

One-step photodeposition of spatially separated CuO_x and MnO_x dual cocatalysts on g-C₃N₄ for enhanced CO₂ photoreduction

Fengyu Tian^{*a}, Xinyao Wu^a, Junhong Chen^b, Xuebiao Sun^b, Xuemin Yan^{*a}, Guangfu
Liao^{*cd}

^a College of Chemistry and Environmental Engineering, Yangtze University, Jingzhou, Hubei 434023, China.

^b No. 3 Oil Production Plant, PetroChina Changqing Oilfield Company, Yinchuan, Ningxia 750006, China

^c College of Material Engineering, Fujian Agriculture and Forestry University, Fuzhou 350002, China.

^d School of Chemistry and Chemical Engineering/State Key Laboratory Incubation Base for Green Processing of
Chemical Engineering, Shihezi University, Shihezi 832003, China.

Corresponding authors:

tfengyu@126.com (F. Tian)

xueminyan@126.com (X. Yan)

liaogf@mail2.sysu.edu.cn (G. Liao)

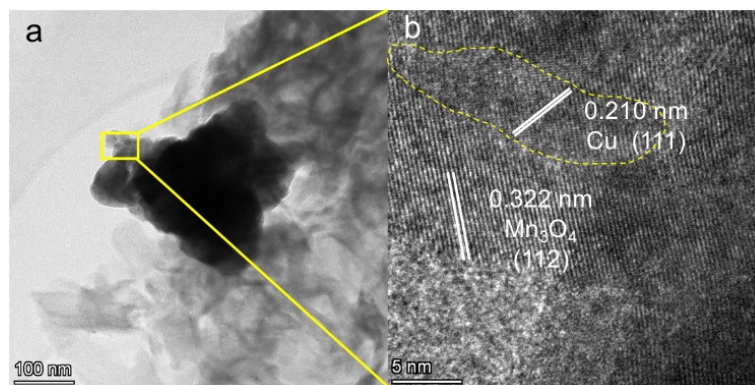


Figure S1. (a) TEM and (b) HRTEM images of Cu/MnCN.

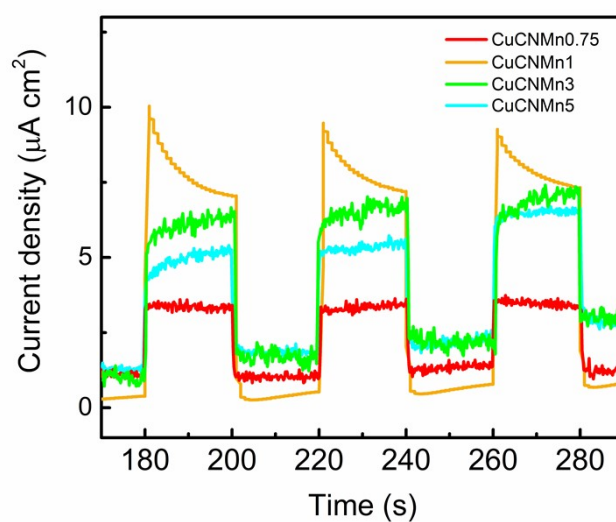


Figure S2. Photocurrent curves of all the $\text{CuO}_x/\text{g-C}_3\text{N}_4/\text{MnO}_x$ composites.

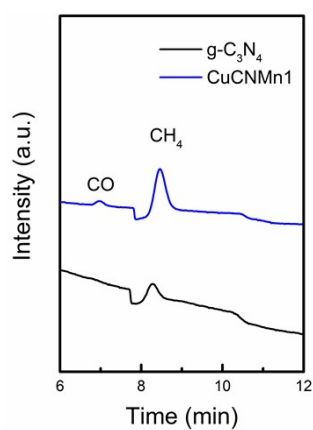


Figure S3. Gas chromatograms spectra for the gaseous products of the photocatalytic CO_2 reduction over $\text{g-C}_3\text{N}_4$ and CuCNMn after 4 h light irradiation.

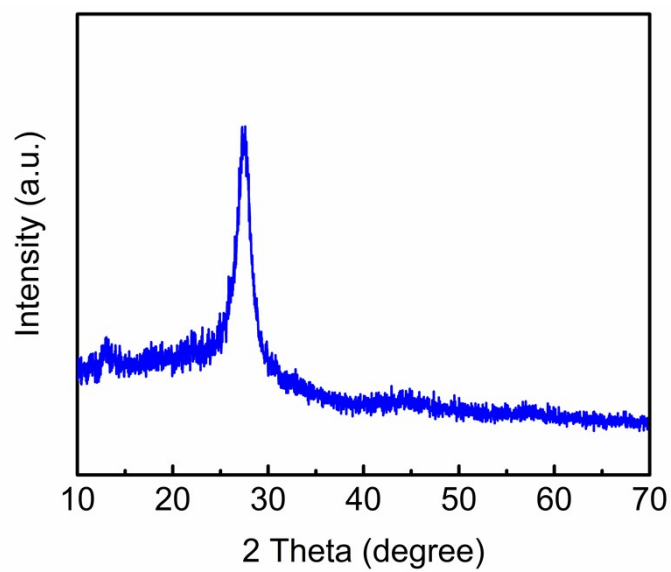


Figure S4. XRD pattern of the used CuCNMn1 sample.

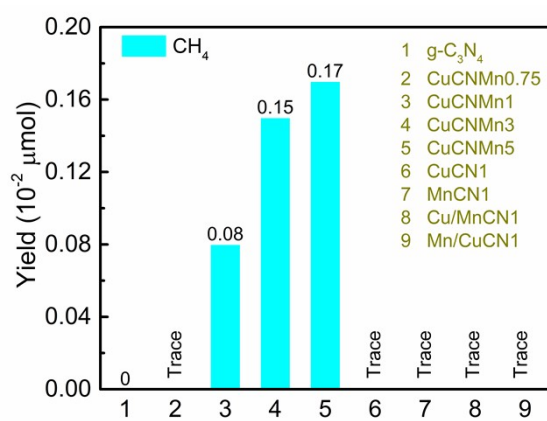


Figure S5. Photocatalytic CO₂ reduction to CH₄ over different samples.