

Electronic Supplementary Information

An ionic liquid route to prepare copper sulphide nanocrystals aiming photocatalytic applications

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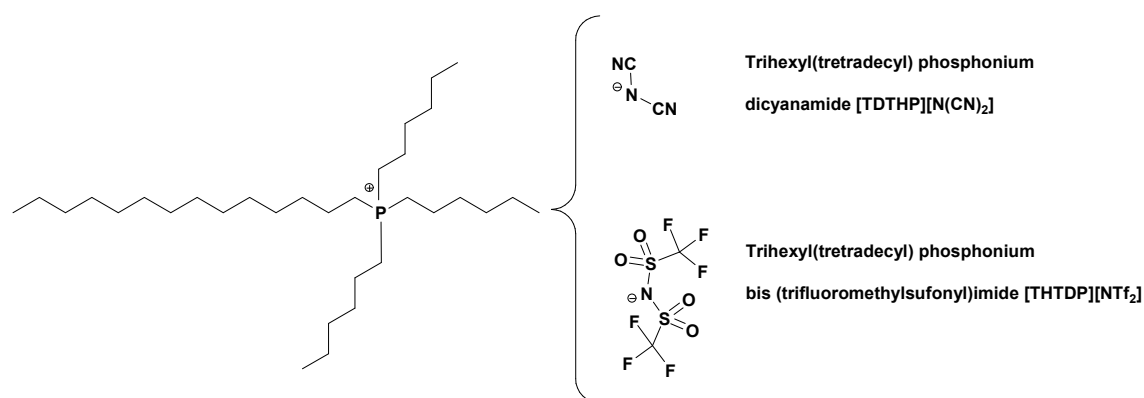


Figure S1. Chemical structure of the ILs used.

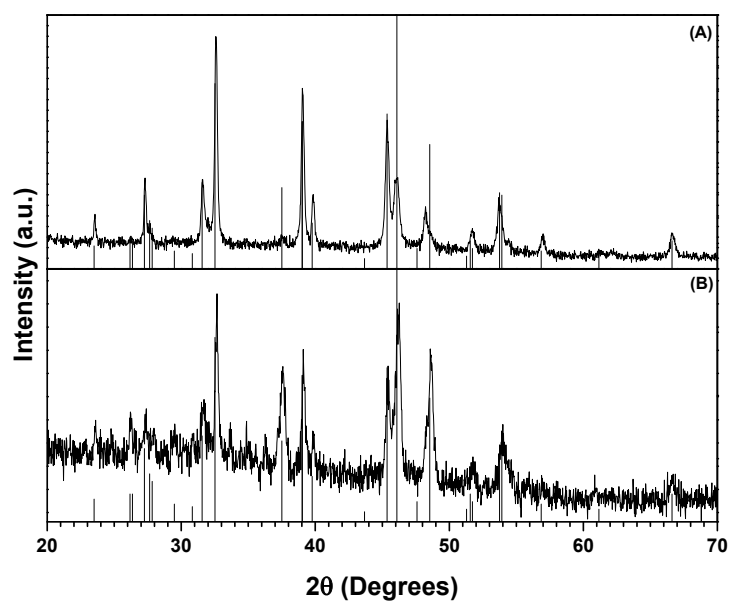


Figure S2. XRD patterns of copper sulfide NCs obtained by thermal decomposition of precursors: (A) {Cu[S₂CN(C₂H₅)₂]₂} and (B) {Cu[S₂CN(C₄H₉)₂]₂}, at solid state. The vertical lines correspond to the standard diffractions peaks attributed to (A) and (B) copper sulphide with tetragonal phase (Cu_{1.8}S) (ICDDPDF file no. 00-041-0959).

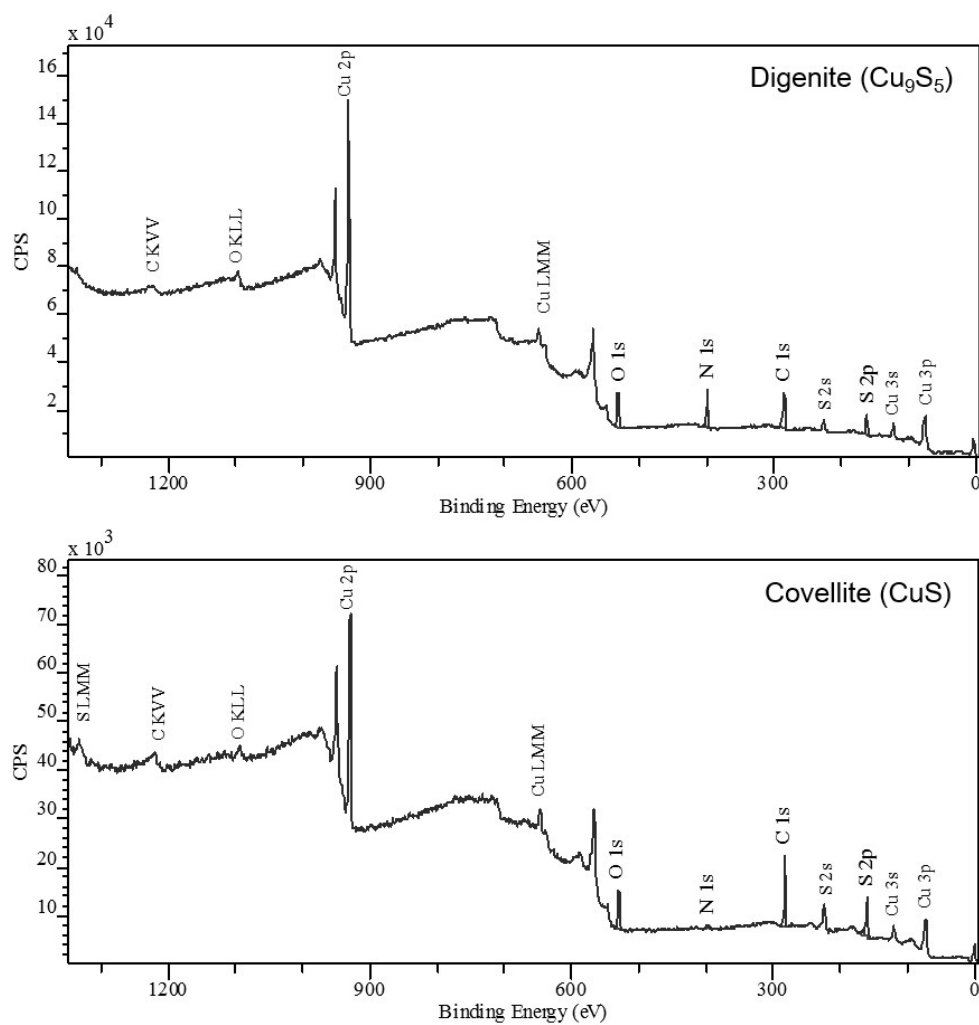


Figure S3. XPS survey spectra of copper sulphide NCs with rhombohedral and hexagonal phases prepared in $[\text{TDTHP}][\text{N}(\text{CN})_2]$ and oleylamie, respectively, at 240 °C.

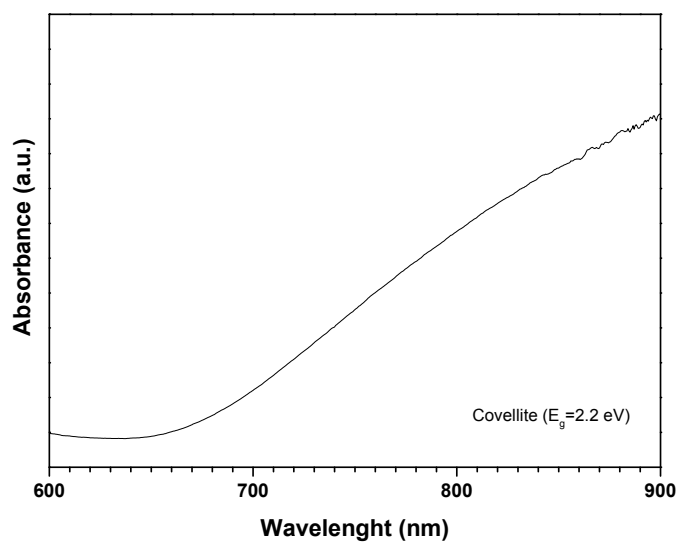


Figure S4. UV-Vis absorption spectrum of nanocrystalline covellite sample prepared in oleylamine at 240 °C.

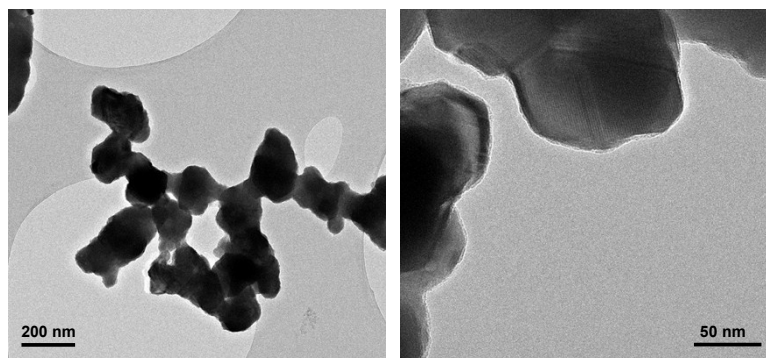


Figure S5. TEM images of digenite nanocrystals obtained in [TDTHP][NTf2] at 240 °C (injection temperature).

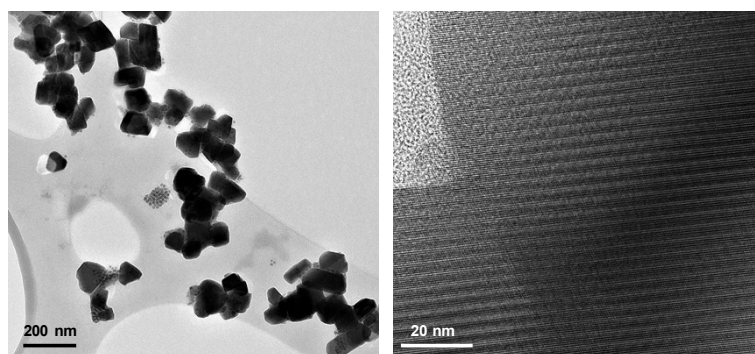


Figure S6. TEM images of digenite nanocrystals obtained in oleylamine at 180 °C (injection temperature).

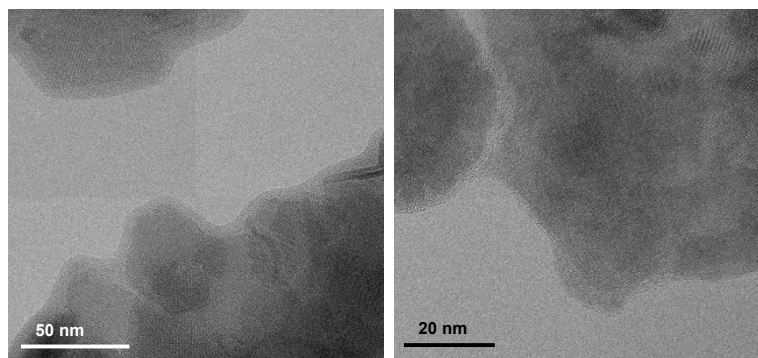


Figure S7. TEM images of covellite nanocrystals obtained in oleylamine at 240 °C (injection temperature).