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Efficient charge separation between ZnIn₂S₄ nanoparticles and polyaniline nanorods for nitrogen photofixation

Shaohua Chen,^{a1} Xiaoli Zhao,^{b1} Fazhi Xie^a, Zhi Tang^{*b} and Xiufang Wang^{*a}

^aSchool of Materials and Chemical Engineering, Anhui Jianzhu University, Hefei Anhui, 230601, China. Email: wxfrye159@sina.com

^bState Key Laboratory of Environmental Criteria and Risk Assessment, Chinese Research Academy of Environmental Sciences, Beijing 100012, China.

The standard curve of ammonia concentrations:

The calibration curve was measured, as shown in Fig. S1. A reference aqueous solution of NH₄Cl (10 µg·mL⁻¹) was prepared. Different designated volumes of the NH₄Cl solution were added in colorimetric tubes, and then added deionized water to the scale mark (5 mL). Subsequently, 0.1 mL aqueous solution of 0.5 g·mL⁻¹ potassium sodium tartrate was added into each colorimetric tube as buffer solution. 0.15 mL of Nessler's reagent was added to each colorimetric tube and sat still for 10 min. The light absorbance of the mixtures in colorimetric tubes was measured at the wavelength of 420 nm.

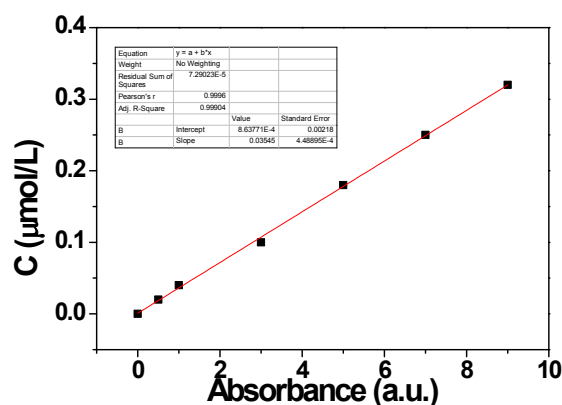


Fig. S1 the standard calibration curve for colorimetric NH₄⁺ assay obtained by Nessler's reagent colorimetric method.

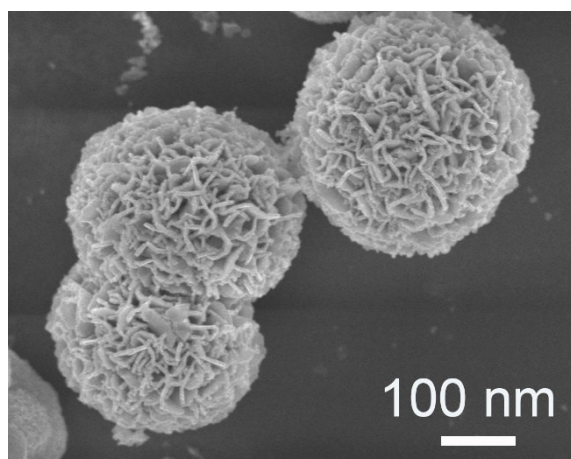


Fig. S2 SEM image of pure ZnIn_2S_4 .

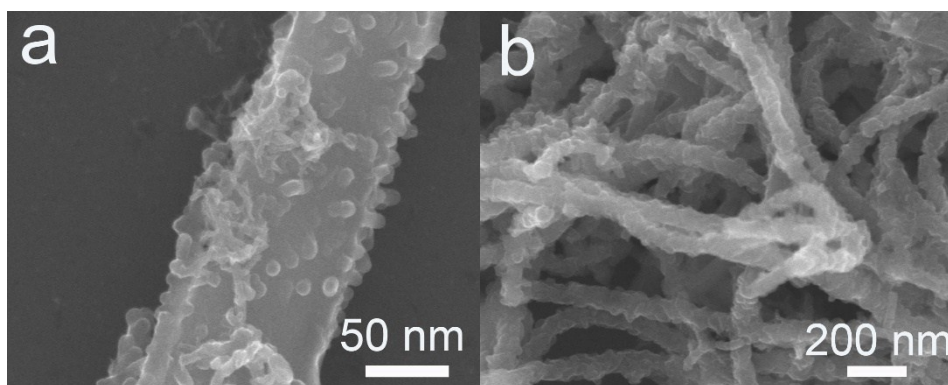


Fig. S3 SEM images of $\text{PANI@ZnIn}_2\text{S}_4$ -10 (a) and $\text{PANI@ZnIn}_2\text{S}_4$ -20 (b).

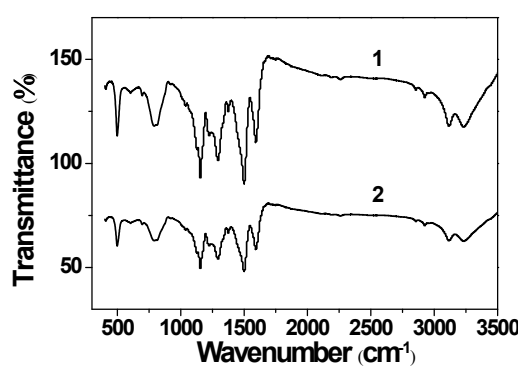


Fig. S4 FTIR spectra of $\text{PANI@ZnIn}_2\text{S}_4$ -10 (1) and $\text{PANI@ZnIn}_2\text{S}_4$ -20 (2).

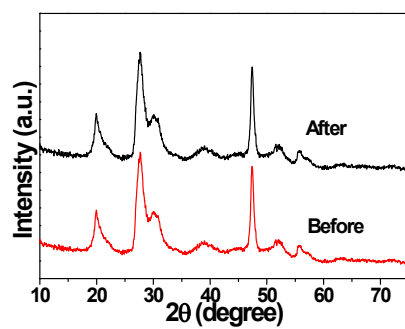


Fig. S5 XRD patterns of before and after catalytic reactions PANI@ZnIn₂S₄-15.