



Contribution ID: 398

Type: Oral Presentation

Characterization of elastic constants and electronic property of diamond-like carbon films.

Wednesday, 6 July 2016 11:10 (20 minutes)

Abstract content (Max 300 words) **Formatting & Special chars**

Diamond like carbon (DLC) coatings continue to attract intensive research interest due to their excellent properties, in this work, the role of the sp³ and sp² bonds on the electronic and elastic properties of diamond-like carbon(DLC) thin films is investigated. Diamond-like carbon thin films were prepared using a graphite target and CH₄/Ar ambient by RF and DC reactive magnetron sputtering. The sputter power was set at 200W while the CH₄ flow varied (3.5-25 sccm) at a constant argon flow rate. Raman spectroscopy was used to estimate the sp³/sp² ratio in DLC films by using laser excitation wavelength of 514 nm. The density, thickness and the surface roughness have been studied X-ray reflectivity (XRR). The X-ray diffraction was used to characterize the crystal structure while the electrical properties were established by Current-Voltage (I-V) characteristics. The elastic constants have been evaluated using Surface Brillouin scattering on diamond-like carbon thin films / (001)Si under diverse conditions of growth.

Apply to be considered for a student award (Yes / No)?

yes

Level for award (Hons, MSc, PhD, N/A)?

phD

Main supervisor (name and email) and his / her institution

Dr.Bheki and Dr.Daniel wamwangi
daniel.wamwangi@wits.ac.za and bhekumusa.mathe@wits.ac.za

Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

no

Please indicate whether this abstract may be published online (Yes / No)

Primary author: Mr MBIOMBI, wilfred (wits university)

Co-authors: Dr ERASMUS, Rudolph (wits); Dr WAMWANGI, daniel (wits); Prof. BILLING, dave (wits); Mr BHEKUMUSA, mathe (wits)

Presenter: Mr MBIOMBI, wilfred (wits university)

Session Classification: Division for Physics of Condensed Matter and Materials (1)

Track Classification: Track A - Division for Physics of Condensed Matter and Materials