

## Fabrication of a Functional Relief on the Surface of a Polyvinyl Chloride Film by Nanosecond Laser Microtexturing\*

© I.V. Krylach<sup>1</sup>, S.I. Kudryashov<sup>1,2</sup>, R.O. Olekhovich<sup>1</sup>, V.E. Sitnikova<sup>1</sup>,  
M.K. Moskvin<sup>1</sup>, N.N. Shchedrina<sup>1</sup>, and M.V. Uspenskaya<sup>1</sup>

<sup>1</sup> ITMO University,  
171409 St. Petersburg, Russia

<sup>2</sup> Lebedev Physical Institute,  
119991 Moscow, Russia

e-mail: irina-krylach93@mail.ru

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Modification of the surface of polyvinyl chloride (PVC) deposited on a copper foil under the influence of nanosecond laser radiation with different peaks fluence was studied by using infrared spectroscopy of attenuated total reflection and optical microscopy. The dependences of the wetting angle of the texture surface with water on the peak fluence of laser radiation were measured. The obtained various relief textures demonstrate a sharp drop in water contact angles from ( $\sim 50^\circ$ ) to super hydrophilic ( $\sim 15^\circ$ ), which allows us to design and fabricate micro-scale elements of laboratory devices for the tasks of bactericidal treatment, collection and removal of liquids, as well as their separation and purification. A stable increase in the contact angles of water with the surface of the textures to hydrophobic ( $\sim$  up to  $140^\circ$ ) observed over time indicates degradation of the polymer coating.

**Keywords:** infrared spectroscopy, optical microscopy, nanosecond laser microtexturing, direct laser manufacturing, cross-raster scanning, ordered relief, contact angle, surface microfluidics, polymers, metals.

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