

Abstract Submitted
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Bismuth related changes in the electronic properties of high quality dilute GaAs_{1-x}Bi_x.¹ LEKHNATH BHUSAL, DENIS KARAIKKAJ, RYAN FRANCE, AARON PTAK, ANGELO MASCARENHAS, National Renewable Energy Laboratory, 1617 Cole Blvd, Golden CO-80401, TOM TIEDJE, AMPEL, Department of Physics and Astronomy, University of British Columbia, Vancouver, BC, Canada, V6T 1Z4 — In this work we will present the electronic and optical properties of dilute GaAs_{1-x}Bi_x epitaxial layers for the range of samples with concentration up to ~3%. Variation of fundamental band gap (E_0) and the transition from the spin-orbit split off valance band ($E_0 + \Delta$) using the contactless modulated electroreflectance will be presented as a function of temperature (77-300K) and Bi concentrations. We also will discuss the isoelectronic codoping of Bi and nitrogen, as the excellent quality of GaAsBi samples presented in the work opens the path for the codoping of Bi with N to improve the electronic properties of dilute nitride III-V alloys.

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