Site-controlled growth of InGaAs quantum dots with buried stressor for the development of microlasers and quantum light sources

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Quantum dots (QD) have proven to have many applications in optoelectronics[1], photonics[2], quantum photonics[3,4] and telecommunications[5]. This work focuses on the systematic optimisation of the growth and fabrication parameters of site-controlled InGaAs quantum dots (SCQDs), grown with buried stressor method[6], to enhance the precision, uniformity and reproducibility of the quantum dot placement and local density for their advanced optoelectronic applications, such as low-treshold microlasers and quantum light sources. The impact of the growth and the fabrication on the structural and optical properties of SCQDs is thoroughly investigated via atomic force microscopy (AFM), scanning electron microscopy (SEM), confocal laser scanning microscopy (CLSM), X-Ray diffraction (XRD) and photoluminescence (PL) spectroscopy.

References

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