

Abstract Submitted
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Dynamic Strength of Tantalum under impact BENNY GLAM, MEIR WERDIGER, Applied Physics Division, Soreq NRC, 81800 Yavne, Israel, SHLOMI LEVI PISTINNER, Nuclear Physics and Engineering Division, Soreq NRC, 81800 Yavne, Israel — Plane impact experiments of double shock and shock-rarefaction in Tantalum were carried out in a gas gun. VISAR diagnostics has been implemented to measure the particle velocity and the free surface velocity. The VISAR information was utilized to study the dynamic strength of Tantalum under compression and tension. The pressure in the experiments was below 35GPa. In this pressure range the dominant mechanism is expected to be dislocation motion. A 1-d hydrodynamic code was used in order to match various strength models. As expected, both the Johnson-Cook and the Guinan-Steinberg models do not reproduce the experimental results. Therefore in this paper we compare the Zerilli-Armstrong model which has been recently calibrated at strain rate of $6 \times 10^3 \text{ s}^{-1}$ using the split Kowalsky-Hopkinson bar to our experimental results at strain rate of 10^6 s^{-1} .

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