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Platinum equation of state to greater than 2 terapascals: experimental data and analytical models

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In order to develop a new high impedance standard for shock physics applications, we investigated the equation of state (EOS) and shock compression of bulk platinum. We used canonical ab initio molecular dynamics (AIMD) simulations, we developed a SESAME-style EOS and we validated it with experimental shock data to 2177 GPa on Sandia's Z machine. The theoretical and AIMD results are in excellent agreement with experiments.

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