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Optical Anisotropy in Type-II ZnTe/ZnSe Submonolayer Quantum Dots HAOJIE JI, SIDDHARTH DHOMKAR, Queens College of CUNY; The Graduate Center of CUNY, MARIA TAMARGO, City College of CUNY; The Graduate Center of CUNY, IGOR KUSKOVSKY, Queens College of CUNY; The Graduate Center of CUNY — Type-II semiconductor quantum dots (QDs) characterized by spatial separation of charge carriers are good candidates for photovoltaics and photon manipulation applications. Implementation of practical devices requires detail understandings of the QD morphology, the mechanism of strain relief and defect formation. Here we report our study of polarization dependent photoluminescence (PL) in type-II ZnTe/ZnSe submonolayer QD superlattices, grown by migration-enhanced epitaxy. We show that the PL does not depend on the polarization state of excitation and exhibits strong linear polarization, indicating strong anisotropy in this material. We spectrally analyze the degree of linear polarization in samples grown with different Te fluxes, spacer thicknesses and number of periods. Based on our observations, we propose several reasons for the optical anisotropy, focusing on the anisotropic shape of the QDs and the anisotropy at the interfaces in the superlattices.

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