

Hugoniot of the uranium alpha-phase in decaying shock wave

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Uranium and uranium-molybdenum alloy (1.4 percent Mo) compressibility was experimentally studied in explosively-initiated decaying shock wave. Stepped samples were suggested to obtain several Hugoniot points in each experiment. PDV was used for process recording [1,2]. The Hugoniot curve for uranium was plotted within the pressure range 10 to 60 GPa corresponding to the alpha-phase. The experimental data were compared with the discrete measurement results [3].

[1] Strand O. T. et al. Compact system for high-speed velocimetry using heterodyne techniques. *Rev. of Sci. Instrum.*, 2006, V.77, 083108. [2] Kuchko D.P., Ralnikov M.A., Shirobokov A.E. PDV Complexes Used at RFNC – VNIITF Gas-Dynamics Department, Zababakhin Scientific Talks, 2019. [3] Los Alamos Scientific Laboratory Series on Dynamic Material Properties, LASL Shock Hugoniot Data, Stanley P. Marsh (ed), University of California Press, 1980.