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Emission of quantum dots (QDs) and isoelectronic bound excitons (IBEs) from submonolayer ZnTe on ZnSe and dependence on thickness of ZnTe Y. GONG, G. F. NEUMARK, Columbia University, M. TAMARGO, City College of CUNY, IGOR L. KUSKOVSKY, Queens College of CUNY — Zn-Se-Te systems have been of great interest for both lighting applications and their unique optical properties. It is known that the PL of the dilute alloys [1] or quantum wells [2] is usually due to IBEs. ZnTe/ZnSe QDs have been grwon with full monolayer coverage of ZnTe on ZnSe using Volmer-Weber growth [3]. We have shown [4] the existence of type-II QDs in ZnSeTe multilayers grown by migration enhanced epitaxy with sub-monolayer quantities of ZnTe. The multilayers were grown using three Zn-Te deposition cycles sandwiched between nominally pure ZnSe barriers. Here, we report ZnTe/ZnSe QDs grown by a similar method, but with only one ZnTe deposition cycle. It is interesting that at T = 10K the PL emission related to these QDs does not shift upon varying the excitation intensity, and attributed to IBEs; however, a large energy shift is observed at T = 80K, suggesting formation of type-II QDs. The presence of type-II QDs is also supported by magneto-PL measurements.

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