

Abstract Submitted  
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**Bound excitons at nitrogen and bismuth isoelectronic impurities**

THERESA CHRISTIAN, Univ of Colorado - Boulder, KIRSTIN ALBERI, DANIEL BEATON, BRIAN FLUEGEL, ANGELO MASCARENHAS, National Renewable Energy Lab — When nitrogen and bismuth dopants are simultaneously incorporated into a host lattice such as gallium arsenide (GaAs) or gallium phosphide (GaP), each dopant species contributes to the evolution of the electronic structure. Bound excitons in these systems luminescence from localized states whose distinctive radiative signatures provide invaluable clues into the nature of impurity clustering and inter-impurity interactions within the host lattice. Spectroscopic studies of these states will be presented for a series of samples grown by molecular beam epitaxy. Research was supported by the U. S. Department of Energy, Basic Energy Sciences, Materials Sciences and Engineering Division under contract DE-AC36-08GO28308 and by the Department of Energy Office of Science Graduate Fellowship Program (DOE SCGF), made possible in part by the American Recovery and Reinvestment Act of 2009, administered by ORISE-ORAU under contract no. DE-AC05-06OR23100.

Theresa Christian  
Univ of Colorado - Boulder

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