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**The compressibility and sound velocity measurements of molybdenum up to ∼0.7 TPa** CHENGDA DAI, XIANG WANG, XIULU ZHANG, QINGSONG WANG, KE JIN, YE TAN, HONGXING SONG, FENG XI, JIANBO HU, HUA TAN, Institute of Fluid Physics, CAEP — The compressibility (Hugoniot) and sound velocity data of matter are of particular importance for constructing high-pressure equation of state and/or detecting phase transitions. In this presentation, we report the Hugoniot measurements of Mo up to ∼0.7 TPa performed on a gas gun. A hypervelocity flyer launcher was fixed on a two-stage gun muzzle for a graded-density impactor to drive Ta secondary flyer up to ∼10 km/s. The simultaneous measurements of Ta flyer velocity and shock wave velocity of Mo in each shot yielded a Hugoniot data pair. The obtained results are in a good agreement with available data. The sound velocities of Mo were also measured under shock pressure from ∼60 GPa to ∼160 GPa using a backward or forward impact geometry based on rarefaction overtake method. The extracted data smooth in tendency the knee around 210 GPa, not supporting the interpretation as a polymorphic transition. Furthermore, the obtained Mo Hugoniot and sound velocity data are compared with the results calculated using QEOS model.

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