

## ABSTRACT

**Thesis:** 78pages, 23 drawings, 47 literary sources.

**Diploma work:** study the impact of applying layered of elements Ti-, C-, Zr- in the electro-spark alloying on air and in argon on the microstructure, microhardness, phase composition and durability of steel 45.

**Research methods:** gravimetric analysis, microstructural analysis, microhardness.

**Scientific novelty:**It is established that the use interelectrode argon during electro-spark alloying of steel 45 leads to an increase in layer thickness and microhardness produced coverage.

**Practical value:**The results are of practical importance for the development of new modes of electric-doping to enhance surface of steel products. EIL developed regimes can improve the physical and mechanical properties of steel 45, which makes it possible to use it in terms of sliding friction.

ALLOYED LAYER FORMATION,ELECTRIC-SPARK ALLOYING, STEEL,  
PHASE COMPOSITION, TI-C COATING, SURFACE STRENGTHENING