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Effect of GaAs spacer layer thickness on optical properties of multi-stacked InAs/GaAs quantum dots CHIA-HSIANG WANG, ANTARYAMI MOHANTA, DER-JUN JANG, FU-YU WANG, Department of Physics, National Sun Yat-sen University, J. S. WANG, Department of Physics, Chung Yuan Christian University — Effect of GaAs spacer layer thickness (d_{GaAs}) on multi-stacked InAs/GaAs quantum dots are investigated by photoluminescence (PL) and excitation wavelength (λ_{exc}) dependent pump-probe reflection spectroscopy. Dominance of light hole transition in the PL spectra is observed at smaller d_{GaAs}(<15 nm). Double maxima $(\Delta \mathrm{R/R})_1$ and $(\Delta \mathrm{R/R})_2$ appear in the differential reflection spectra (DRS) at intermediate λ_{exc} beyond which positive to negative reversal of the DRS is observed due to dominating effect of inter band absorption in InAs wetting layer. The λ_{exc} at which double maxima occur, and the positive to negative reversal starts is found to be dependent on d_{GaAs}

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