Supporting Information

## Fabricating $g-C_3N_4/CuO_x$ heterostructure with tunable

## valence transition for enhanced photocatalytic activity

Yanbiao Shi,<sup>a</sup> Zhanxue Yang,<sup>a</sup> Yan Liu,<sup>b</sup> Jie Yu, <sup>a</sup> Fangping Wang, <sup>a</sup> Jinhui Tong, <sup>a</sup> Bitao Su<sup>a</sup> and Qizhao Wang<sup>\*a,c</sup>

<sup>a</sup>College of Chemistry and Chemical Engineering, Northwest Normal University,

Lanzhou 730070, China

<sup>b</sup>Shanghai Academy of Spaceflight Technogy, Shanghai, 201109, China

<sup>c</sup>Key Laboratory of Eco-Environment-Related Polymer Materials, Ministry of Education of China, Key Laboratory of Bioelectrochemistry and Environmental Analysis of Gansu, Lanzhou 730070, China

\*To whom correspondence should be addressed

E-mail: wangqizhao@163.com; qizhaosjtu@gmail.com

Tel/Fax: 86-931-7972677

## Figures



Fig. S1. SEM images of as-synthesized samples. (a) CN7.5/CuO<sub>x</sub>; (b) CN10/CuO<sub>x</sub>.



**Fig. S2.** The corresponding plots of  $(ahv)^2$  vs. hv curve of CN5-CuO<sub>x</sub> composites.



Fig. S3. The whole XPS spectrum of CN5-CuOx sample.



Fig. S4. Plots of photogradation of MO over  $CN5-CuO_x$  photocatalyst with different scavengers under stimulated sunlight irradiation.