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

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Abstract :

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 $5x10^{14}$ions/cm^2 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^o whose penetration depth corresponded to the implantation depth. After implantation, Fourier transfore Infrared spectroscopy indicated a peak at 1090 cm^{-1} which corresponded to the vibrational mode for nc-BN.

Award :

Yes

Level :

PhD

Supervisor :

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Paper :

Yes

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