Supporting Information

Scalable production of $CuInS_2$/ZnS quantum dots in a two-step droplet-based microfluidic platform †

Alexandra Yashina,[‡a] Ioannis Lignos,[‡a] Stavros Stavrakis[a], Jaebum Choo[b] and Andrew J. deMello[*a]

[a] *Institute for Chemical and Bioengineering, Department of Chemistry and Applied Biosciences, ETH Zürich, Vladimir-Prelog-Weg 1 8093 Zürich, Switzerland; Tel: +41 44 633 66 10;*

[b] *Department of Bionano Technology, Hanyang University, Ansan 15588, Republic of Korea*

[*]e-mail: andrew.demello@chem.ethz.ch

1 Experimental Setup

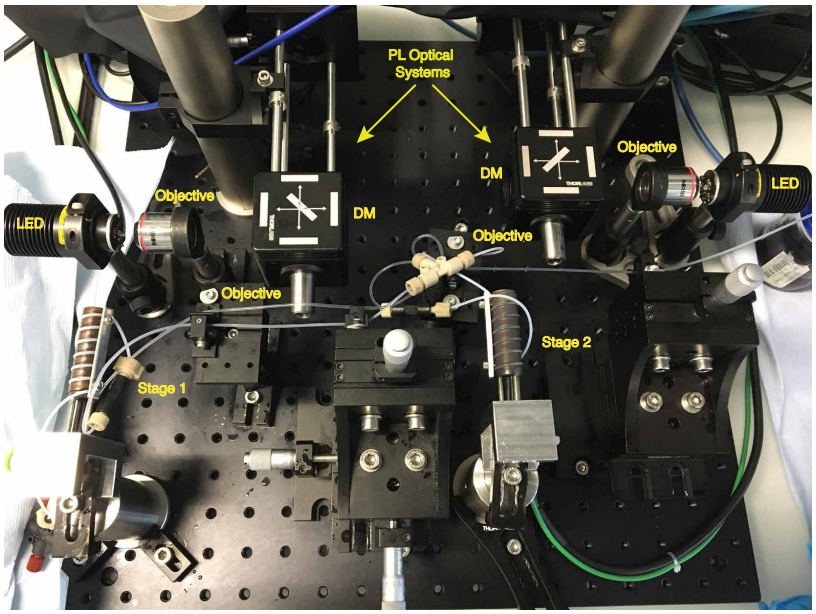

Figure S1 Image of the two-stage microfluidic platform integrated with two photoluminescence monitoring systems.

2 Effect of reaction time

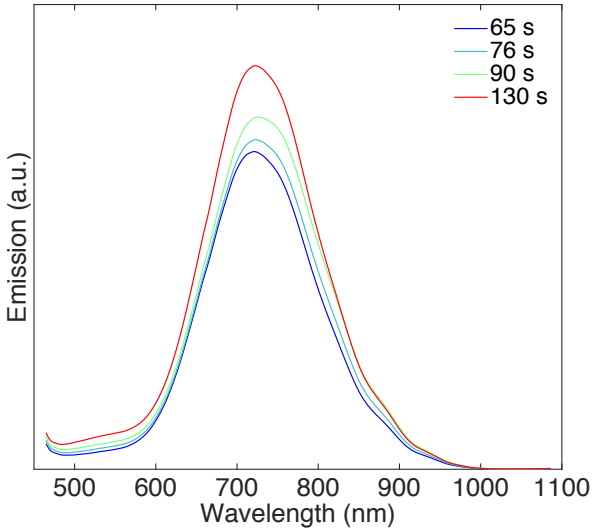

Figure S2 The effect of the reaction time on emission spectra of $CuInS_2$ NCs. Other parameters were: R_1 = 0.3, R_2 = 2.5, and T_{core} = 220 °C.

3 Nanocrystal composition

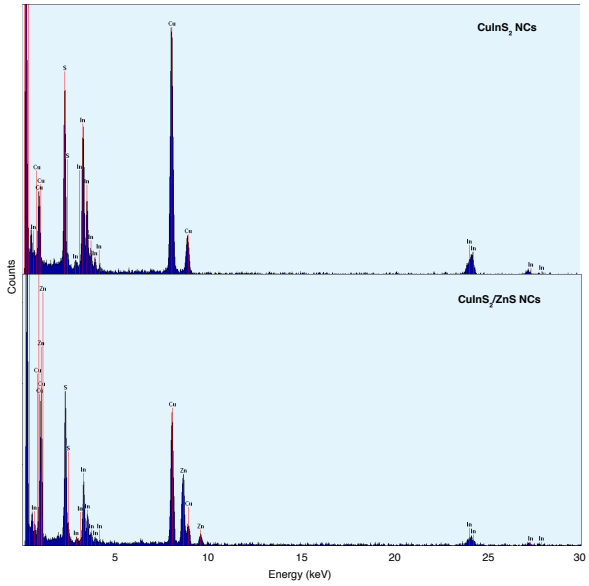

Figure S3 EDX spectra of CIS core (top panel) and CIS/ZnS core/shell NCs (bottom panel). In the top panel only Cu-, In- and S- related peaks were observed, whereas in the case of $CuInS_2$/ZnS NCs, Zn- related peaks are clearly visible. In addition, ZnS passivation leads to a considerable decrease of the intensities of Cu- and In- related peaks.

4 TEM characterization

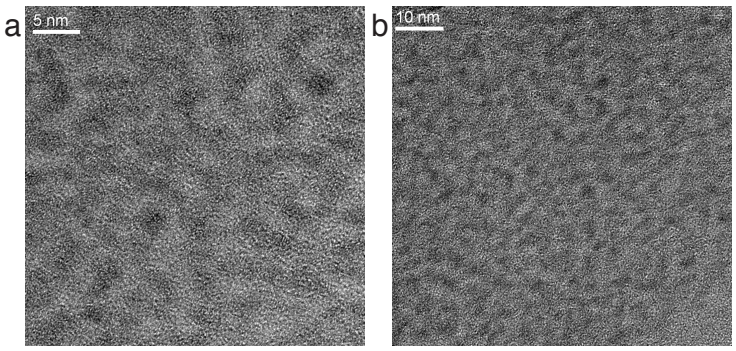

Figure S4 TEM images of $CuInS_2$/ZnS core/shell NCs for (a) Zn/(Cu+In) ratio equal to 5 and (b) equal to 2.5.

5 Effect of T_{shell} on the spectral properties

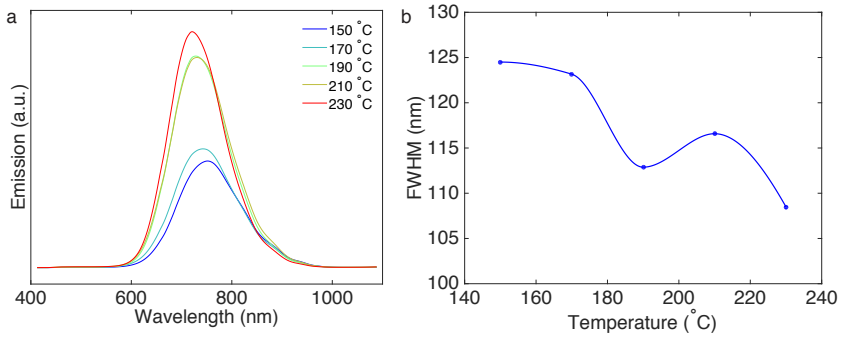

Figure S5 The effect of the temperature of stage 2 (shell passivation) on (a) emission spectra and (b) FWHM of $CuInS_2$/ZnS NCs. Other parameters were: R_1 = 0.3, R_2 = 2.5, R_3 = 3, reaction time = 32 s and T_{core} = 210 °C.