The overview of scientific directions and achievements of the institute of laser technologies, ITMO university

Veiko V P[@] and Odintsova G V

ITMO University, Kronvergskiy 49, Saint-Petersburg 197101, Russia

[@] vadim.veiko@mail.ru

The Institute of Laser Technologies (ILT) was founded at ITMO University in 1965 as an initiative laboratory, in 1975 it was transformed into a problem laboratory, in 1980 the Department of Laser Technologies was created, and finally in 2022 the department was named ILT. In the talk some directions of pioneered scientific activity of the ILT will be given and some results will be shortly considered. The first direction is the Local laser oxidation of thin metal films—idea and examples for laser thermochemical recording of complex patterns with the highest spatial resolution. The second direction is the Compressed laser-induced microplasma as an effective tool for transparent materials processing with following examples of number of optical components fabrication. The third one is the 3D laser integration of sensors, photonic and fluidic devices based on porous glass matrix—with some examples of produced devices. And the last but not least one is the Laser control of physical-chemical properties of metal surface including a control of colorimetric characteristics and biocompatibility of them with the following applications for color laser marking and art painting and implementation to dental implants fabrication.

Acknowledgments

The reported study was financially supported by the Ministry of Science and Higher Education of the Russian Federation research agreement No. 075-11-2021-045 of 24.06.2021, project title "Development of high-tech production of equipment and technologies for laser functionalization of medical devices" (within the framework of decree of the Government of the Russian Federation No. 218 of 09/04/2010).