Red single-photon emission from InAs/AIGaAs quantum dots

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We report on single-photon emission of InAs/AlGaAs self-assembled quantum dots (QDs) grown by molecular beam epitaxy. By varying the growth conditions the QDs luminescence could be tuned over a wide wavelength range from 0.64 to 1 μ m, including red part of the visible spectrum. Emission properties of individual QDs are investigated by micro-photoluminescence (μ -PL) spectroscopy using 500 nm-size etched mesa structures. Autocorrelation functions of photons from single QDs, measured in the wide spectral range demonstrate antibunching effect at zero delay time with a value of $g^{(2)}(0) \sim 0.17$ that is a clear evidence of non-classical light.

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