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Observation of Optical Signature of the Aharonov-Bohm Phase in Type-II Quantum Dots IGOR KUSKOVSKY, W. MACDONALD, Queens College, NY, M.C. TAMARGO, City College, NY, A.O. GOVOROV, Ohio U., Athens, X. WEI, NHMFL, M. TADIC, F.M. PEETERS, University of Antwerp — Recent theoretical studies[1,2] on the optical response of type-II excitons in the magnetic field have shown that the excitons will acquire the Aharonov-Bohm (AB) phase as the electrical dipole, formed due to carrier separation, interacts with the field, resulting in the field dependent exciton energy and the emission intensity. Experimentally, the former has been reported[3]; however, the behavior of the intensity is still not fully understood. We present results of magneto-photoluminescence studies on type-II ZnTe/ZnSe quantum dots (QDs) formed in Zn-Se-Te multilayer systems[4]; this ensures that electron move within the $x-y$ plane. The observed strong oscillations in the intensity is explained in terms of the AB effect[1,2,5] due to the electron motion around a stack of QDs, when the hole is strongly localized in one them. This is in qualitative agreement with the theoretical predictions[2]. 1. Kalameitsev, *et al.*, JETP Lett. **68**, 669 (1998); Govorov, *et al.*, PRB **R66**, 081309 (2002); Janssens, *et al.*, PRB **67**, 235325 (2003). 2. Janssens, *et al.*, PRB **69**, 235320 (2004). 3. Ribeiro, *et al.*, PRL **92**, 126402 (2004). 4. Gu, *et al.*., PRB **71** 045340 (2005). 5. Dias da Silva, *et al.*, PRB **70**, 155318 (2004).

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