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**Carrier localization in green emitting InGaN/GaN multiquantum well structure** CHOU-JEN CHENG, Department of Physics, Natl Kaohsiung Normal Univ, ANTARYAMI MOHANTA, DER-JUN JANG, Department of Physics, Natl Sun Yat Sen Univ, MENG-EN LEE, Department of Physics, Natl Kaohsiung Normal Univ — Green emitting InGaN/GaN multiquantum well sample is investigated using photoluminescence (PL) and time-resolved photoluminescence (TRPL) spectroscopy. Carrier localization of energy  $\sim 12$  meV due to inhomogeneous distribution of In in the InGaN quantum well (QW) layer is observed. The temperature dependence of PL peak energy exhibits S-shape phenomenon and is comparatively discussed with the Varshni's empirical formula. The full width at half maximum (FWHM) of the PL emission band shows increasing-decreasing-increasing behavior with increase in temperature. The temperature dependence of radiative life time ( $\tau_r$ ) show  $\tau_r \sim T^{3/2}$  dependence with temperature above 200 K which confirms the insignificant effect of carrier localization at room temperature. Transmission electron microscopy (TEM) study reveals the absence of In-rich regions known for strong carrier localization in the InGaN QW layer which is consistent with the results of PL and TRPL.

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