

## ABSTRACT

**Thesis:** 77 pages, 20 figures, 11 tables, 29 references.

**The aim of the work:** to create a new method of surface treatment to improve its mechanical and technological properties.

**Research methods:** gravimetric method, microstructural method, microhardness method, X-ray analysis, wear resistant test.

**Research subject:** alloyed layer obtained on steel mark 3 after electric spark alloying by titanium with subsequent laser treatment.

**Scientific novelty:** for the first time found that electric spark alloying of steel mark 3 by titanium with subsequent laser treatment causes to the formation of melted zones with microhardness 4,8 GPa, increasing of durability in 2 times.

**Practical meaning:** obtained results and the established regularities of coating formation during the electric spark alloying of steel mark 3 y titanium and subsequent laser treatment have a practical importance for development of new modes of surface hardening of machine parts and mechanisms working under contact pressures and friction.

ELECTRIC SPARK ALLOYING, LASER TREATMENT, STEEL,  
TITANIUM, MICROHARDNESS, WEAR RESISTANCE