

## **The Dependence of Material Atomization Degree, with Respect to Laser Source Parameters**

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One of the techniques of deposition thin films is a pulsed laser deposition (PLD), which is characterized by simplicity, high efficiency and adaptability, purity and quality of the obtained films. The initial stage of laser deposition is a process of atomization, which is based on processes of thermalization laser pulse energy and heating material to temperatures close to the boiling point, that provided intense evaporation material. The formation of laser plasma is accompanied by processes which affect the quality of the film, it is the presence finely-dispersed phase of laser erosion and tough, deep character damage of material surface, this leads to inhomogeneity obtained films and spatial instability of the laser plasma plume. In order to reduce their impact was applied advanced techniques and equipments such as mechanical seperators, scheme of crossed beams, and etc.

According to our and other researches, the foregoing disadvantages can be eliminated in the implementation of certain requirements to parameters of laser source, which include pulse duration, pulse energy and pulse repetition rate, and the state of the surrounding atmosphere [1-3]. Depending from these parameters changes the concentration of vapor matter, atomic ratio and finely dispersed phase of ejected material. It was shown that using of multi-pulse mode of influence on material for laser emission analys leads to an increase of atomization of matter. As initial process of atomization is common for emission analysis and deposition, we should expect a similar effect for PLD.

In the report will be presented summarizes the results of this approach for the deposition of thin films.

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