

EXPERIMENTAL DETERMINATION OF THE EFFECT  
OF DENSITY OF POWER LASER  $\lambda = 1064$  nm  
ON THE EFFECTIVENESS OF LASER STEEL  
ONE PULSE TEXTURING 41Cr4

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**ABSTRACT** *This study attempts to determine the effect of the experimental efficiency of the one pulse laser texturing of the alloy 41Cr4. The study used modern ytterbium fiber laser pulse and solid galvo head with wavelength  $\lambda = 1064$  nm and nanosecond pulse duration. The geometrical analysis produced microcraters performed using an optical microscope with fiber-optic image transmission. One study found that an increase in the radiation power density  $q = 0,6$  MW/cm<sup>2</sup> significantly affect the efficiency (depth) of ablative laser texturing. After crossing the power density is a significant reduction in the efficiency of laser ablation process. This is probably connected with the phenomenon of plasma shielding generated in the laser pulse.*

**Keywords:** *laser beam, wavelength of radiation, power density, steel 41Cr4*