Influence of Annealing Temperature on InN Thin Films Grown by RF Magnetron Sputtering

Umar Bashir[1,*], Zainuriah Hassan[2], Naser M. Ahmed[1]

[1]*School of Physics, Universiti Sains Malaysia, 11800 USM, Penang, Malaysia.*
[2]*Institute of Nano Optoelectronics Research and Technology (INOR), Universiti Sains Malaysia, 11800 USM, Penang, Malaysia.*

[*]umardu1921@gmail.com

This paper presents the study and characterization of indium nitride (InN) films grown on quartz glass and p-Si (111) substrates by RF magnetron sputtering method using pure indium target in argon (Ar) and nitrogen (N_2) environment. The characterization was carried out by high resolution X-ray diffraction (HRXRD), atomic force microscopy (AFM), field emission scanning electron microscopy (FESEM) and energy dispersive X-ray spectroscopy (EDX). XRD results show the growth of polycrystalline wurtzite films with varying peak intensities. The deposited films were annealed in nitrogen environment at different temperatures ranging from 100°C to 400°C. The annealing was carried out for four hours and the results were compared with pre-annealing samples.