continuation of work and reseach on low-density nanometallic layers for ICF laser targets [[1]](#footnote-1)\*)

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A number of proposals on the technology of manufacturing targets for the purposes of direct and indirect laser thermonuclear fusion (LTS) and advances in the methods of their manufacture and monitoring are investigated. The interest in this work is determined by the importance of such targets for modern laser facilities. The problem of manufacturing and measuring low-density nanometallic layers with a density several times or even orders of magnitude less than the density of solid materials of the same composition has become both in demand and necessary.

The use of targets with additional layers of metal nanoparticles makes it possible to solve a significant number of problems in ICF installation, such as increasing the compression stability, increasing the conversion of laser radiation into X-rays, increasing the neutron yield, as well as for the diagnostics. These layers are also used as structural layers of the target.

The manufacturing technology and control of such layers require as long-term development and understanding of the result obtained [1,2].The analysis of the use of such layers was carried out according to the results of ICF experiments [3-5].

For the correct interpretation of the experimental results, a complex precision monitoring of such layers has been developed [3]. It is almost necessary and possible to carry out thermal hardening of layers of metal nanoparticles [4] for more convenient transportation and for the work in the chambers for laser interaction with matter. Techniques for changing the density over layer thickness are being developed, which is important for a number of experiments.

Work with small and micro- quantities of the substances used a confined space is the specific feature and problem of the presented method.

The results obtained are used in ongoing experiments and are being developed for future ICF research.

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