Electronic Supplementary Material (ESI) for CrystEngComm

Supporting Information

Facile synthesis and characterization of $CuInS_2$ nanocrystals with different structures and shapes

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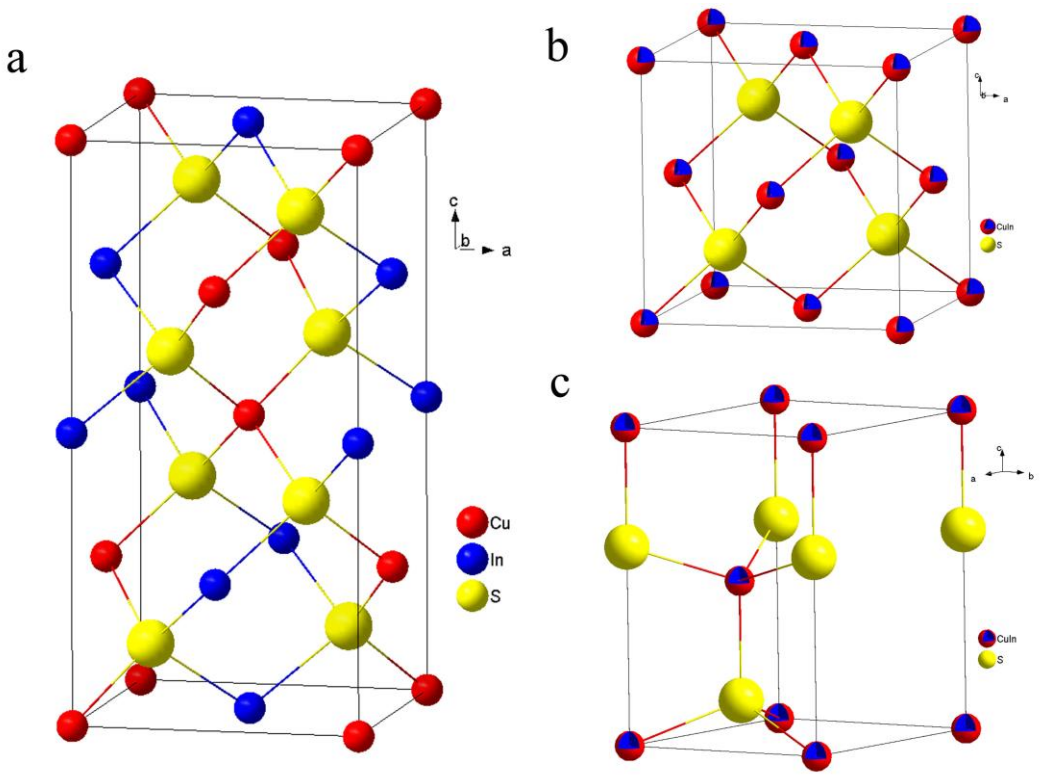

Fig. S1. Three crystal structure models of $CuInS_2$: (a) tetragonal chalcopyrite structure; (b) cation-disordered cubic zincblende modification, (c) cation-disordered hexagonal wurtzite phase.

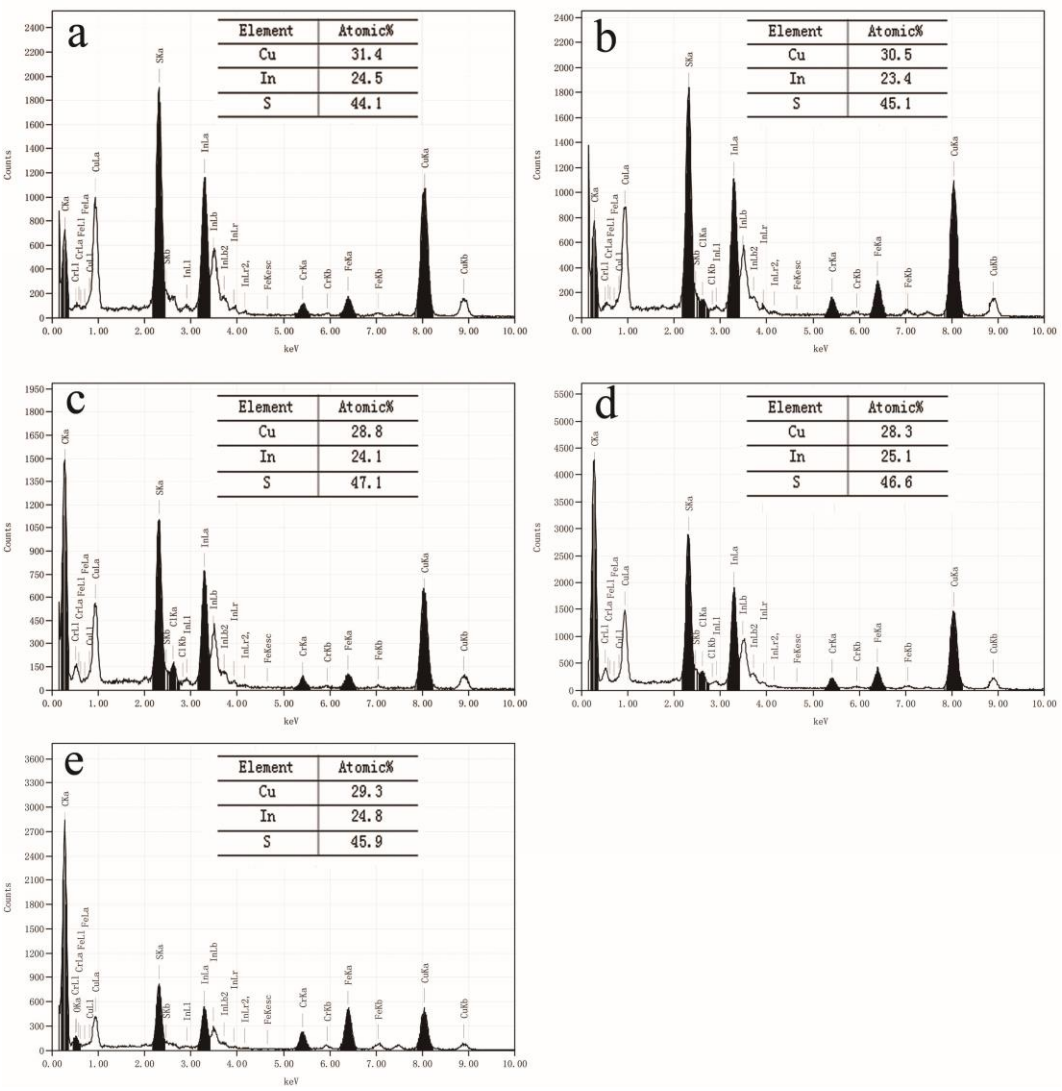

Fig. S2. EDX patterns of typical products synthesized using different dosage of DT at 250 ℃ for 40 min: (a) 0.25 mL; (b) 0.5 mL; (c) 1 mL; (d) 2.5 mL and (e) 5 mL.

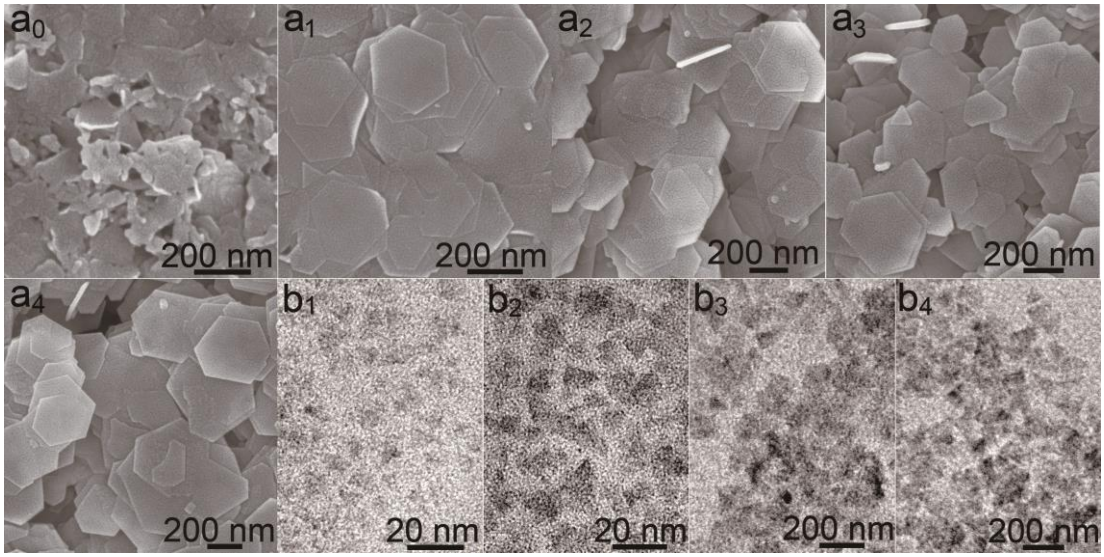

Fig. S3. SEM and TEM images of products synthesized using 0.25 mL DT (a) or 1 mL DT (b) at 250 ℃ for different reaction times: (a_1, b_1) 0 min; (a_2, b_2) 6 min; (a_3, b_3) 12 min; (a_4, b_4) 25 min; especially, (a_0) SEM image of the product collected at the time when the mixed solution was heated to 205 ℃.

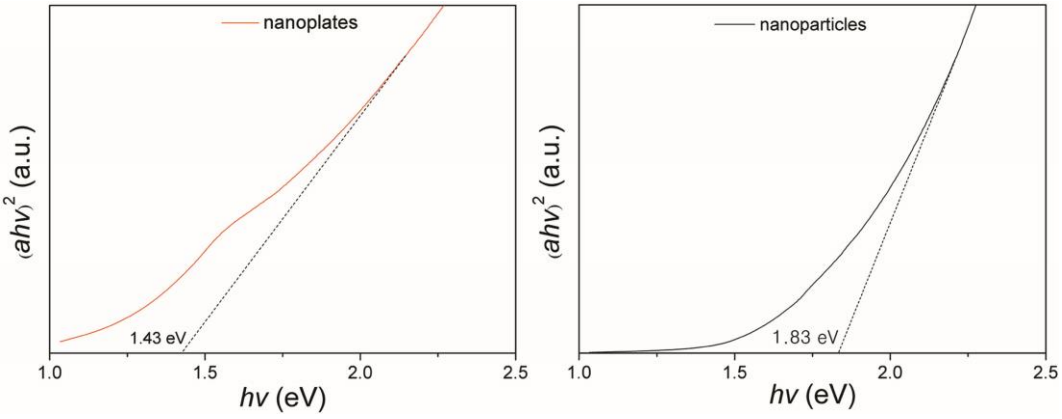

Fig. S4. *Plots of* $(\alpha h\nu)^2$ *vs.* $h\nu$ of nanoplates synthesized using 0.25 mL DT (left) and nanoparticles obtained using 1 mL DT (right).

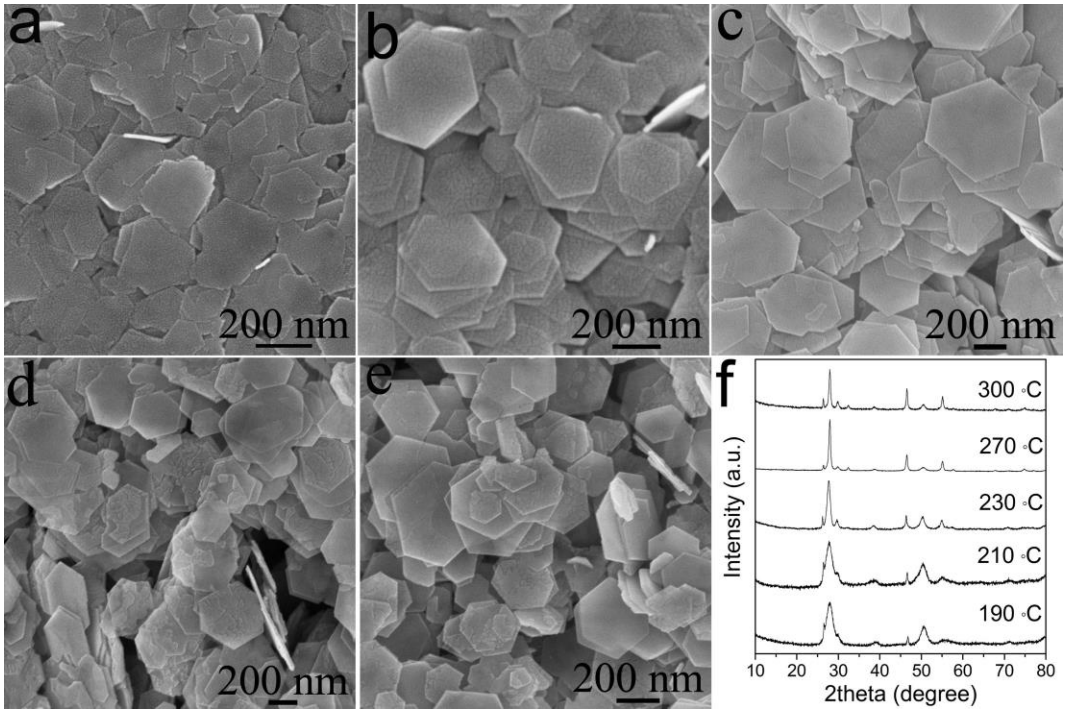

Fig. S5. SEM images (a-e) and XRD patterns (f) of products synthesized using 0.25 ml DT for 40 min at different reaction temperature: (a) 190 ℃; (b) 210 ℃; (c) 230 ℃; (d) 270 ℃; (e) 300 ℃.

As shown in Fig. S5, all the products synthesized using 0.25 ml DT for 40 min at different reaction temperature are plate-like. In addition, the thickness of nanoplates increased along with the increase of reaction temperature, which is suggested by that the diffraction peak at 27.9° became sharper as the reaction temperature increases. It is mentioned that the yield of the products synthesized at relatively low reaction temperature is very low. For example, the yields of the product synthesized at 190 ℃, 210 ℃are 17% and 31%, respectively, which is very low. However, the yield increases to 65% when the reaction was performed at 230 ℃. Especially, the yields at relatively high temperature (250, 270, 300 ℃) are higher than 90%.