

Abstract Submitted
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Composition and Structure of HPCVD-grown InGaN ANANTA ACHARYA, MAX BUEGLER, GOKSEL DURKAYA, Georgia State University, Atlanta, BRIAN THOMS, Georgia State University, Atlanta, NIKOLAUS DIETZ, Georgia State University, Atlanta, DR. THOMS'S GROUP TEAM, DR. DIETZ'S GROUP TEAM — Group III-nitride semiconductors InN and GaN, along with their alloy InGaN, have been widely investigated due to their promising potential for light emitting diodes and lasers covering a wide spectral range from 0.7 eV to 3.4 eV. High pressure chemical vapor deposition (HPCVD) has been developed to allow the growth of heterostructures with a wide range of alloy compositions. In this work, compositional analysis of indium-rich InGaN films by Auger electron spectroscopy (AES) are presented. The similarity in energy of the nitrogen and indium AES peaks results in difficulty in determining the nitrogen to indium ratios using peak-to-peak heights in differentiated spectra. Using non-differentiated Auger electron spectra of InN and GaN for calibration, accurate determinations of composition for InGaN alloy films have been performed. Correlation of this compositional information with structural characterization by Raman spectroscopy and x-ray diffraction will be presented.

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