Contribution ID: **12** Type: **not specified**

Tribological and Synchrotron Characterization of sputtered WC-Co thin films

Thursday, 17 November 2022 16:45 (30 minutes)

Mild steel offers versatile properties at lower costs. However, due to the severity and complexity of service conditions, several industries are now focusing on structural modification techniques like physical vapor deposition to enhance material performance. Due to the remarkable mechanical characteristics of the material and its potential for use in challenging engineering applications, such as wear resistance, heavy cutting, and excavation sectors, the synthesis of WC-Co thin films by physical vapor deposition technology has garnered significant scientific interest. Control and manipulation of synthesis parameters are of significant concern in order to tailor such material properties and performance. The focus of this work is to, therefore, investigate the effect of Rf magnetron power and deposition temperature on the structure and sliding wear behavior of WC-Co thin film. X-ray photoelectron spectroscopy (XPS) and Grazing Incidence x-ray absorption spectroscopy (GI-XAS) were employed to study the morphology and nature of the thin film. The film-substrate system's wear performance was finally identified and reported.

Primary author: PHIRI, Resego (BIUST)

Co-author: Dr OLADIJO, Philip (Botswana International University of Science and Technology)

Presenter: PHIRI, Resego (BIUST)

Session Classification: AfLS Contribution