

## Adhesion enhancement of copper films on carbon steel by substrate surface ion bombardment etching



## **Abousoufiane Ouis**

Assistant Professor of Mechanical Engineering

Prince Sattam bin Abdulaziz University

Wednesday, October 12, 2022 12:00-1:00 Pm Department Seminars Room

## Abstract

The effects of ion bombardment etching on the adhesion strength of copper thin films on carbon steel were investigated. The coatings were deposited by a magnetron sputtering system. The critical load in the scratch adhesion test which was very low on mechanically polished substrates, increased significantly with increasing argon ion etching time. Scanning electron microscopy and Auger electron spectroscopy revealed that the adhesion enhancement produced by ion bombardment could be attributed to the elimination of the oxides layer produced by the mechanical polishing on the surface substrate and to the anchorage of the coating to its substrate.

## Biography

Abousoufiane Ouis is an assistant professor in Mechanical Engineering Department, College of Engineering, Prince Sattam bin Abdulaziz University, Al-Kharj. He received his Ph.D. in Materials Science from University of Nantes, FRANCE in 1994. His research field was Thin Solid Films technology. He focused on thin films deposition technology (plasma discharge, UHV, sputtering, ion plating...), adhesion of thin films and surface preparation of substrates, physicochemical analyses of materials (AES, XPS, SEM, ESCA, positron annihilation analysis). Actually, his interests consist in Welding technology especially in the Activated Tungsten Inert Gas process (ATIG) where he published some papers.