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Energy transfer among isoelectronic dopants in GaP THERESA CHRISTIAN, University of Colorado, Boulder, CO, KIRSTIN ALBERI, BRIAN FLUEGEL, ANGELO MASCARENHAS, National Renewable Energy Lab, Golden, CO — Although GaP is an indirect-bandgap material, it can also be an efficient light-emitter at visible wavelengths when isoelectronic impurities mediate radiative recombination via states within the bandgap. Since these states also provide a medium for energy transfer via exciton hopping among localized isoelectronic trap sites, the carrier dynamics in doped GaP are strongly dependent on the distribution and density of impurity species. We present spectroscopic data demonstrating the role of energy transfer among isoelectronic states in GaP via temperature-dependent and time-resolved photoluminescence. 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.

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