CHARACTERISTICS OF SOLID-STATE LASERS WITH PASSIVE Q-SWITCHING BY POLYMER SATURABLE ABSORBERS

V.I. Bezrodnyi[1], *A.A. Ishchenko*[2], *A.M. Negriyko*[1], *A.O. Yaskovets*[1], *A.A. Demidovich*[3], *M.B. Danailov*[3], *V.A. Orlovich*[4], *P. Shpak*[4]

[1]Institute of Physics, Nat. Acad. of Sci. of Ukraine (*46, Nauky Prosp., Kyiv 03028, Ukraine*),
[2]Institute of Organic Chemistry, Nat. Acad. of Sci. of Ukraine (*5, Murmanska Str., Kyiv 02660, Ukraine*),
[3]Laser Laboratory Sincrotrone-Trieste (*Strada Statale 14-km, 163.5, Trieste 34012, Italy*),
[4]B.I. Stepanov Institute of Physics, Nat. Acad. of Sci. of Belarus (*68, Nezalezhnast Ave., Minsk 220072, Belarus*)

S u m m a r y

The characteristics of miniaturized diode-pumped compact passively Q-switched Nd:YAG and Nd: YVO_4 lasers have been studied. Lasing at a wavelength of 1.064 μm with a pulse repetition rate of up to 25 kHz, a pulse duration of 2–5 ns, an average power of 130 mW, and a pump power of 3.5 W was realized with the use of a polymer Q-switch on the basis of polyurethane doped with the bis-(4-dimethylaminodithiobenzyl)-nickel dye. Diode-pumped solid-state mini lasers with passive Q-switching by sandwich-type modulators are efficient compact sources of short powerful light pulses with a high optical quality of the beam.