

Abstract Submitted
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Progress in the growth and optical properties of dilute bismide III-V semiconductor alloys DANIEL A. BEATON, T. CHRISTIAN, Nat'l Renewable Energy Lab, R.B. LEWIS, Paul-Drude-Institut für Festkörperelektronik, K. ALBERI, A. MASCARENHAS, Nat'l Renewable Energy Lab — The dilute bismuth containing III-V semiconducting alloys of have great potential for application in many areas of semiconductor technology, such as multijunction photovoltaics and solid-state lighting. There is a large reduction of the fundamental bandgap of GaAs with bismuth incorporation resultant from the raising of the valence band maximum. Dilute bismide alloys have long been compared to the dilute nitride alloy because bismuth introduces a state near the valence band edge of the host GaAs (intrad of near the conduction band edge in the nitride alloys) that affects its optical and electronic properties. Here I will discuss some recent advances in our understanding of the surface processes involved in dilute bismide alloy growth by molecular beam epitaxy which have lead to improved film quality and the growth of new bismide alloys. The improved film quality has made it possible to further explore the properties of this material.

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