Abstract Submitted
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Dynamic material properties of tantalum under ramp compression (30-160 GPa)[1] GUILIN WANG[2], ZHAOHUI ZHANG, QIZI SUN, WENJIE YANG, CE JI, WENKANG ZOU, SHUPING FENG, Key Laboratory of Pulsed Power, Institute of Fluid Physics, CAEP, MAGNETICALLY DRIVEN COMPRESSION TEAM[3] — Material's response has an affinity with microstructure, load path, pressure and temperature, etc. Magnetically driven isentropic compression as a new experimental technique between quasi-static and impact, has low increased entropy and temperature. The Primary Test Stand (PTS) facility is a pulsed power machine capable of delivering currents to loads of 5˜8 MA over times of 200-750 ns. Series of ramp compression experiments of tantalum were performed on PTS facility. The loading peak pressure of the sample exceeded 150 GPa, and the loading average strain rate ranged 4-9*10^5 s^{-1}. The strength characteristic data of different process tantalum samples at peak pressure of 29-161 GPa, and the ramp compression strength characteristics of the annealed and cold-rolled regularity knowledge were measured by Photonic Doppler velocimetry (PDV). Experiment results confirmed that the strength of the metal tantalum at 10^{5-6} s^{-1} strain rate basically conforms to the SG strength model.

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[2]Magnetically driven compression and dynamic material properties.
[3]Magnetically driven compression and dyanamic material properties on PTS facility of China.

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