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Comparison of the bandgaps of Ga-containing and Ga-free type II superlattices via photoluminescence measurements. LOGAN CORDONNIER, SAID ELHAMRI, Department of Physics, University of Dayton, Dayton, Ohio, HEATHER HAUGAN, JOHN HUDGINS, Air Force Research Laboratory, Materials and Manufacturing Directorate, WPAFB, OH — A 532 nm laser was used to obtain the photoluminescence spectra of GaSb/InAs and InAs/InAsSb type II superlattices at 5 K using a variety of power settings (10mW-2W). The main goal of these measurements was to obtain the bandgap of each investigated sample. The data was fit with a Gaussian/Voigt function. The maximum of the fitted curve corresponded to the bandgap of the sample. The bandgap energies of thee Ga-containing and Ga-free superlattices were then compared. Preliminary data suggests that while bandgap ranges were broader for Ga-free samples, indicating more defects, Ga-free materials are viable alternatives to Ga-containing materials for optical applications based on the intensity and consistency of their photo-response.

Said Elhamri
Department of Physics, University of Dayton, Dayton, Ohio

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