

Electronic Supplementary Material (ESI) for Nanoscale.
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Electronic Supplementary Information (ESI)

Non-aqueous synthesis of Shape Controllable Cu_{2-x}S plasmonic nanostructures in a microfluidic device for the generation of photo-induced heating

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Supplementary figures (in the order in which they are called from the main text)

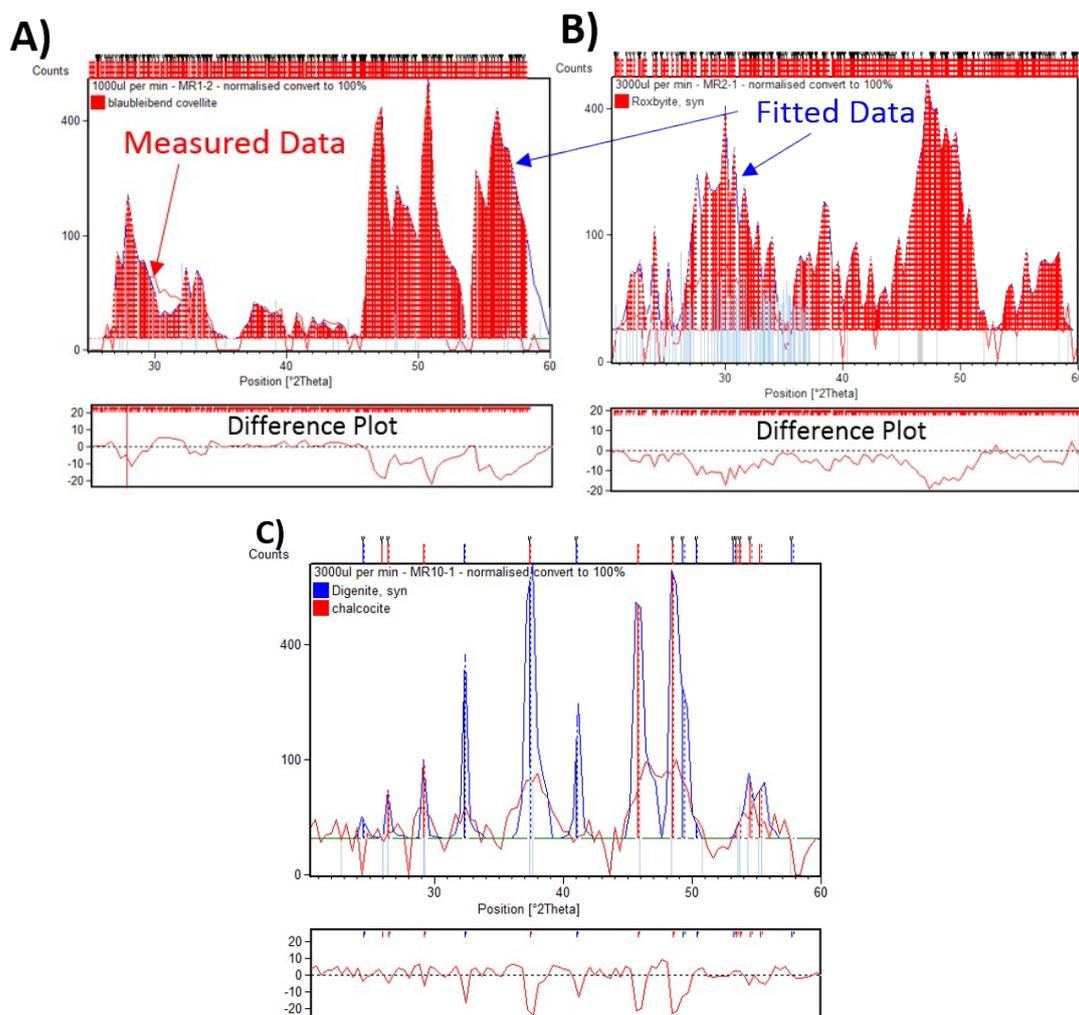


Fig. S1 Rietveld refinement XRD fitting for different Cu_{2-x}S sample data – A) 1:2 (Cu:S) molar ratio with 1000 $\mu\text{l}/\text{min}$ flow rate B) 2:1 (Cu:S) molar ratio with 3000 $\mu\text{l}/\text{min}$ C) 10:1 (Cu:S) molar ratio with 3000 $\mu\text{l}/\text{min}$ where the blue curve shows the fitted Rietveld refinement profiles and the red curve shows the measured data. The corresponding difference plots between the fitted data and the measured data are also included respectively.

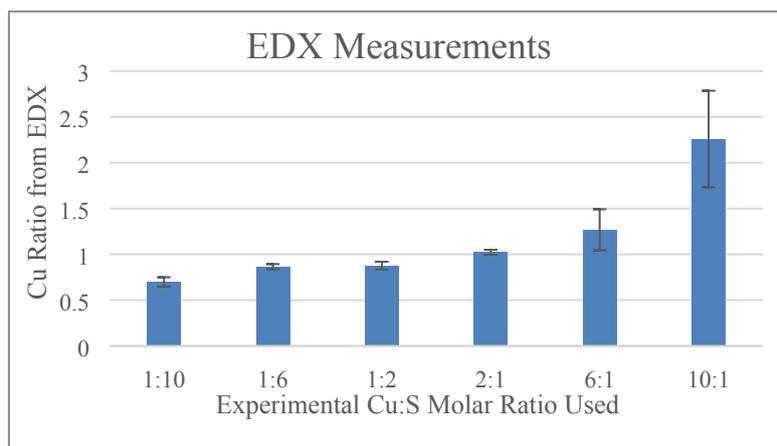


Fig. S2 EDX measurements for Cu_{2-x}S NCs formed using different copper is to sulfur precursor molar ratios.

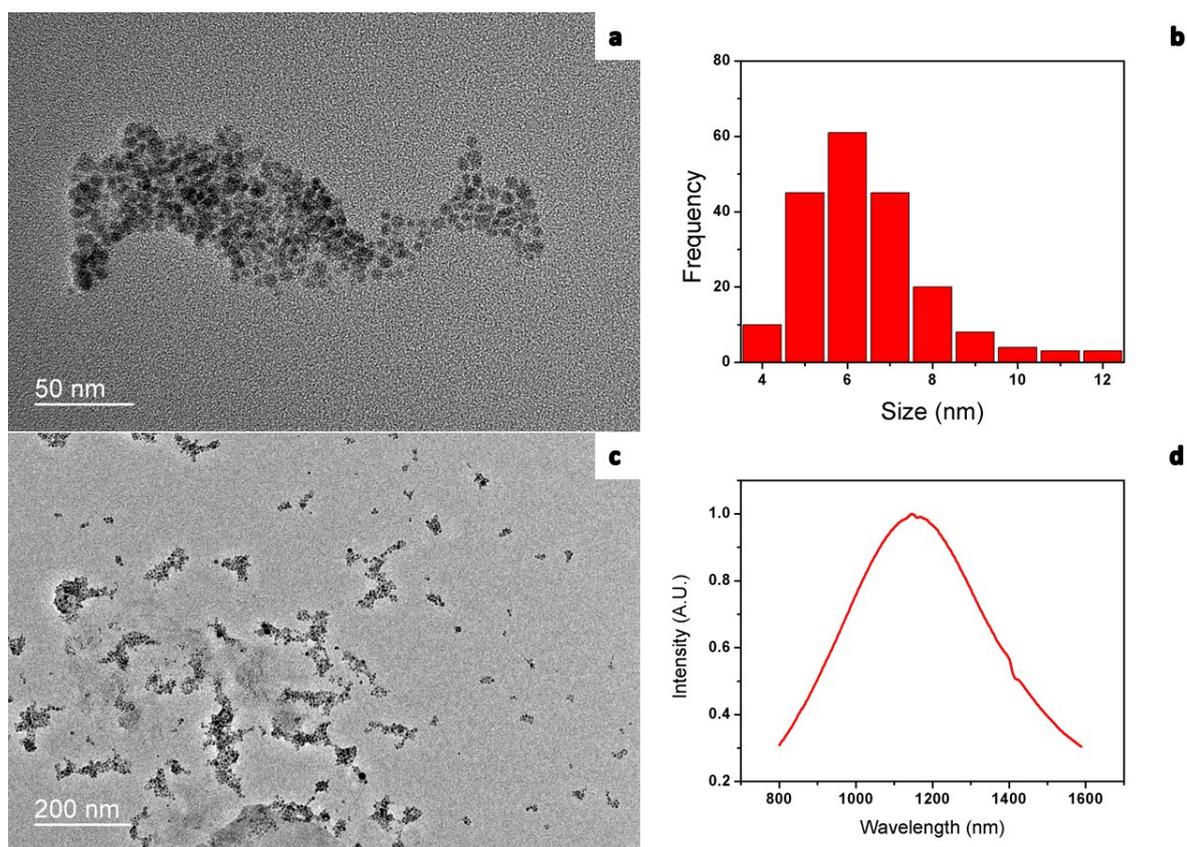


Fig. S3 TEM images of (a) high magnification and (c) low magnification of ligand exchanged GSH-Cu_{2x}S nanocrystals. (b) Size distribution of GSH-Cu_{2x}S NCs with average diameter 6.4±1.5nm (d) UV-VIS-NIR absorption spectra of GSH-Cu_{2x}S NCs with full width half maximum (FWHM) from 898nm to 1428nm.

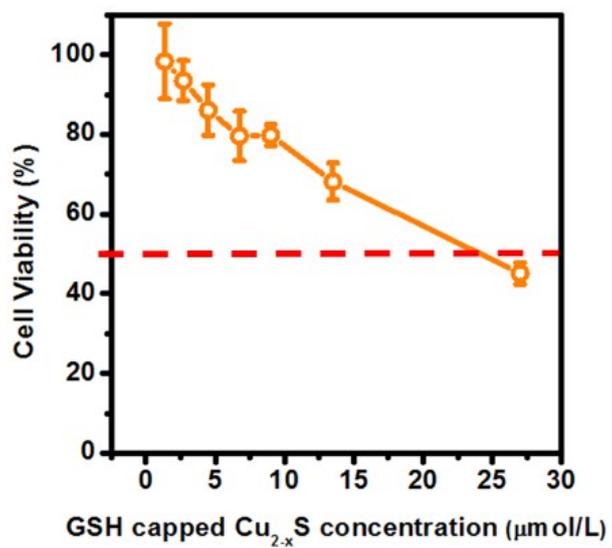


Fig. S4 Cytotoxicity effect of GSH capped Cu_{2-x}S NCs concentrations on RAW264.7 macrophage cells. The red dotted line indicates 50% cell viability, defining 13.5µM and 27µM as suitable concentration levels based on the IC₅₀ benchmark.

Table S1 EDX composition ratios compared against the XRD fittings.

Cu:S Molar Ratio	XRD Crystal Phase	EDX Composition Ratio	
		Cu	S
10:1	Djurleite and Chalcocite Cu_2S	2.26 ± 0.53	1
6:1	Chalcocite Cu_2S , Digenite $\text{Cu}_{1.8}\text{S}$	1.27 ± 0.22	1
2:1	Roxbyite 00-023-0958	1.02 ± 0.03	1
1:2	Spionkopite 00-036-0380	0.88 ± 0.04	1
1:6	Covellite 01-078-2391	0.86 ± 0.03	1
1:10	Covellite 01-078-2391	0.70 ± 0.05	1