**XUV nanosecond laser ablation for pulsed laser deposition of lithium fluoride and caesium iodide**

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The removal of material from solid surfaces by the technique of laser ablation has become increasingly important in a variety of applications such as advanced micromachining, surgery, X-ray laser generation, pulsed laser deposition (PLD), mass spectrometry of bio-molecules, art cleaning/restoration and fundamental physics studies.

In this work we present results of interaction of nanosecond XUV laser pulses at wavelength of 46.9 nm with lithium fluoride (LiF), caesium iodide (CsI) and golden (Au) samples. All of these materials were used for PLD on magnesium oxide (MgO) substrate. The laser beam is focused with a spherical Si/Sc multilayer coated mirror on samples. Samples was irradiated by 2, 5, 10, 20, 40 and 80 laser shots at various fluency values. All ablation plumes from the sample surface were registered by photo camera Canon EOS 5D Mark II and macro lens Canon EF 100 mm f/2.8 Macro USM. At the first, deposited thin films on MgO substrate were observed by optical microscope: Au and CsI deposited layers were clearly visible, but in the case of LiF situation was quite complicate due to transparency of deposited material and substrate. In the next step, ablation craters on the surface of the LiF and CsI samples were analyzed by atomic force microscope (AFM) and optical surface profiler Zygo based on the white light interferometry. Etch rate for the LiF is about of 17 nm/pulse and for CsI is about 20 nm/pulse for the focused laser energy range from 10 to 20 µJ. And finally, CsI thin film on the MgO substrate was characterized by X-ray fluorescence analysis (XRF) and 20 X-ray powder diffraction (XRD).