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THE TARGETS FOR EXPERIMENTS AT MODELING LASER FACILITIES *)

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The studies in different areas of high energy density physics, laser thermonuclear fusion, and also in the interest of atomic field are conducted at modeling laser facilities "Luch", "Iskra-5" and multipurpose research complex "MRC". The targets with different design and composition are applied in all these studies.

It is necessary to apply the combination of techniques and methods to produce both separate elements and target as a whole, and to elaborate processing sequence, enabling to produce the targets with design parameters, which meet the requirements of the technical design specification for each kind of the targets. The combinations of physics technologies (vacuum deposition and sputtering methods, machining methods, laser processing methods, and etc.) and chemical ones (compound synthesis, mortars preparation, electrochemical polishing, etching and deposition of coatings (layers), and etc.) are typically applied in targets manufacturing. To meet high requirements for research of the processes (parameters) taking place in high-temperature dense plasma, which is produced as a result of intensity laser radiation and target matter (substance) interaction, it is necessary to apply complex of mutually complementary (crossed) and precise (error of a measurement method less than 1%, with the prospects for changeover to 0,5%) methods for thorough measurements of targets parameters and their certification at all life-cycle stages: from base plate preparation to placing the target in interaction chamber of laser facility. The research methods for each kind of the targets are approached to have an ability of conducting crossed measurements of the same target parameter to minimize a probability of incorrect interpretation of measurements results.

The analysis results of available technologies for targets manufacturing are presented, the main stages of targets manufacturing, as well as the technologies (available and perspective) of separate elements manufacturing and the methods of its improvement, by the example of currently produced laser targets, are considered in this paper.

^{*)} abstracts of this report in Russian