Nano Modification of Hard Coatings with Ions

Branko Skoric, Aleksandar Miletic, Pal Terek,
Lazar Kovacevic & Milan Kukuruzovic
University of Novi Sad
Faculty of technical Sciences
Center for Surface Engineering and Nanotechnology
Novi Sad, Serbia
skoricb@uns.ac.rs

***Abstract*— In this paper, we present the results of a study of TiN films which are deposited by a Physical Vapor Deposition and Ion Beam Assisted Deposition. In the present investigation the subsequent ion implantation was provided with N^{5+} ions. The ion implantation was applied to enhance the mechanical properties of surface. The film deposition process exerts a number of effects such as crystallographic orientation, morphology, topography, densification of the films. A variety of analytic techniques were used for characterization, such as scratch test, calo test, SEM, AFM, XRD and EDAX.**

***Index Terms*: Hard coatings, ion implantation, synthesis, microstructure, nanohardness.**

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