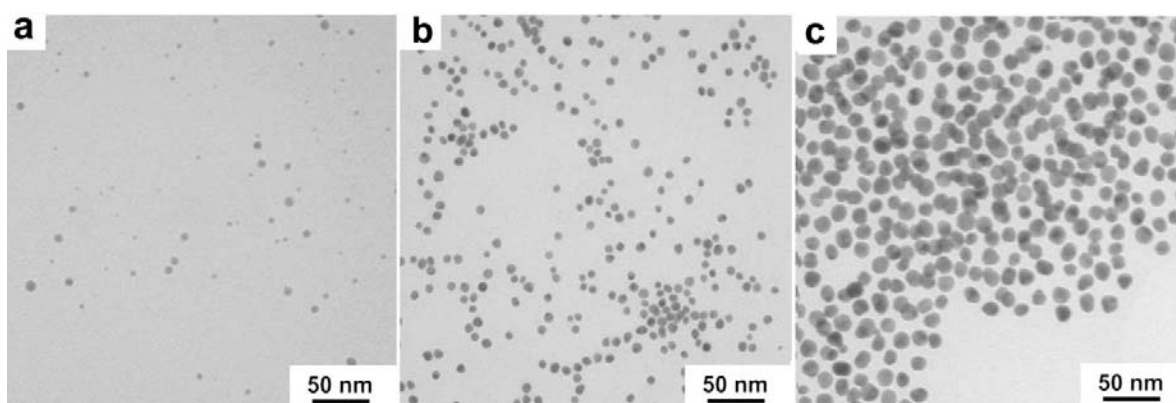


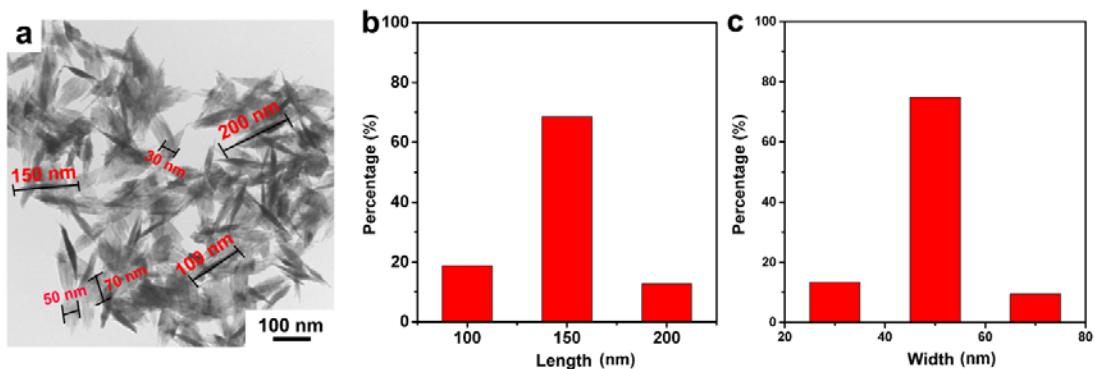
*Electronic Supplementary Information*

**Synthesis of High Quality CuO Nanoflakes and CuO-Au Nanohybrids for Superior Visible Light Photocatalytic Behaviors**

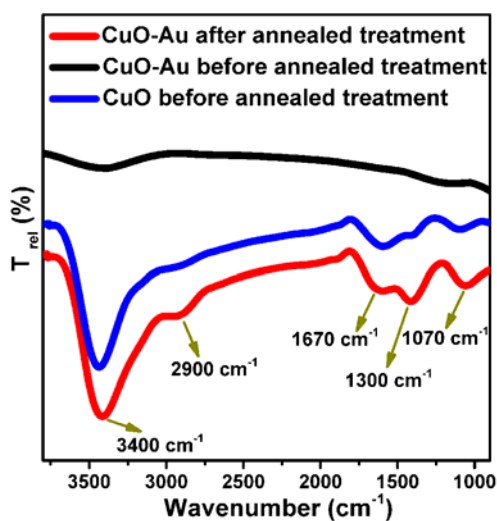
Xinyu Zhang, Yawei Yang, Wenxiu Que, and Yaping Du\*



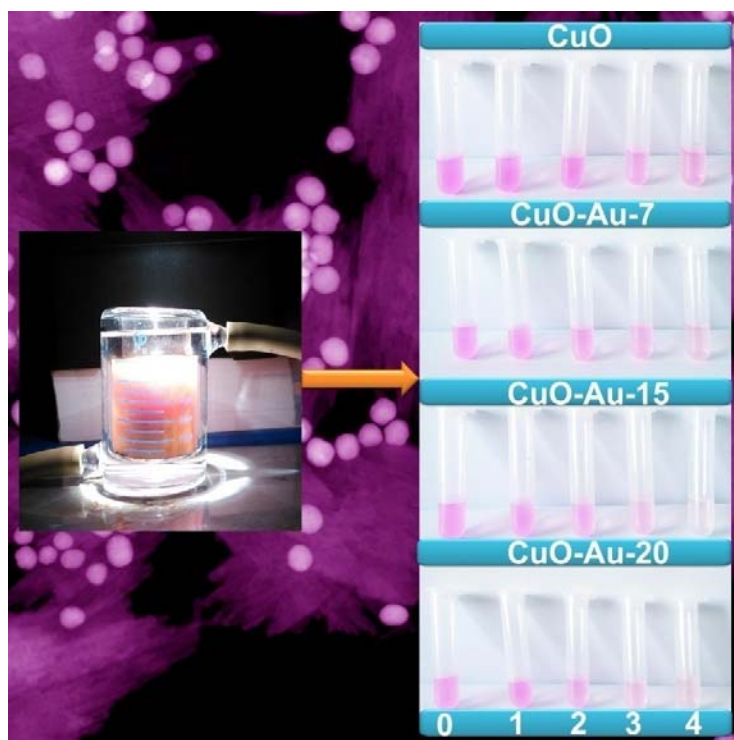
**Figure S1.** TEM images of the Au NPs with average size of (a) 7 nm, (b) 15 nm, and (c) 20 nm, respectively.



**Figure S2.** (a) TEM image, (b) length and (c) width distribution of CuO nanoflakes.



**Figure S3.** FTIR spectra of CuO nanoflakes before annealed treatment, CuO-Au nano hybrids before and after annealed treatment. Peaks located at 2900  $cm^{-1}$  and 1300  $cm^{-1}$  were assigned to the  $-CH_2-$  stretching vibrations, 1670  $cm^{-1}$  was ascribed to the  $C=O$  stretching vibrations, 1070  $cm^{-1}$  was belonged to the  $-C-N-$  stretching vibrations in polyvinyl pyrrolidone (PVP), all of the peaks were disappeared then confirmed the PVP groups were excluded after annealed treatment<sup>1</sup>.



**Figure S4.** Temporal evolution (0-4 h) color of RhB aqueous solution with CuO nanoflakes, CuO-Au-7, CuO-Au-15 and CuO-Au-20 nanohybrids under visible light illumination.

**Table S1.** ICP-AES result of CuO-Au nanohybrids

Catalysts	Au <sup>+</sup>
CuO-Au-7 nanohybrids	9.94 % $\approx$ 10 %
CuO-Au-15 nanohybrids	9.92 % $\approx$ 10 %
CuO-Au-20 nanohybrids	9.85 % $\approx$ 10 %

S1. D. W. Ding, K. Liu, S. N. He, C. B. Gao, Y. D. Yin, *Nano Lett.*, 2014, **14**, 6731-6736.