Magnetooptical properties of ZnMnTe nanorods and of CdMnTe quantum dots embedded in ZnTe rods

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We report on magnetoptical properties of ZnMnTe nanorods fabricated by vapor-liquid-solid method during molecular beam epitaxy process. We show that as-grown nanorods are relatively optically inactive, while covering them with a ZnMgTe outer shells results in appearance clear luminescence properties. The PL spetra of such core/shell nanowires show near-band edge features which are shifted to lower energies by strain exerted by the shells. Also a giant spin splitting is detected both in ensembles as well as single nanowires studied by PL and cathodoluminescence. A very specific polarization properties are detected when studying CdMnTe quantum dots embedded in ZnTe nanorods. These properties, we relate to locking of heavy hole spins to the direction of growth of the nanowires.

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