SHOCK TRANSFER OF PRESSURE TO A SOLID MATERIAL IN A TARGET WITH A POROUS ABSORBER OF A POWERFUL LASER PULSE RADIATION [[1]](#footnote-1)\*)

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The results of experiments on the "Luch" laser facility (RFNC-VNIIEF) by increasing the pressure of a laser-induced shock wave during its transition from a less dense to a denser substance through a vacuum gap [1] are presented.

Shock wave velocities in aluminum of 25-29 km/s are recorded when a nanosecond laser pulse of terawatt power is exposed to low-density flat targets made of a porous matter with a density of 0.01-0.025 g/cm3 and an aluminum layer separated by a vacuum gap. The experimental data are compared with the results of numerical simulations using hydrodynamic programs in which the generation and propagation of a shock wave were modeled taking into account the interaction of a laser pulse with a partially homogenized plasma of a porous matter.

Based on the results of experiments and computational and theoretical analysis, the effectiveness of using low-density porous matter in targets designed to study the equation of state of matter and ICF.

References

1. Garanin S.G., Zaretskii A.I., Il’kaev R.I. et al., Quantum Electronics, 35, 4, 299, 2005.

1. \*) [abstracts of this report in Russian](http://www.fpl.gpi.ru/Zvenigorod/L/It/ru/DB-Belov.docx) [↑](#footnote-ref-1)