

SPECTROSCOPIC DIAGNOSTICS OF PLASMA
OF LASER DISPERSION OF THE MASSIVE
TARGET OF ANTIMONY

*A. K. Shuaibov, L. L. Shimon,
A. J. Dashchenko, M. P. Chouchman*

Uzhgorod National University
(46, Pidhirna Str., Uzhgorod 88000, Ukraine)

S u m m a r y

The results of the research of radiation from a laser antimony plasma formed in vacuum by means of the effect on a massive sample of generation pulses of an YAG : Nd^{+3} laser are presented. The spectra of plasma radiation at various distances from the target surface and temporal characteristics of radiation on SbI and SbII transitions in the 200 - 600 nm spectral range are studied. Spectral lines of Sb atoms in the range 210 - 270 nm are most intensive. SbI spectral lines in the laser plasma radiation dynamics are due to the reactions of dissociative recombination of antimony molecular ions (Sb_4^+ , Sb_2^+) with electrons. The results can be used for determining the temperature and density of electrons in a laser antimony plasma, which is important for the optimization of laser deposition of thin films of antimony or compounds on its basis.