SUPPORTING INFORMATION

Rapid synthesis of highly luminescent InP and InP/ZnS nanocrystals

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1. EDXS characterization for InP and InP/ZnS nanocrystals.

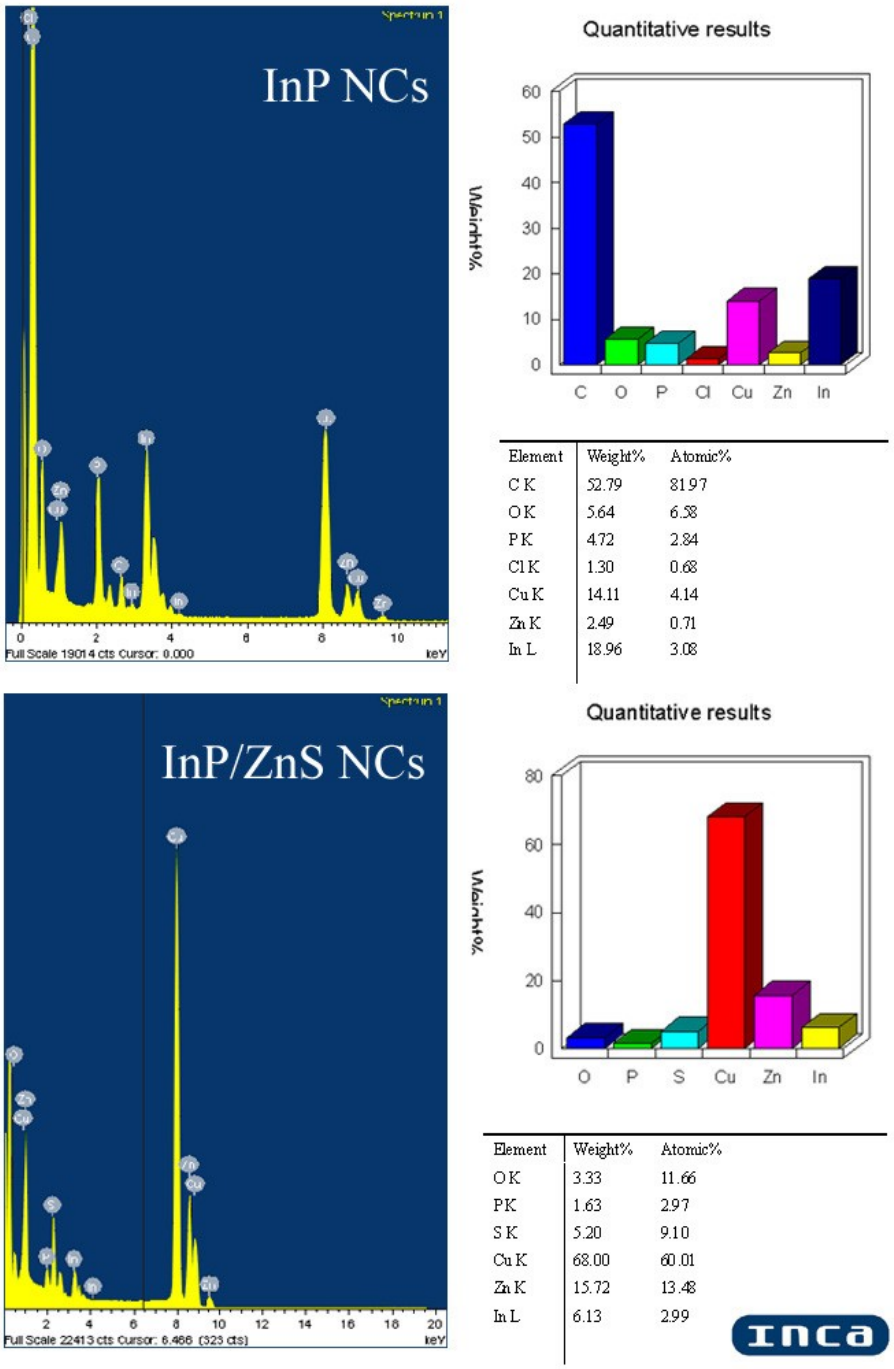

Figure S.1: The EDXS results for the zinc carboxylate capped InP NCs and InP/ZnS NCs. Elemental analysis showed a molar ratio In : P : Zn of ~ 1 :0.93 : 0.23 for a zinc carboxylate capped InP NCs and In : P : Zn : S of ~ 1: 0.99 : 4.5 : 3.0 for a InP/ZnS shelled NCs. The results indicated zinc rich particle surfaces.

2. The influence of HDA concentration to the growth of InP nanocrystals

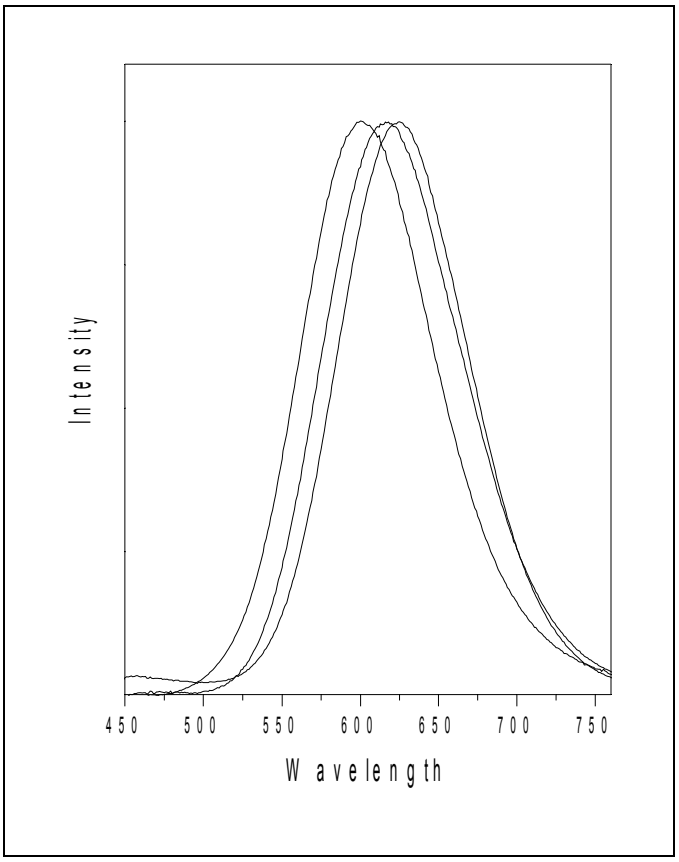

Figure S.2: The PL spectra of the InP NCs prepared with different concentrations of HDA. The reaction solution contained 0.1 mmol $InCl_3$, 0.1mmol ZnUA and 0.1mmol SA. The amount of HDA for each sample is (from left to right): 0.5 mmol, 0.35 mmol, 0.2 mmol.

The concentration of HDA had a much weaker effect on the crystal growth and size distribution of the NCs. With a change of the initial amount from 0.2 mmol to 0.5 mmol, the final PL emission wavelength of the NCs shifted by only 40 nm.

3. The quantum yields of differently sized InP/ZnS NCs in figure 3 (paper).

Emission wavelength	480 nm	515 nm	545 nm	575 nm	610 nm	660 nm	700 nm	735 nm
Quantum yields	20 %	32 %	43 %	52 %	58 %	48 %	45 %	40 %

4. The XRD characterization for InP/ZnS nanocrystals

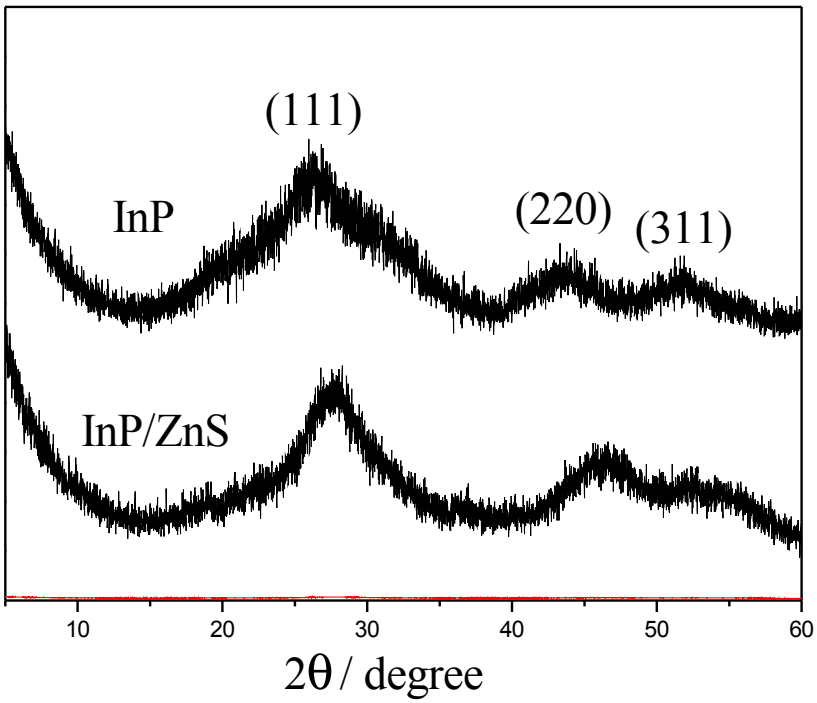

Figure S.3: The peaks in the XRD pattern of InP/ZnS core/shell samples shift to resemble the XRD pattern of ZnS and no mixed peaks of ZnS or InP NCs were found, indicating pure InP/ZnS particles. Narrow peak of InP/ZnS NCs comparing to InP NCs also showed the bigger size.

5. FT-IR characterization for InP NCs.

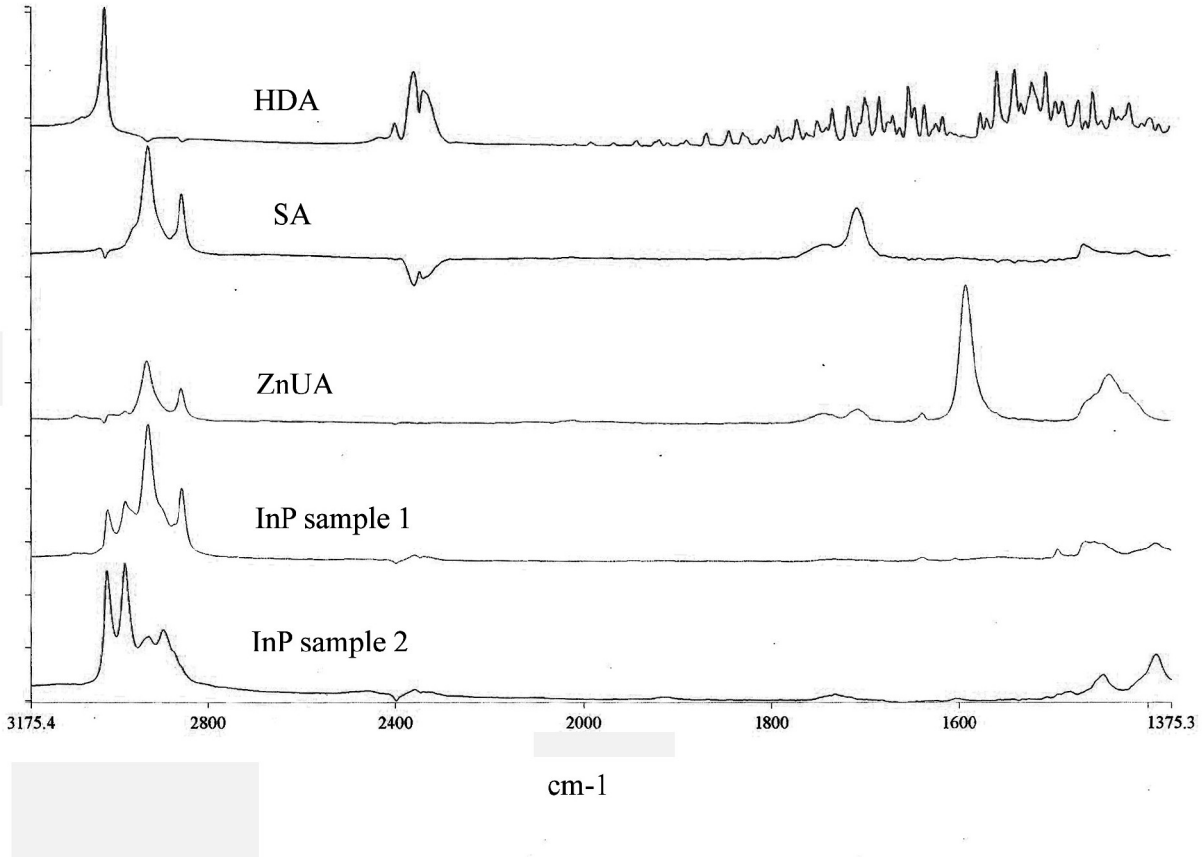

Figure S.4: The FT-IR spectra of the ligands as well as chloroformic InP NCs solutions were measured. InP sample 1 was prepared with an initial HDA: SA: In:P:ZnUA ratio of 2:2:1:1:1, InP sample 2 was prepared with an initial HDA:SA:In:P:ZnUA ratio of 4:0:1:1:1. The C-N peak at 3015 cm^{-1} in HDA still appeared in InP NCs samples and had about 10 cm^{-1} shift. The peak in ZnUA at 1607 cm^{-1} appeared in InP NCs and had about 10 cm^{-1} shift. FT-IR proved that the HDA and zinc carboxylate were both situated on the surface of the InP NCs.