

Optical Breakdown Oriented Surface (111) Sodium Chloride

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Work aimed at studying the optical damage thresholds of the surface of sodium chlorides by laser pulses with a duration 80 fs at a wavelength of 1240 nm was carried out [1].

In the case of femtosecond laser pulses, the main mechanism of the surface damage is thermomechanical ablation, which becomes the prevailing mechanism of radiative destruction of sodium chloride, if the duration of the laser pulse is less than 30 ps [2].

The experiments were carried out at the Center for Collective Use of Unique Scientific Equipment "Laser Femtosecond Complex" at the Joint Institute for High Temperatures, Russian Academy of Sciences, on the terawatt femtosecond chromium–forsterite laser system [3].

A threshold for laser destruction of the oriented surface (110) NaCl was 1.5—2 times greater than that for the (100)-oriented surface [1]. This parameter have been determined surface energy [4,5]. According to information [6] surface energy (110)NaCl should be higher in 2.5 times, than for a surface (100), and surface energy (111)NaCl should be higher in 5.8 times, than for a surface (110). It allows to estimate the threshold for laser destruction of the (111)NaCl for experiences [1, 7].

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