

# Dynamic spall strength of natural uranium

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This paper presents the measurement results of the spall strength of natural uranium under high-rate strain in the range of axial stresses from 16 to 180 GPa. The processes were recorded using VISAR (velocity interferometer system for any reflector) laser interferometer combined with PDV (photon Doppler velocimetry) method in each experiment. The dependence of uranium spall strength on stress was obtained. The spall strength of uranium under compression is shown to increase only in the relatively low axial stress range up to 20 GPa. At higher shock load amplitudes, the spall strength rather decreases than increases due to shock wave heating. Estimated pressure of uranium shows completion of its melting at the shock front that corresponds to the uranium phase diagram [1].

[1] Yoo C, Cynn H and Soderlind P 1998 *Phys. Rev. B* **57** 10359–10362