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g-Factors of Electrons, Holes and Excitons in Type-II ZnTe/ZnSe Submonolayer Quantum Dots HAOJIE JI, SIDDHARTH DHOMKAR, the Graduate Center of CUNY; Queens College of CUNY, JONATHAN LUDWIG, DMITRY SMIRNOV, National High Magnetic Field Laboratory, MARIA TAMARGO, City College of CUNY; the Graduate Center of CUNY, IGOR KUSKOVSKY, Queens College of CUNY; the Graduate Center of CUNY — In recent years there has been intense interest in manipulating exciton spin states in semiconductor quantum dots (QDs) for application in spin electronics and quantum information processing. In these applications, the ability to enhance and control Zeeman spin splitting, which can be characterized by g-factors, plays a key role. Here we report our study of the g-factors of electrons, holes and excitons in type-II ZnTe/ZnSe submonolayer QD superlattices. Via analysis of left and right circularly polarized photoluminescence spectra, we determine the g-factor of type-II excitons. We obtain the g-factor of electrons by fitting the temperature dependence of degree of circular polarization. Thus, we find out the g-factor of holes confined in ZnTe QDs. This g-factor of confined holes is larger than those reported for bulk ZnTe. We propose that the enhancement of g-factor of holes is due to quantum confinement which leads to the admixture of the subband states.

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