Electronic Supplementary Information

Colloidal synthesis and optical properties of type-II CdSe-CdTe and inverted CdTe-CdSe core-wings heteronanoplatelets

A. V. Antanovich,[a] A. V. Prudnikau,[a] D. Melnikau,[b] Y. P. Rakovich,[b,c] A. Chuvilin,[c,d] U. Woggon,[e] A. W. Achtstein[e] and M. V. Artemyev[a*]

[a] Institute for Physico-Chemical Problems, Belarusian State University, Leningradskaya str., 14, Minsk 220030, Belarus
[b] Centro de Fisica de Materiales (CSIC-UPV-EHU) and Donostia International Physics Center (DIPC), E-20018 Donostia-San Sebastian, Spain
[c] Ikerbasque, Basque Foundation for Science, 48011 Bilbao, Spain
[d] CIC nanoGUNE, TolosaHiribidea, 76 , E-20018 Donostia – San Sebastian, Spain
[e] Institute of Optics and Atomic Physics, Technical University of Berlin, Strasse des 17. Juni 135, 10623 Berlin, Germany
*E-mail: m_artemyev@yahoo.com

Quantum yield determination

The fluorescence quantum yield of type-II CdSe/CdTe nanoplatelets was determined using the dye Rhodamine 6G dissolved in ethanol as a reference and calculated in accordance with the expression:

$$\Phi_{NPls} = \Phi_{Dye}\frac{I_{NPls}\,OD_{Dye}\,n_{NPls}^2}{I_{Dye}\,OD_{NPls}\,n_{Dye}^2}$$

where QY_{Dye} is the Rhodamine 6G quantum yield (Φ=0.94[1]); I_{NPls}, I_{Dye} the integrated intensities of the NPLs and dye fluorescence; OD_{NPls}, OD_{Dye} the optical densities of the NPLs and dye solutions and n_{NPls}, $n_{Dye}$the refractive indexes of NPLs and dye solutions respectively.[2] PL measurements for QY determination were conducted upon excitation of NPLs and dye solutions at 510 nm.

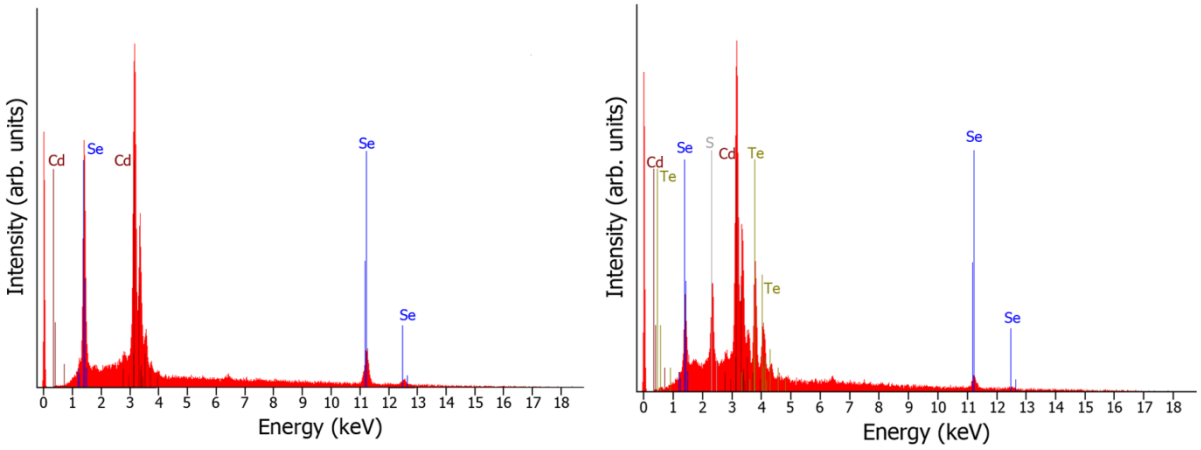

Figure S1. EDX spectra of the CdSe core (left) and CdSe-CdTe core-wings NPLs (right). It can be clearly seen that after the formation of a CdTe shell the signal from Te appears.

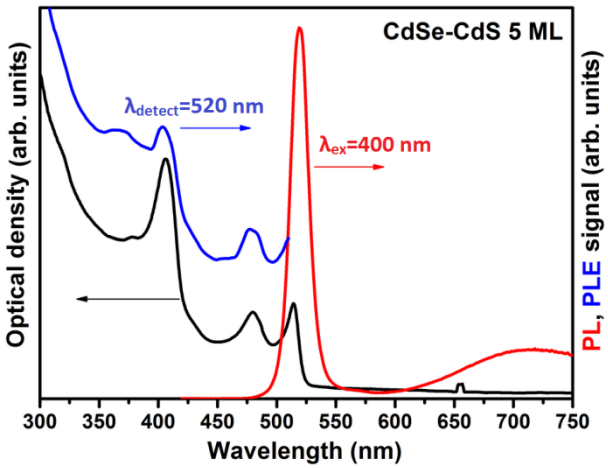

Figure S2. Optical absorption (black), PL (red) and PLE spectra (blue) of type-I CdSe(core)-CdS(wings) heteronanoplatelets.

REFERENCES

1. A. M. Brouwer, *Pure Appl. Chem.*, 2011, **83**, 2213.

2. M. Grabolle, M. Spieles, V. Lesnyak, N. Gaponik, A. Eychmüller and U. Resch-Genger, *Anal. Chem.*, 2009, **81**, 6285.