

## Supplementary Materials

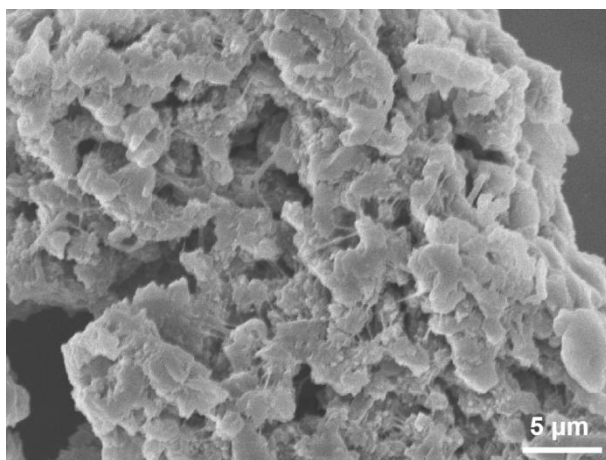
# Fabrication of Porous Hydrophilic CN/PANI Heterojunction Film for High-efficiency Photocatalytic H<sub>2</sub> Evolution

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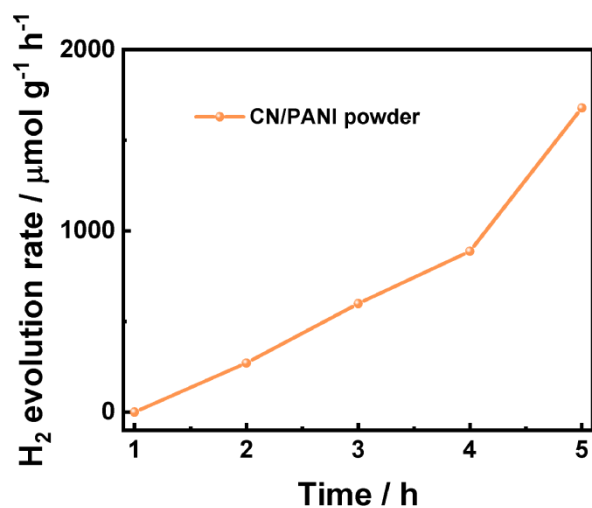
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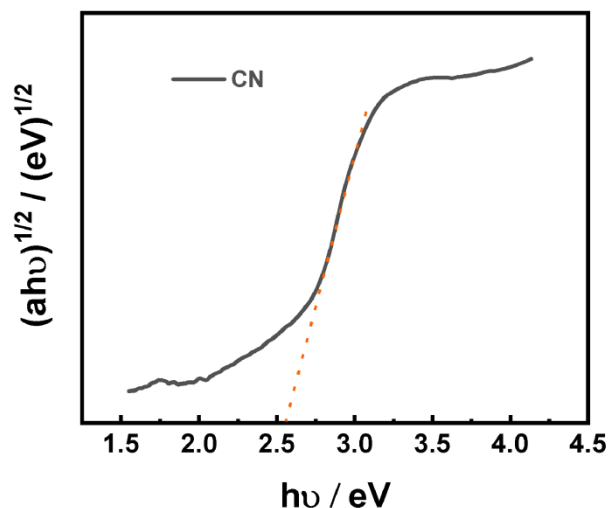
**Figure S1.** The SEM image of pristine CN/PANI heterojunction film.



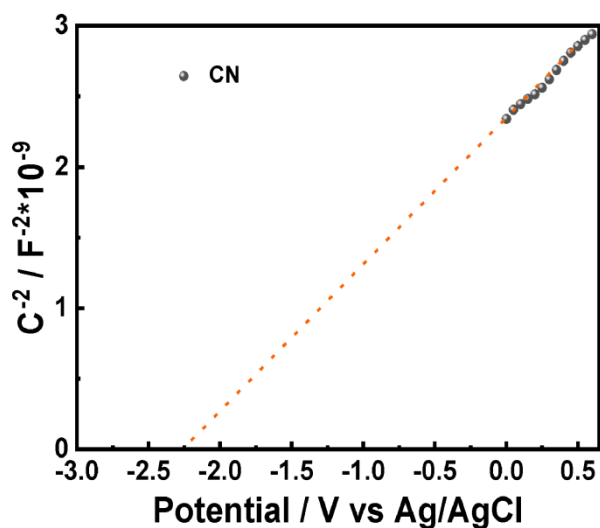
**Figure S2.** Photocatalytic H<sub>2</sub> evolution rate of the CN/PANI heterojunction powder.

**Table S1** Comparison in photocatalytic H<sub>2</sub> evolution activities of similar CN based heterojunctions.

CN based heterojunctions	H <sub>2</sub> evolution rate ( $\mu\text{mol} \cdot \text{h}^{-1} \cdot \text{g}^{-1}$ )	Ref.
CN/PANI	163.2	Ref. 28 in the text
NiO/CN	165.9	Ref. 29 in the text
PAN/PANI/SrTiO <sub>3</sub>	371	Ref. 30 in the text
CN/PANI/MoS <sub>2</sub>	594	Ref. 31 in the text
TpPa-1-COF/CN	1153	Ref. 32 in the text
PANI/Ti-MOF/CoS	1322	Ref. 33 in the text
Porous hydrophilic CN/PANI Heterojunction film	3164.3	This work



**Figure S3.** Tauc plot of pristine CN.



**Figure S4.** Mott-schottky plot of pristine CN.

The flat band potentials ( $E_{fb}$ ) of CN photocatalyst estimated from the X intercept at the tangents of Mott-Schottky plot was -2.25 V vs Ag/AgCl. Thus, the  $E_{fb}$  (vs NHE, pH=0) potentials of CN was -1.5 V. The positive slope of Mott-Schottky plot confirmed the n-type semiconductor of CN, whose  $E_{fb}$  was generally 0.3 V below conduction band minimum (CBM). Hence, the CBM potential of CN was calculated to be -1.8 V and the valence band minimum (VBM) potential of the CN was 0.79 V according to the  $E_g$  value obtained from the Tauc plots (Figure S2).