

InP-based InAs quantum dot/dash lasers emitting in the O-band

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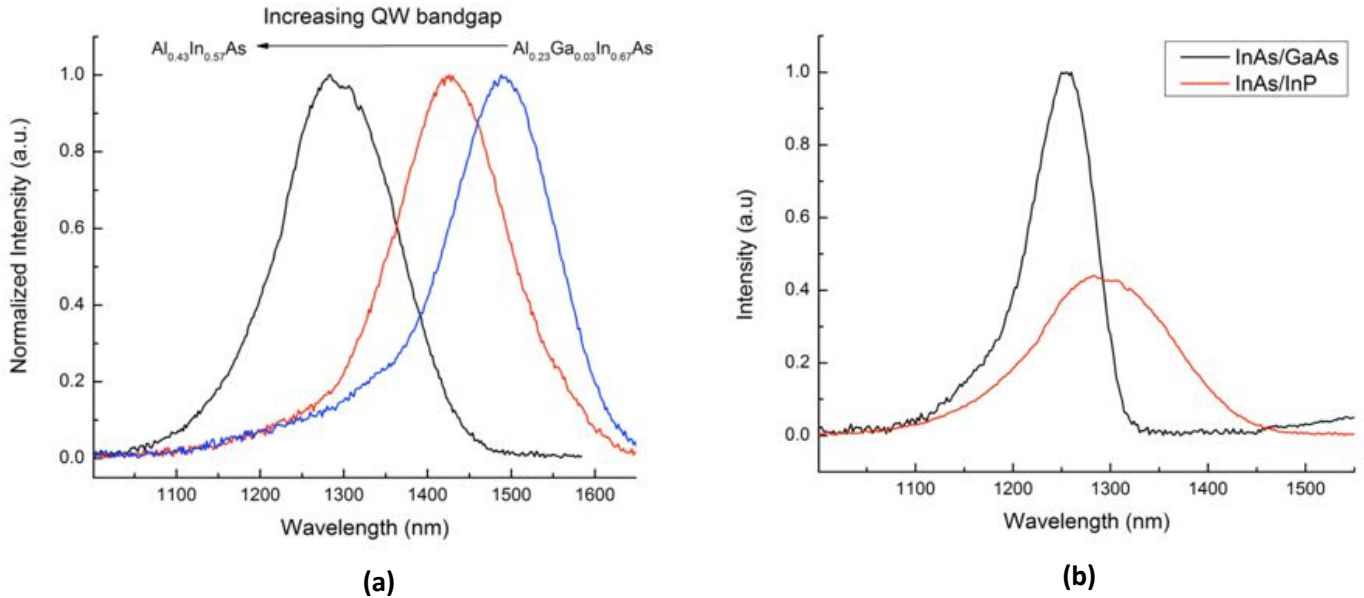


Figure 1: Room-temperature photoluminescence (PL) measurements showing (a) tuning of the QD emission wavelength from the C-band ($\sim 1.5\mu\text{m}$) down to the O-band ($1.3\mu\text{m}$) by varying the composition of the quantum well in the dots-in-a-well active region. (b) comparison between InAs/GaAs and InAs/InP QDs – InP-based QDs show reasonable intensities and $\sim 2\times$ linewidth.

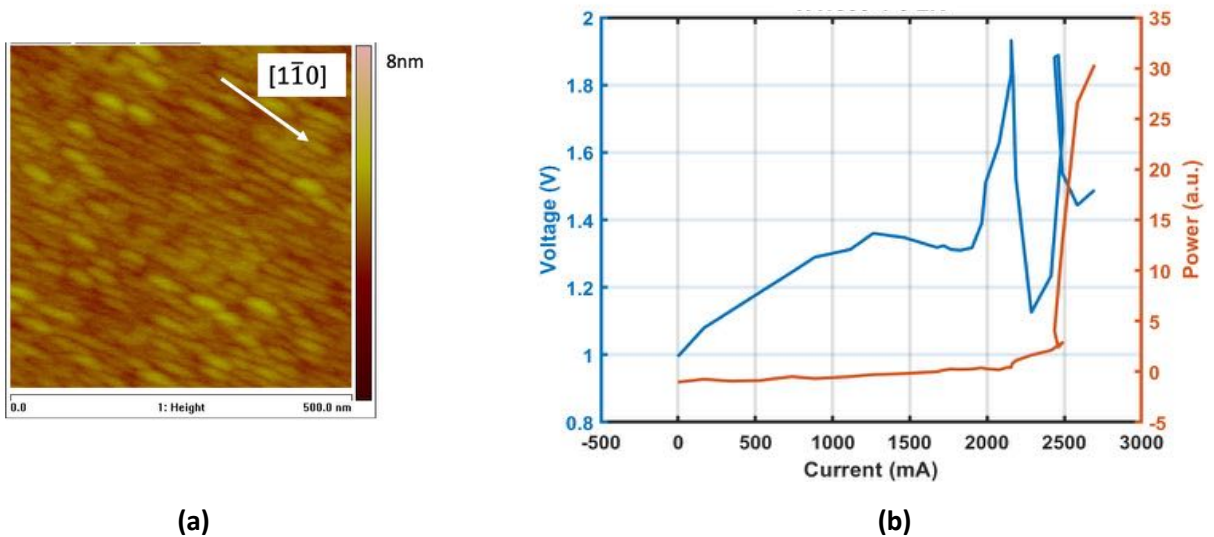


Figure 2: (a) Atomic force microscopy (AFM) scan of exposed QDs showing elongation along the $[1\bar{1}0]$ direction – forming Qdash-like structures. (b) L-I-V measurements from $100\mu\text{m} \times 1\text{mm}$ edge-emitting laser devices fabricated from optimized active regions integrated with cladding and contact layers. Turn-on voltage from I-V as expected and L-I shows turn-on characteristics. NOTE: Ringing extending to the end of the pulse explains unusual shape of I-V at higher currents.