowledge about several variables of state and their transient behavior is essential for the understanding of the complicated shock and flow phenomena in a large blast simulator (LBS) as well as in a conventional shock tube.

In order to gain more information on the variables of state in a shock wave a beta-dosimeter has been designed and tested. In comparison to pressure measurements alone a more detailed picture of the flow in a LBS can be achieved combining several transient measurements, like static and dynamic pressure and density.

As an additional benefit the detection of local phenomena - boundary layer effects, inhomogeneity of shock waves - is possible using such a device at different locations in the simulator. In conjunction with the measurements an attempt has been made to model the experiments numerically by the Random Choice Method.