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Pressure Measurement of Strong Shock in a Magneto-Hydrodynamic Shock Tube

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In a strong shock diagnostics, it is very interest to measure directly in an electro-magnetic shock-tube. In this paper, the design and calibration method of a small piezo-electric pressure transducer and its experimental results are described.

Pb Zr_(0.52) Ti_(0.48) O₃ element is used for this transducer and its calibration is performed using the shock wave itself produced in a electromagnetic shock-tube.

It was shown that the calibration method employed was adequate to measure the pressure transient across shock waves in the observed ranges of the initial pressure (P_0) from 1 mm Hg to 3 mm Hg and shock Mach number M_s from 5 to 20.

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