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A Backward Characteristics Method for Impact Test HAIBO XU, HAO PAN, National Key Laboratory of Computational Physics, Institute of Applied Physics and Computational Mathematics, Beijing 100088, China — The laser velocity interferometer has becoming an important method to study the dynamic response of materials under shock loading. A backward characteristics method considers the interaction between incident waves and reflects waves. This method can give more reasonable analysis results from the interface/freesurface velocity of the sample under test. The mechanical variables under adiabatic releasing can be obtained. Comparing with the simulationof the impact test of Tantalum, the sound speed vs. particle velocity, stress vs. Volume strain calculated by the backward characteristics method are according with the results gived by the hydrodynamics code. The backward characteristics method is used to analysis the reverse impact tests of Tin and more wealthy and important information about phase transiton under shock loading, yield strength and adiabatic releasing path is obtained.

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