SPATIAL AND SPECTRAL STRUCTURE OF A PLASMA PLUME INDUCED BY THE MULTIPULSE LASER EVAPORATION OF THE MATERIAL

S.P. Anokhov, E.O. Berezhnoy, E.I. Zabello, O.V. Nosov

International Center "Institute of Applied Optics",
Nat. Acad. Sci. of Ukraine
(*10G, Kudryavska Str., Kyiv 04053, Ukraine;*
e-mail: anokhov@i.kiev.ua)

S u m m a r y

The results of experimental investigations of the spatial and spectral structures of a plasma plume formed under the influence of nanosecond laser pulses with energies from 10 to 20 mJ on the material are presented. It is shown that most advantageous for the emissive analysis is the multipulse influence with a periodicity of $10 \div 12$ μs on a sample. In this case, the informative component of the plume is most isolated in space from the noise component, and the useful signal becomes stronger due to the accumulation of a periodically incoming identical information. With regard for both the indicated factors, we have succeeded to increase the signal-to-noise ratio in real measurements approximately by an order.