



Contribution ID: 541

Type: Oral Presentation

Ion Beam Modification of the Structure and Properties of Hexagonal Boron Nitride

Wednesday, 10 July 2013 16:00 (20 minutes)

Abstract content
 (Max 300 words)

Cubic boron nitride (c-BN) nanocrystals have been produced by boron ion implantation of hexagonal boron nitride (h-BN) at various fluences and implantation energies. The optimum fluence was found to be 5×10^{14} ions/cm² at 150 keV. The presence of these nanoparticles was investigated using glazing angle XRD (GIXRD) and Fourier Transform Infrared Spectroscopy (FTIR).

Glazing angle XRD pattern after implantation exhibited c-BN diffraction peaks with high intensity at the glazing angle of 3° whose penetration depth corresponded to the implantation depth. After implantation, Fourier transform Infrared spectroscopy indicated a peak at 1090 cm⁻¹ which corresponded to the vibrational mode for nc-BN.

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

Yes

Level for award
 (Hons, MSc,
 PhD)?

PhD

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

Trevor E Derry
Trevor.Derry@wits.ac.za
University of the Witwatersrand

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

Yes

Primary author: Ms ARADI, Emily (University of the Witwatersrand)

Co-authors: Dr WAMWANGI, Daniel (University of the Witwatersrand); Dr NAIDOO, Mervin (University of the Witwatersrand); Prof. DERRY, Trevor E (University of the Witwatersrand)

Presenter: Ms ARADI, Emily (University of the Witwatersrand)

Session Classification: Applied

Track Classification: Track F - Applied Physics