

Supporting Information for

**LSPR based “push-pull” synergetic effect for enhanced
photocatalytic performance of gold nanorods@cuprous oxide-
gold nanoparticle ternary composite**

Xiaojing Yu^a, Xu Liu^a, Bin Wang^{c, *}, Qingnan Meng^a, Shaodong Sun^b, Yufei Tang^a,
Kang Zhao^{a, *}

- a. School of Materials Science and Engineering, Xi'an University of Technology,
Xi'an 710048, Shaanxi, People's Republic of China, Email: kzhao@xaut.edu.cn
- b. Shaanxi Province Key Laboratory for Electrical Materials and Infiltration
Technology, School of Materials Science and Engineering, Xi'an University of
Technology, Xi'an 710048, Shaanxi, People's Republic of China
- c. School of Science, MOE Key Laboratory for Non-equilibrium Synthesis and
Modulation of Condensed Matter, State Key Laboratory for Mechanical Behavior
of Materials, Xi'an Jiaotong University, Xi'an, 710049, China, Email:
bin_wang@xjtu.edu.cn;;

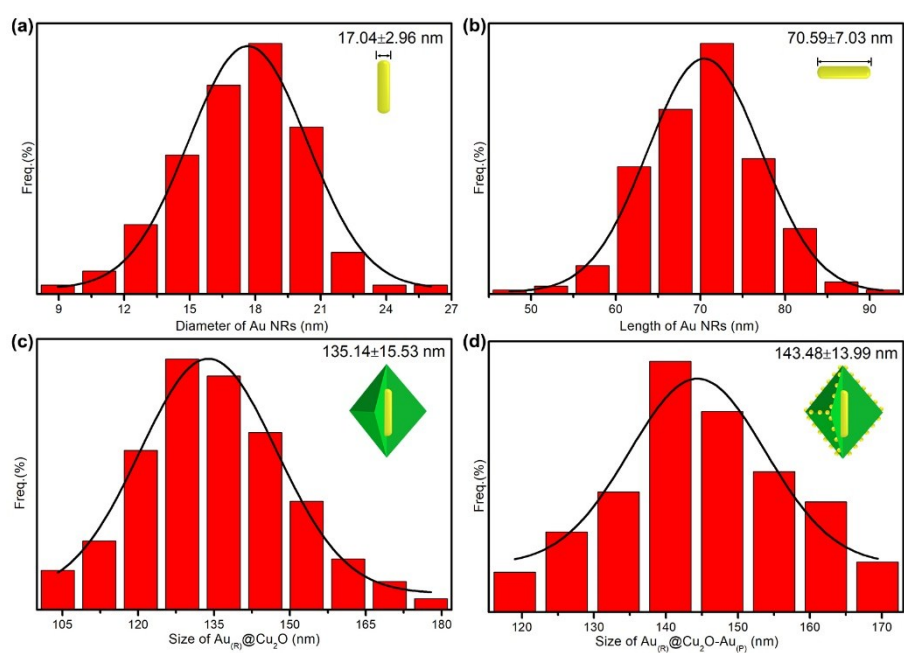


Fig. S1. Size distribution of Au NRs, $\text{Au}_{(\text{R})}@\text{Cu}_2\text{O}$ and $\text{Au}_{(\text{R})}@\text{Cu}_2\text{O}-\text{Au}_{(\text{P})}$, respectively

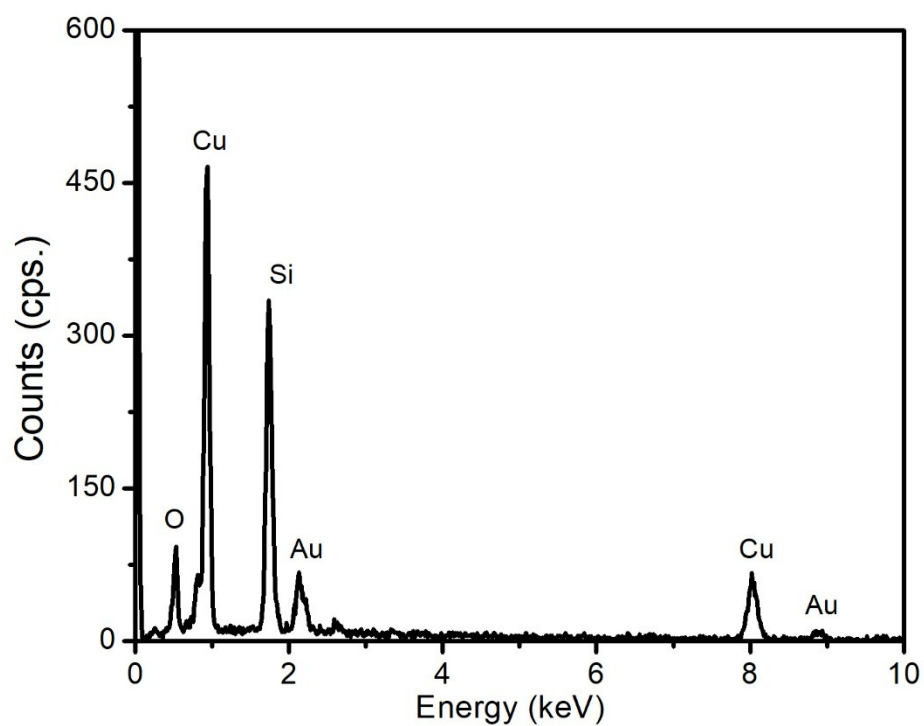


Fig. S2. The EDX spectrum of $\text{Au}_{(\text{R})}@\text{Cu}_2\text{O}-\text{Au}_{(\text{P})}$

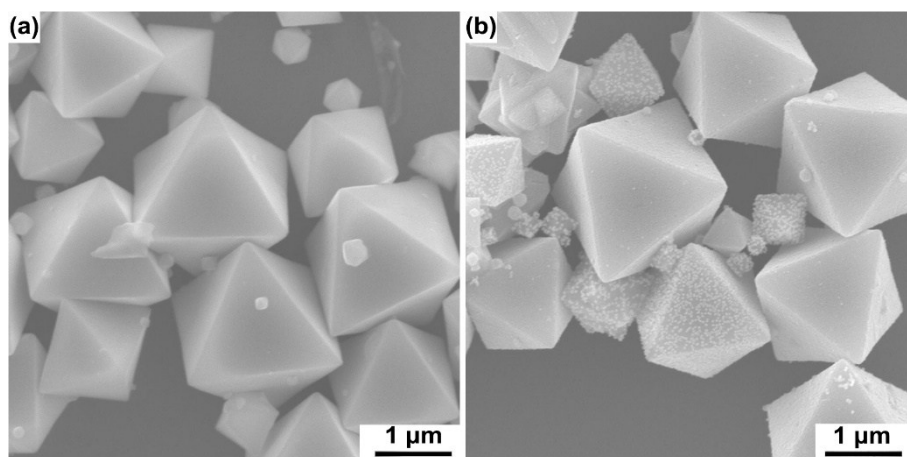


Fig. S3. SEM image of pure Cu_2O (a) and $\text{Cu}_2\text{O}-\text{Au}_{(\text{P})}$ (b)

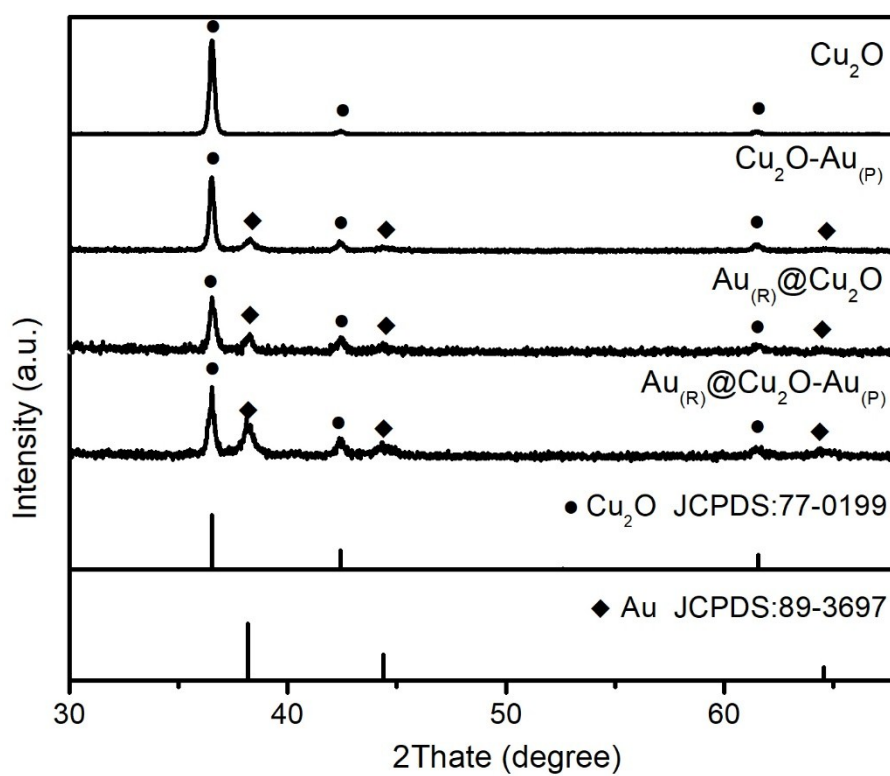


Fig. S4. The XRD patterns for Cu_2O , $\text{Cu}_2\text{O}-\text{Au}_{(\text{P})}$, $\text{Au}_{(\text{R})}@\text{Cu}_2\text{O}$ and $\text{Au}_{(\text{R})}@\text{Cu}_2\text{O}-\text{Au}_{(\text{P})}$, respectively

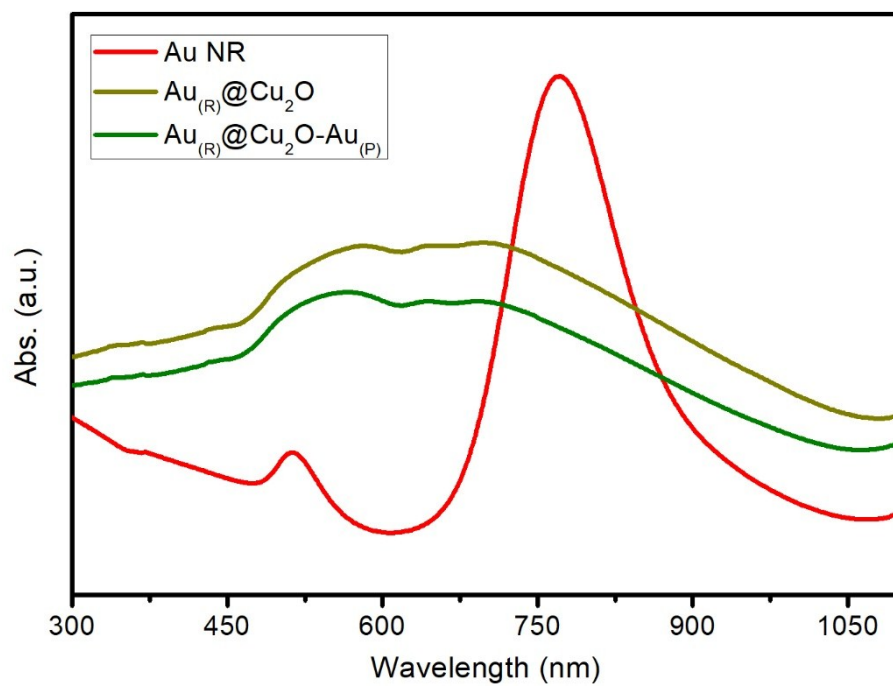


Fig. S5. The UV-vis absorption spectra of $\text{Au}_{(R)}$, $\text{Au}_{(R)}@Cu_2O$ and $\text{Au}_{(R)}@Cu_2O-Au_{(P)}$, respectively

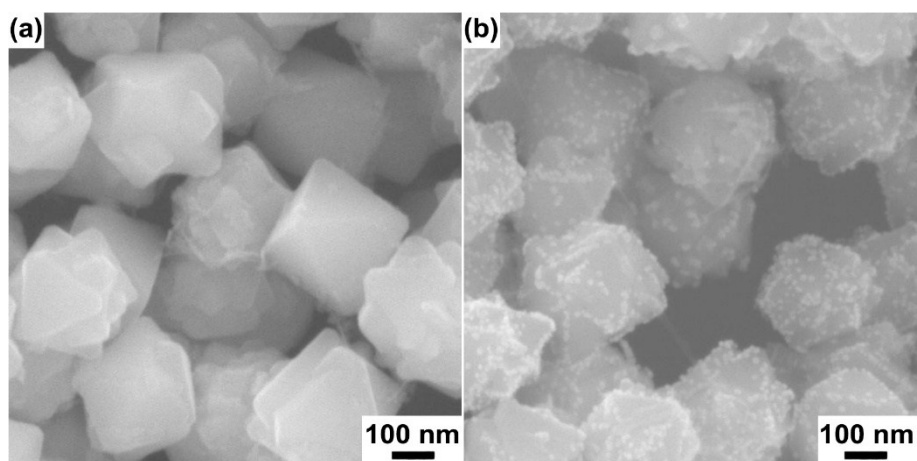


Fig. S6. The SEM image of $\text{Au}_{(P)}@Cu_2O$ (a) and $\text{Au}_{(P)}@Cu_2O-Au_{(P)}$ (b)

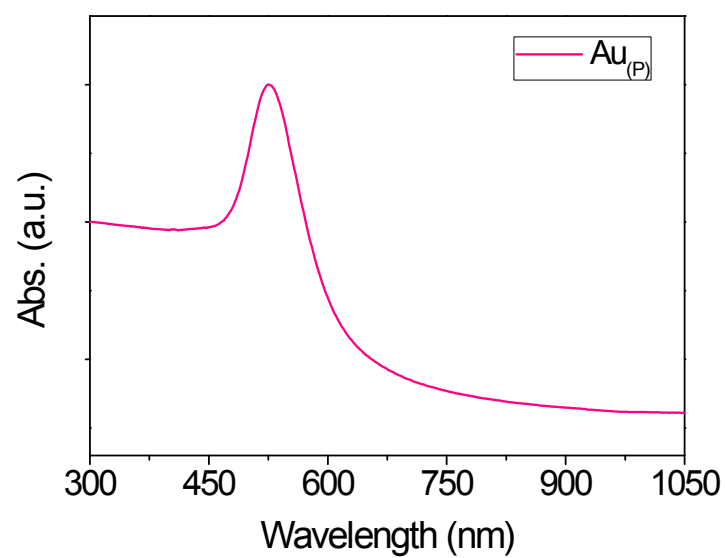


Fig. S7. The UV-vis absorption spectrum of $\text{Au}_{(P)}$

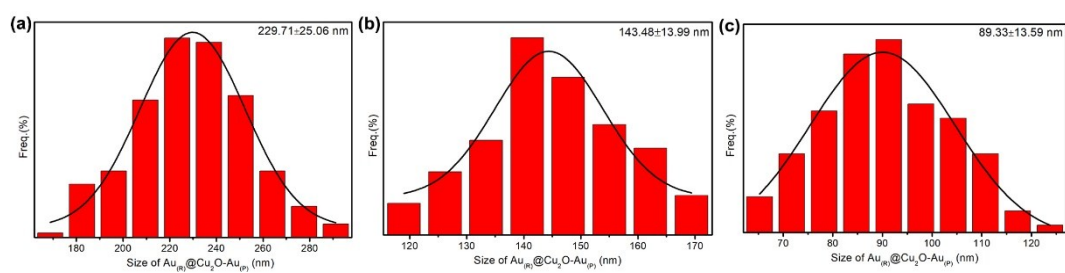


Fig. S8. Size distribution of $\text{Au}_{(R)}@\text{Cu}_2\text{O}-\text{Au}_{(P)}$ in Fig. 8