

Facile Synthesis and Excellent Recyclable Photocatalytic Activity of Pinecone-like $\text{Fe}_3\text{O}_4@\text{Cu}_2\text{O}/\text{Cu}$ porous nanocomposites

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Supplementary Information

Fig S1: XPS scans of as-obtained $\text{Fe}_3\text{O}_4@\text{Cu}_2\text{O}/\text{Cu}$ pinecone-like nanoparticles survey C1s

Fig S2: EDX analysis of the $\text{Fe}_3\text{O}_4/\text{Cu}_2\text{O}/\text{Cu}$ composites

Fig S3: EDS elemental mapping

Fig S4: SEM image of Cu_2O and $\text{Cu}_2\text{O}/\text{Cu}$ nanoparticle

Fig S5: Adsorption–desorption isotherms and corresponding pore size distributions (inset) of (a)

pompon-like $\text{Fe}_3\text{O}_4/\text{Cu}_2\text{O}$ and (b) pinecone-like $\text{Fe}_3\text{O}_4@\text{Cu}_2\text{O}/\text{Cu}$ nanocomposites

Fig S6: TEM images for the evolution process of $\text{Fe}_3\text{O}_4@\text{Cu}_2\text{O}/\text{Cu}$ nanocomposite with Ostwald

ripening: after (a) 3 h; (b) 5 h, (c) SEM image of $\text{Fe}_3\text{O}_4@\text{Cu}_2\text{O}$ sample for 5h

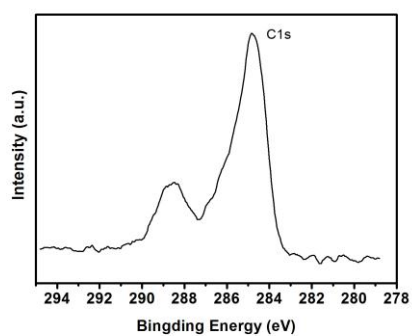


Fig. S1 XPS scans of as-obtained $\text{Fe}_3\text{O}_4@\text{Cu}_2\text{O}/\text{Cu}$ pinecone-like nanocomposite survey C1s

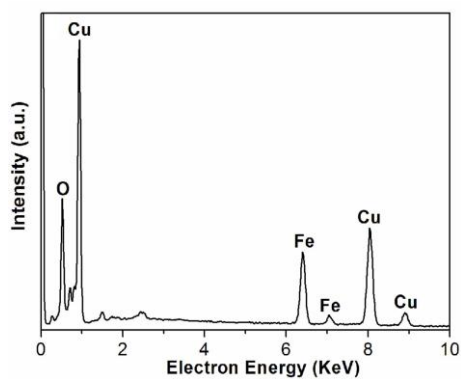


Fig. S2 EDX analysis of the $\text{Fe}_3\text{O}_4/\text{Cu}_2\text{O}/\text{Cu}$ composites

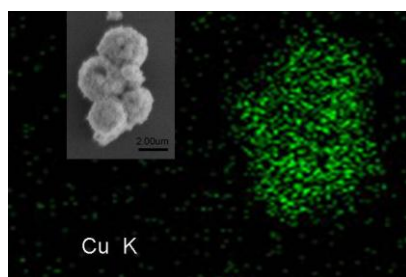


Fig. S3 Cu elemental mapping of the $\text{Fe}_3\text{O}_4@\text{Cu}_2\text{O}/\text{Cu}$ nanocomposites

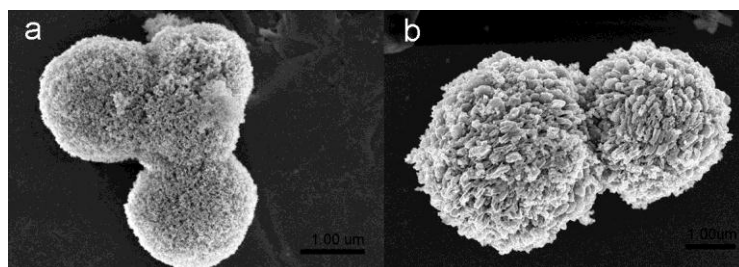


Fig.S4 SEM images of (a) Cu_2O and (b) $\text{Cu}_2\text{O}/\text{Cu}$ nanoparticle

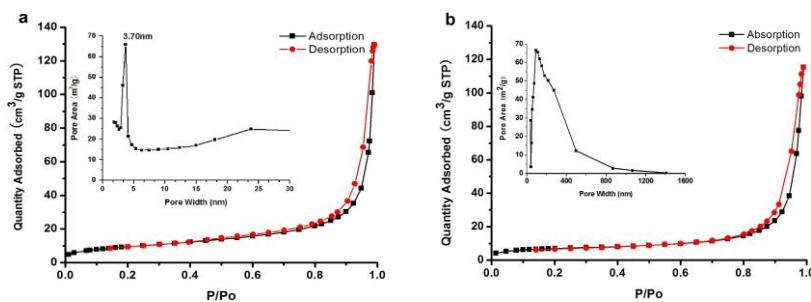


Fig.S5 Adsorption-desorption isotherms and corresponding pore size distributions (inset) of (a) pompon-like Fe₃O₄@Cu₂O and (b) pinecone-like Fe₃O₄@Cu₂O/Cu nanocomposites

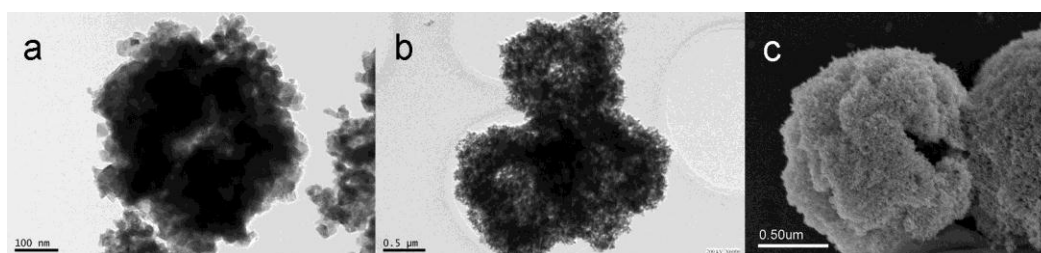


Fig.S6 TEM images for the evolution process of Fe₃O₄@Cu₂O/Cu nanocomposite with Ostwald ripening: after (a) 3 h; (b) 5 h, (c) SEM image of Fe₃O₄@Cu₂O sample for 5h