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Hugoniot measurement of gold in pressure range to 580 GPa
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Hugoniot for Au and Cu have been measured in the shock pressure range 170 - 580 GPa with a two-stage light gas gun. Impactor velocities were measured with accuracy of 0.2 % by the Faraday-type electromagnetic sensors (FES) method. Shock velocities were measured with accuracy of 1 - 3 % with the line reflection method (LRM) using a streak camera and Ar ion laser with a few nanosecond time resolution. Hugoniot measurement of Cu was performed for the demonstration of FES and LRM. For the relation between shock and particle velocities, the fractional standard deviations of the data from the fits range from 0.1 to 0.4 % for copper, and that indicates excellent agreement between our data and the results of the previous studies. Symmetric impact experiment of Au was performed to qualify this material as a high-pressure standard for both dynamic and static experiments. Our data were obtained 0.8 to 3.0 % upward from the previous ones for the relation between shock and particle velocities.

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