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The photoluminescence of InAs/GaAs Quantum Dots SHU-CHING LI, DER-JUN JANG, CHE-YU CHANG, Department of Physics, National Sun Yat-sen University, ELMER ESTACIO, National Institute of Physics, University of the Philippines, Diliman — The photoluminescence of InAs/GaAs quantum dots (QDs) were studied with various temperatures and photoexcitation densities. The QDs were excited with laser pulses of energy 1.5 eV. The peaks of the PL at 14 K is 1000 nm and shifts to 1020 nm at 300 K. The red-shift at peaks of the photoluminescence as temperature increases was analyzed with the Varshni's equation and the band-gap energy was derived. The activation energy was also obtained from the temperature-dependent photoluminescence. The bandwidth of the PL depends on the size of the laser beam used for photoexcitation indicates the inhomogeneous distribution of different sizes of quantum dots.

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