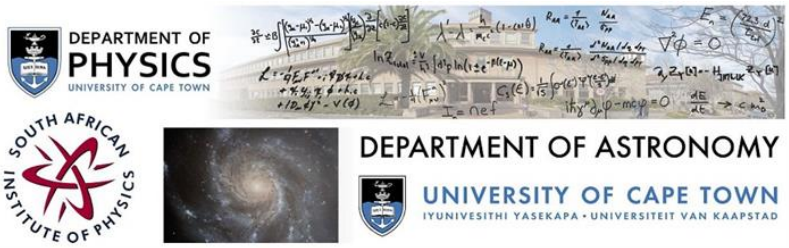
SAIP2016



Contribution ID : 398

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

Wednesday 06 Jul 2016 at 11:10 (00h20')

Abstract :

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.

Award :

yes

Level :

phD

Supervisor :

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

Paper :

no

Permission :

no

Primary authors : Mr. MBIOMBI, wilfred (wits university)

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

Type : Oral Presentation