Contribution ID: **401** Type: **Poster Presentation**

# Cross-section Electron Microscopy studies of Boron Implanted Hexagonal Boron Nitride

*Wednesday, 1 July 2015 16:10 (1h 50m)*

## Abstract content <br>   (Max 300 words)<br><a href="http://events.saip.org.za/getFile.py/a target="_blank">Formatting &<br>Special chars</a>

We have reported on the use of ion implantation as a technique to modify hexagonal boron nitride (h-BN) material to nanocrystalline cubic boron nitride (nc-BN). Single crystal h-BN was implanted with boron ion at 150 keV at fluence of 5×10<sup>2</sup> ions/cm<sup>2</sup>. Transmission Electron Microscopy (TEM) measurements were carried out using the High Angle Annular Dark-Field Scanning Electron Microscopy (HAADF-STEM) mode, which showed a density contrast in the sample after implantation, with regions of low contrast representing the high density c-BN symmetry. Raman spectroscopy showed that there is a new vibrational mode observed in the spectrum after implantation which corresponded to nc-BN. Phonon confinement model was used to investigate the size of the c-BN nanoparticles created by ion implantation.

## Apply to be<br> considered for a student <br>   award (Yes / No)?

No

## Level for award<br> (Hons, MSc, <br>   PhD, N/A)?

n/a

## Main supervisor (name and email)<br>and his / her institution

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

yes

## Please indicate whether<br>this abstract may be<br>published online<br>(Yes / No)

Yes

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