Electronic Supplementary Information

Synthesis of core-shell heterostructured Cu/Cu_2O nanowires monitored by *in situ* XRD as efficient visible-light photocatalysts

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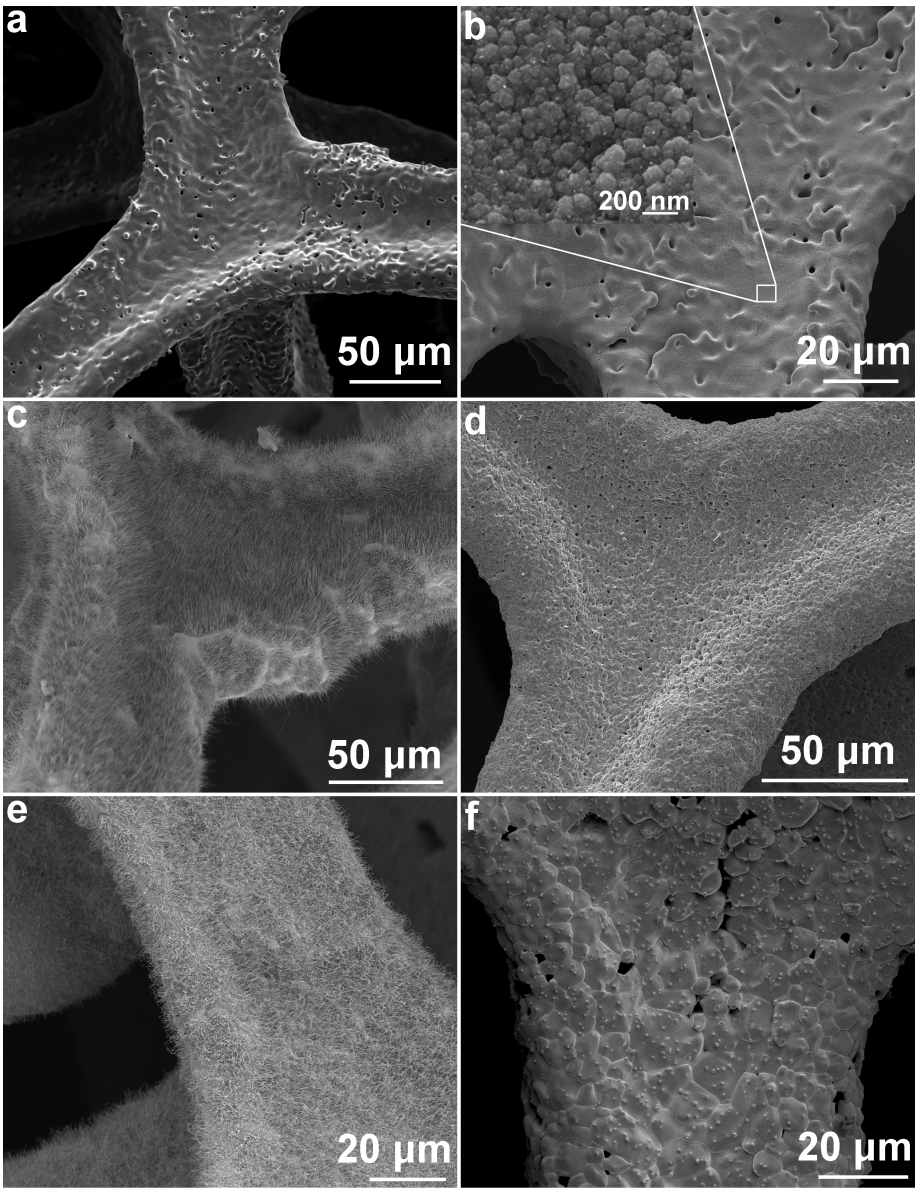

Fig. S1 SEM images of (a) blank Cu foam, (b) Cu/Cu_2O NPs, (c) CuO NWs, (d) CuO NCs, (e) Cu/Cu_2O NWs, (f) Cu_2O NCs.

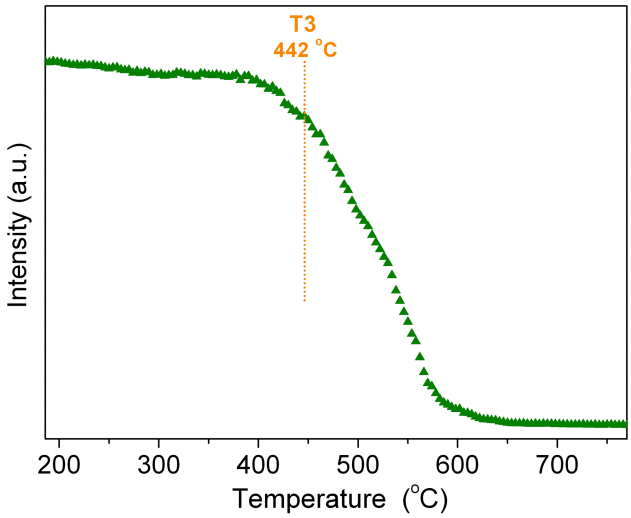

Fig. S2 Intensity change of the most intense diffraction peak of metallic Cu (43.3°) during the temperature-programmed oxidation of Cu foam monitored by *in situ* XRD. An inflexion point at T3 (442 °C) indicates the acceleration of Cu oxidation.

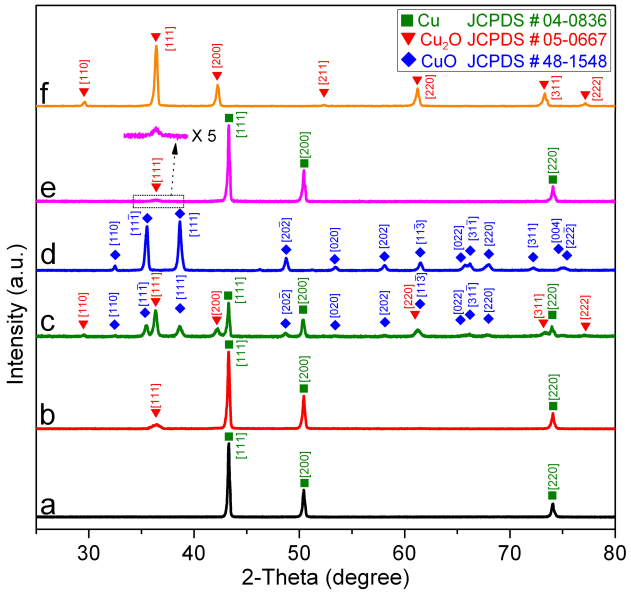

Fig. S3 XRD patterns of (a) blank Cu foam, (b) Cu/Cu_2O NPs, (c) CuO NWs, (d) CuO NCs, (e) Cu/Cu_2O NWs, (f) Cu_2O NCs.

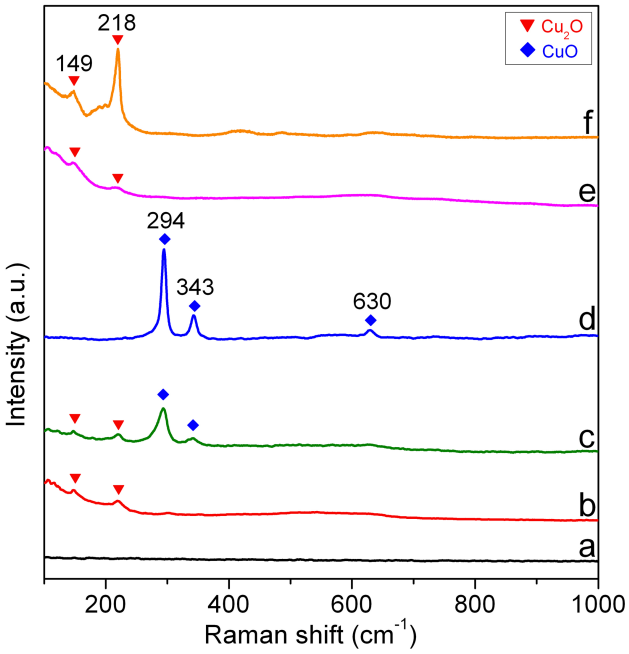

Fig. S4 Raman spectra of (a) blank Cu foam, (b) Cu/Cu_2O NPs, (c) CuO NWs, (d) CuO NCs, (e) Cu/Cu_2O NWs, (f) Cu_2O NCs.

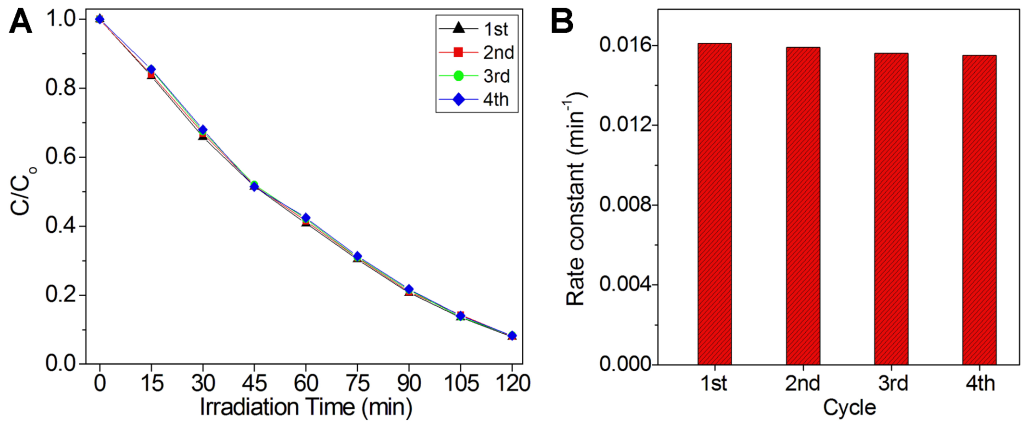

Fig. S5 Photodegration activity of Cu/Cu_2O NWs over various cycles of re-utilization using identical reaction conditions.

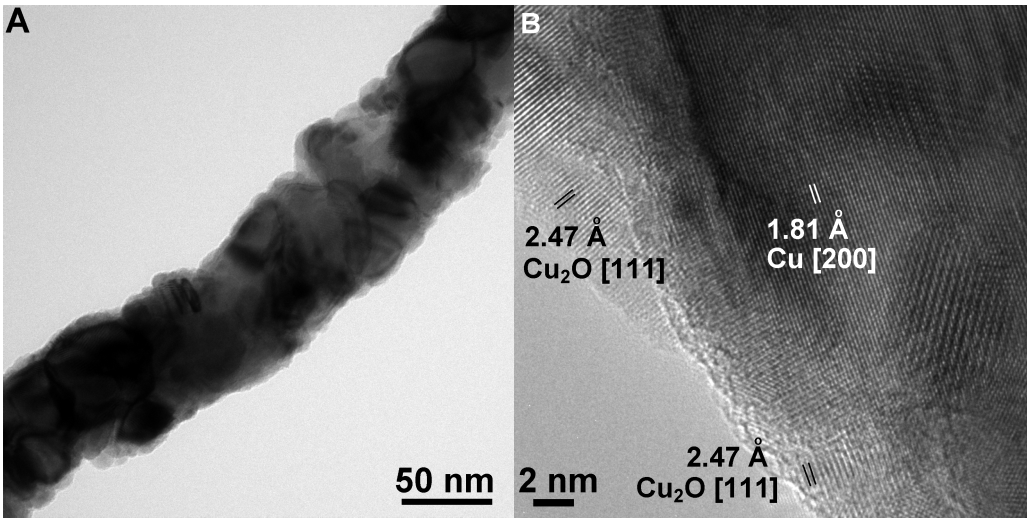

Fig. S6 TEM images of the catalyst Cu/Cu_2O NWs after the 4th reactions, (A) low magnification view, (B) HRTEM image.