

Electronic Supplementary Information (ESI)

A rational guide to improve the activity of a hydrogen-evolving polymeric carbon nitride photocatalyst

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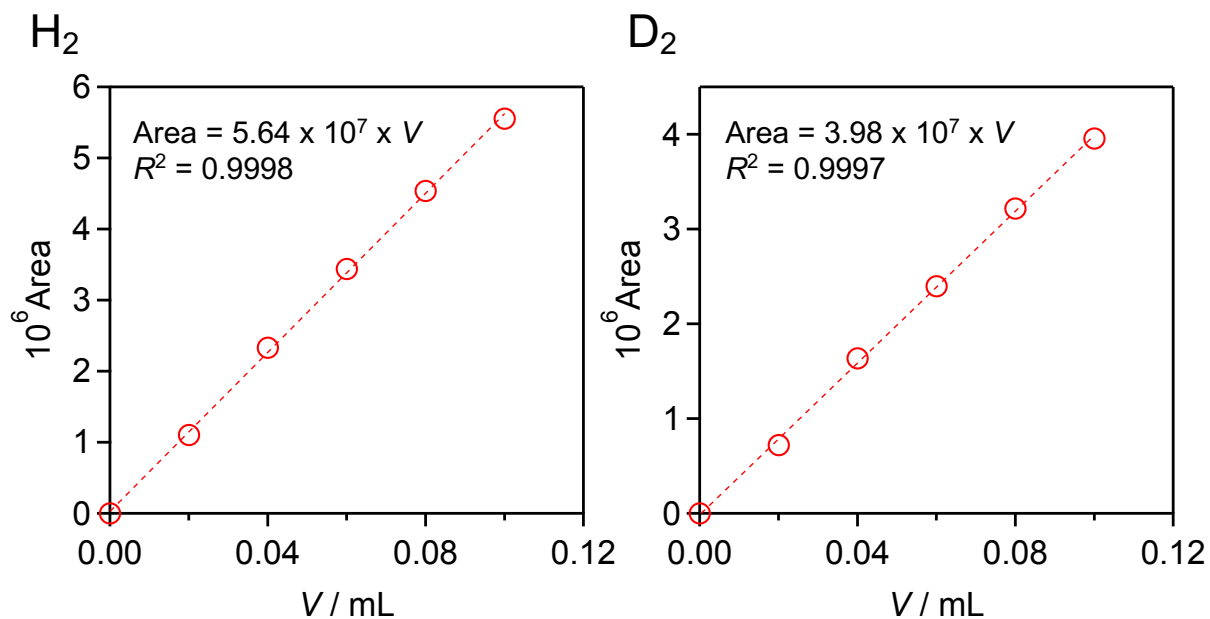


Fig. S1. Typical calibration curves for H₂ and D₂.

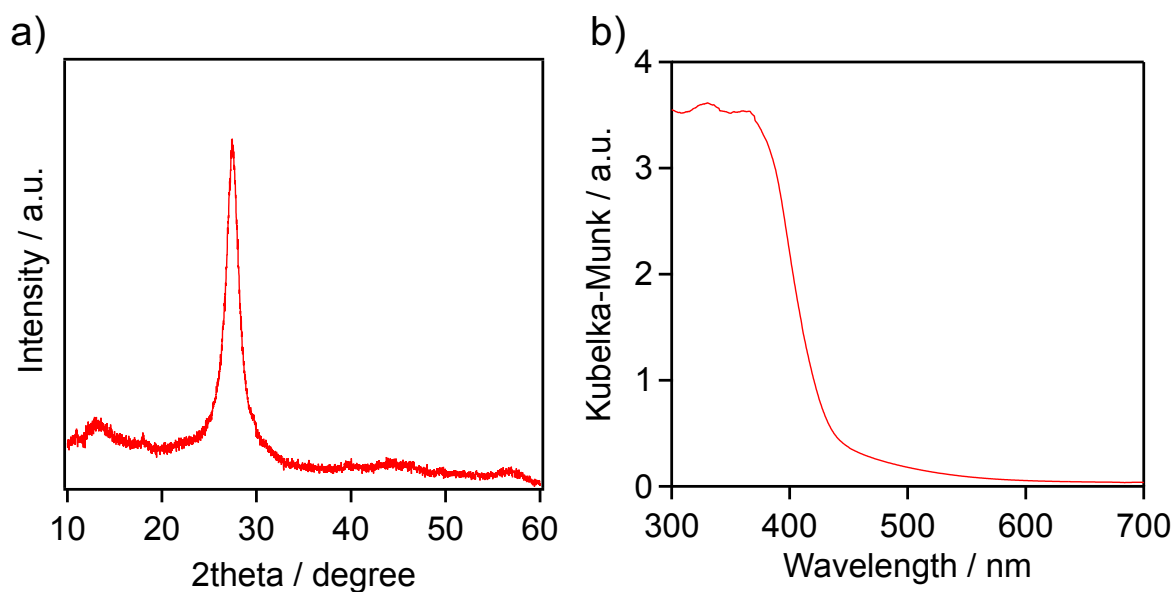


Fig. S2. a) XRD pattern and b) UV-visible diffuse-reflectance spectrum of the as-prepared meso-PCN.

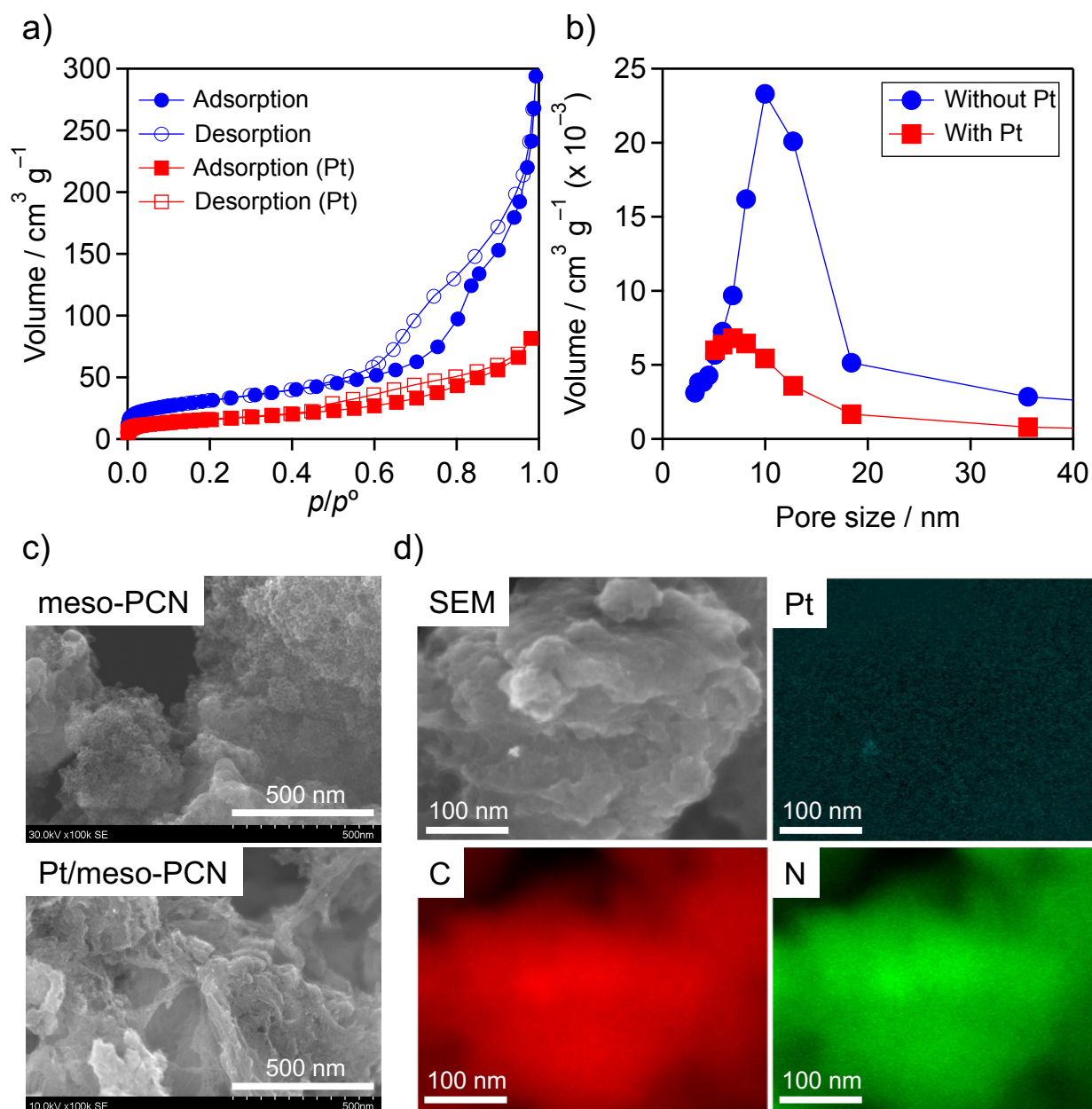


Fig. S3. Structural characterization of meso-PCN and Pt/meso-PCN. a) Nitrogen adsorption/desorption isotherms, b) pore-size distribution curves, c) SEM images and d) EDS mapping images.

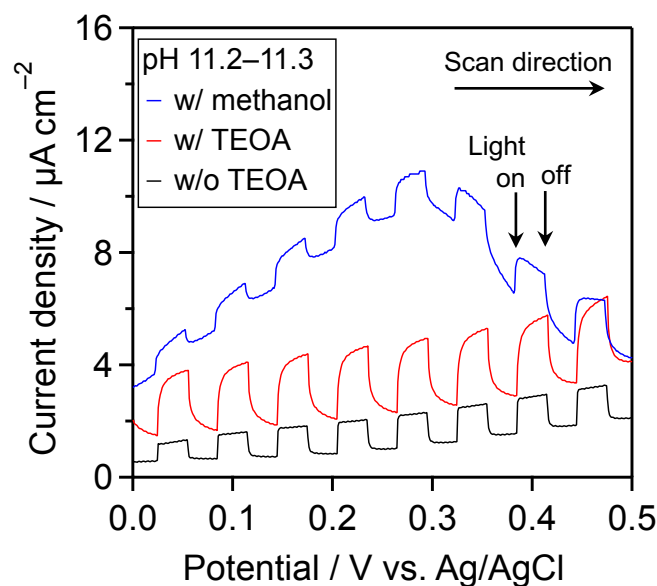


Fig. S4. Current–voltage curves for Pt/meso-PCN/FTO electrodes under an Ar atmosphere and under irradiation with chopped visible light ($\lambda > 400$ nm), as recorded in aqueous Na_2SO_4 (0.1 M) containing different additives of TEOA and methanol at pH ~ 11 . Scan rate: 10 mV s^{-1} . Note: w/ and w/o in the figure indicate with and without, respectively.

Table S1. Results of data analysis for the relationship between the rate of H_2 evolution under 400 nm monochromatized light (v_{H_2}) and the incident-light intensity (I)^a

| Region / mW cm^{-2} | a | b | R^2 |
|------------------------------|-----|------|-------|
| 0.1–1 | 1.9 | 1.0 | 0.99 |
| 0.1–2 | 1.7 | 0.93 | 0.99 |
| 0.1–4 | 1.7 | 0.90 | 0.99 |
| 0.4–12.5 | 1.8 | 0.69 | 0.97 |
| 1–12.5 | 1.9 | 0.63 | 0.97 |
| 2–12.5 | 2.2 | 0.55 | 0.98 |

^a Reaction conditions: the same shown in Fig. 1 caption. The relationship between v_{H_2} and I is analyzed based on an equation of $v_{\text{H}_2} = aI^b$.