Electronic Supplementary Information

Formation of hierarchically polyhedral Cu_7S_4 cages from Cu_2O templates and their structure-dependent photocatalytic performances

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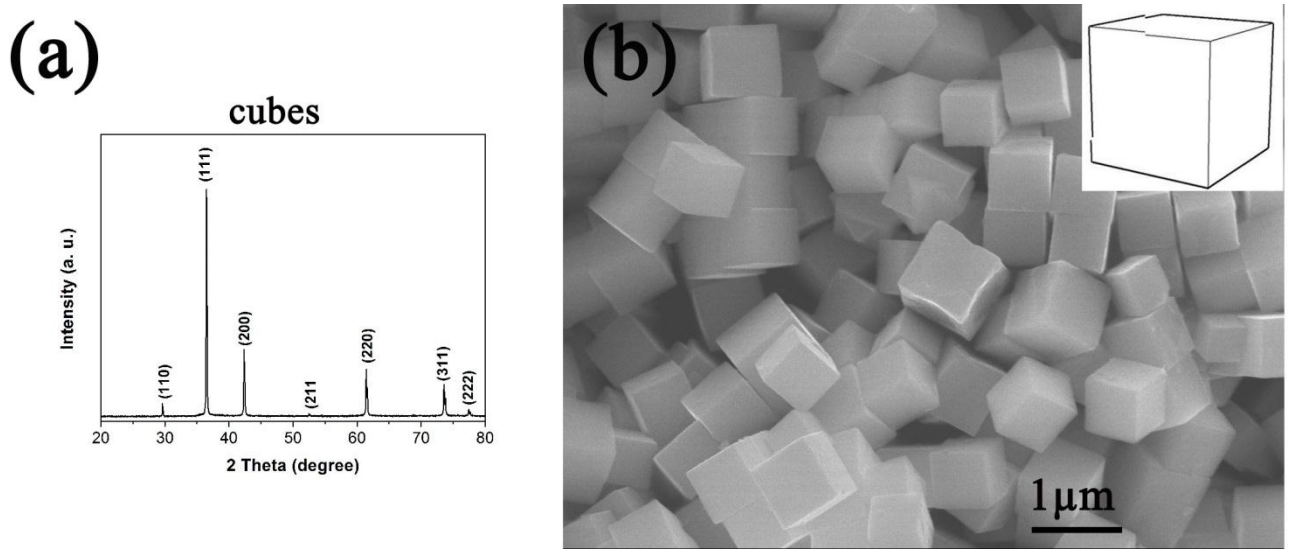

Fig. S1 (a) XRD pattern of the cubic Cu_2O templates; (b) FESEM image of the cubic Cu_2O templates, the inset is the corresponding schematic illustration.

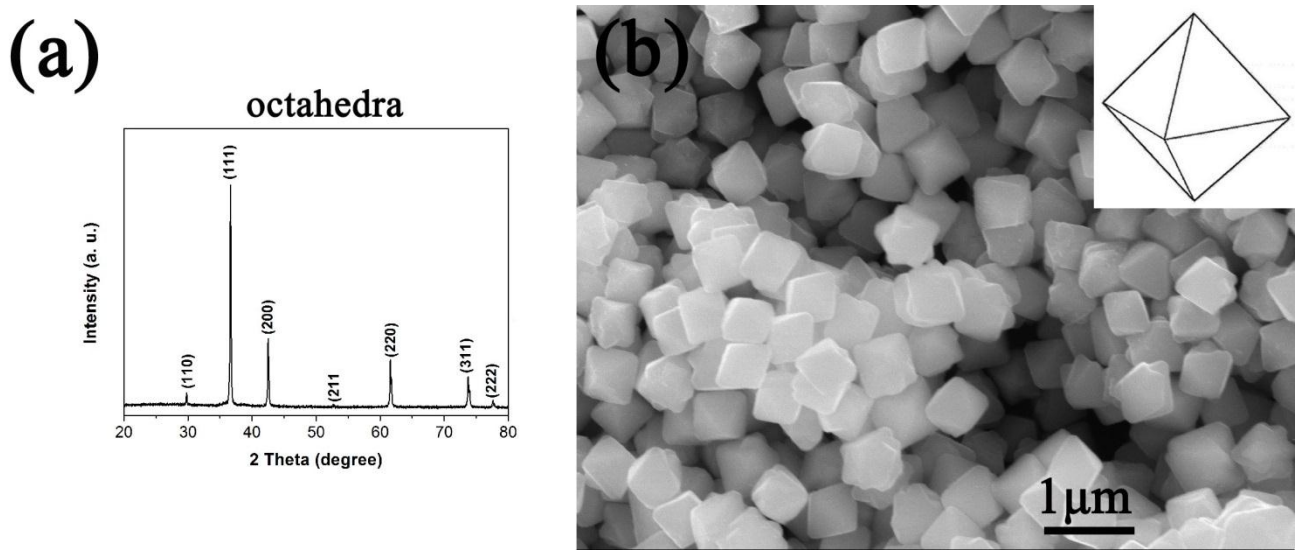

Fig. S2 (a) XRD pattern of the octahedral Cu_2O templates; (b) FESEM image of the octahedral Cu_2O templates, the inset is the corresponding schematic illustration.

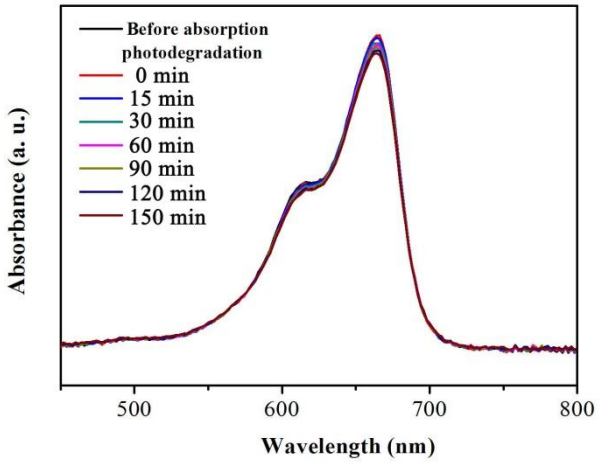

Fig S3. Absorption spectra of the MB solution in the absence of catalysts.

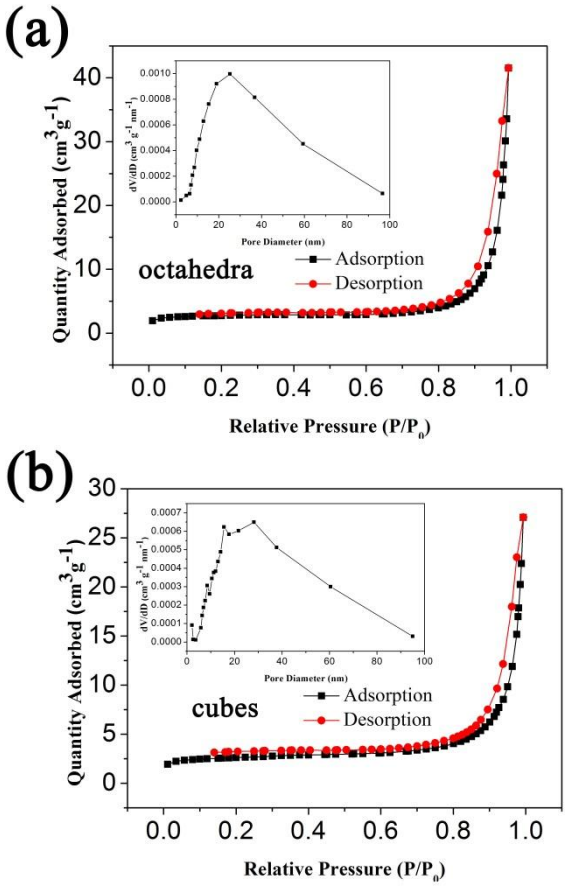

Fig.S4 Typical nitrogen gas adsorption-desorption isotherms and pore size distribution curves (insets) of the hierarchical Cu_7S_4 microcages: (a) the octahedral hierarchical Cu_7S_4 microcages; (b) the cubic hierarchical Cu_7S_4 microcages.

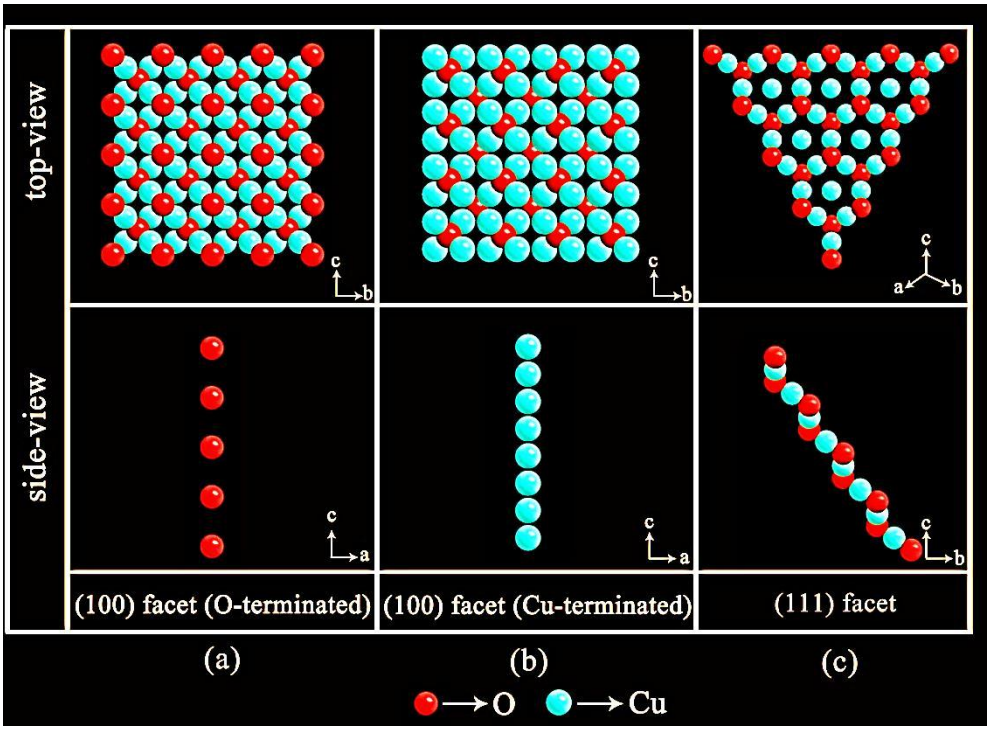

Fig. S5 The crystallographic structures of {100} (a and b) and {111} (c) facets of Cu_2O crystal.[1]

[1] Sun, S. D.; Zhang, X. Z.; Song, X. P.; Liang, S. H.; Wang, L. Q.; Yang, Z. M. *CrystEngComm* **2012**, *14*, 3545.