

Abstract Submitted
for the SES13 Meeting of
The American Physical Society

Oblique angle transmission spectroscopic measurements on In-GaN/GaN dot-in-a-wire heterostructures¹ JITTO TITUS, Department of Physics & Astronomy, Georgia State University, USA, HIEU NGUYEN, ZETIAN MI, Department of Electrical and Computer Engineering, McGill University, Montreal, QC H3A 2A7, Canada, UNIL PERERA, Department of Physics & Astronomy, Georgia State University, USA — Nearly defect-free GaN nanowires embedded with intrinsic InGaN quantum dots presents the opportunity to control the surface and longitudinal optical phonons modes which are dependent on the nanowire fill-factor, doping densities of the nanowires and the presence of InGaN dots. These effects are observed using the oblique angle transmission infrared spectroscopy. The tunable optical properties of these nanostructures show potential for phonon assisted photodetectors whose spectral responses can be tailored by varying a combination of these three parameters. The optical anisotropy along the growth (c -) axis of the GaN nanowire introduces the polarization agility seen in the transmission spectra, which can lead to polarization agile photodetectors.

¹National Science Foundation ECCS-1232184, U.S. Army Research Office (ARO) W911NF-12-2-0035 and Molecular Basis of Diseases Area of Focus, Georgia State University.

Jitto Titus
Department of Physics & Astronomy, Georgia State University, USA

Date submitted: 04 Oct 2013

Electronic form version 1.4