

Supporting Information

Conjugated Polymer Coupled with Graphitic Carbon Nitride for Boosting Photocatalytic Hydrogen Generation under Visible Light

*Xiaoyi Zhu, Meili Guan, Rongcai Gong, Xuezhong Gong, * Chunhui Dai and Jianguo Tang**

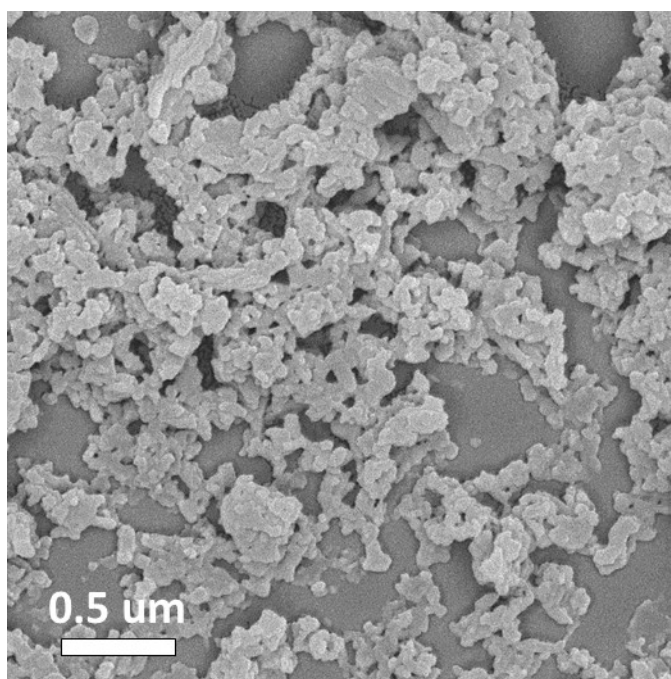


Figure S1. SEM image of synthesized C₆-FDTP conjugated polymer. ¹H NMR (400 MHz, CDCl₃): δ 8.19-8.13 (m, 1H), 7.99-7.86 (m, 3H), 7.76-7.57 (m, 2H), 2.14 (d, 3H), 1.26 (m, 7H), 0.89-0.71 (m, 6H). GPC results: M_n = 4810; M_w = 7310; PDI = 1.52. Anal. Calcd for C₆-s (C₄₃H₅₂O₂S)_n: C, 81.60; H, 8.28; S, 5.07; Pd, 0.05%. Found: C, 78.11; H, 7.67; S, 4.18.

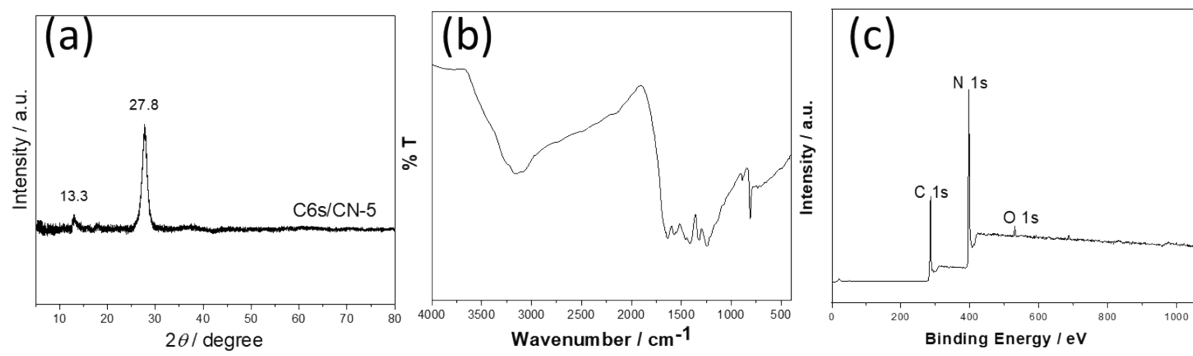


Figure S2. (a) XRD, (b)FTIR and (c)XPS of used C6s/CN-5 after 5-cycle photocatalytic tests

Table S1. Photocatalytic activity enhancement of conductive polymer/g-C₃N₄ hybrids toward photocatalytic H₂ evolution.

Catalyst	Cocatalyst Pt	Sacrificial agent	Light source	Activity (umol h⁻¹ g⁻¹)	Ref.
PEDOT/g-C₃N₄/Pt	1 wt %	TEOA (10 vol. %)	300 W Xe lamp ($\lambda > 400$ nm)	32.7	Ref. 1
PMDA/g-C₃N₄/Pt	1 wt%	Methanol (10 vol. %)	300 W Xe lamp ($\lambda \geq 420$ nm)	20.6	Ref. 2
Ppy/g-C₃N₄	3 wt %	DI water	300 W Xe lamp ($\lambda \geq 400$ nm)	385.15	Ref. 3
g-PAN/g-C₃N₄/Pt	1.5 wt %	TEOA (10 vol. %)	300 W Xe lamp ($\lambda \geq 400$ nm)	37.0	Ref. 4
P3HT/g-C₃N₄/Pt	1 wt %	Na ₂ S (0.25 M) /Na ₂ SO ₃ (0.25 M)	300 W Hg lamp ($\lambda = 420 \pm 10$ nm)	~550	Ref. 5
C₆-FDBT/g-C₃N₄	1 wt %	TEOA (10 vol %)	300 W Xe lamp ($\lambda \geq 420$ nm)	495	This work

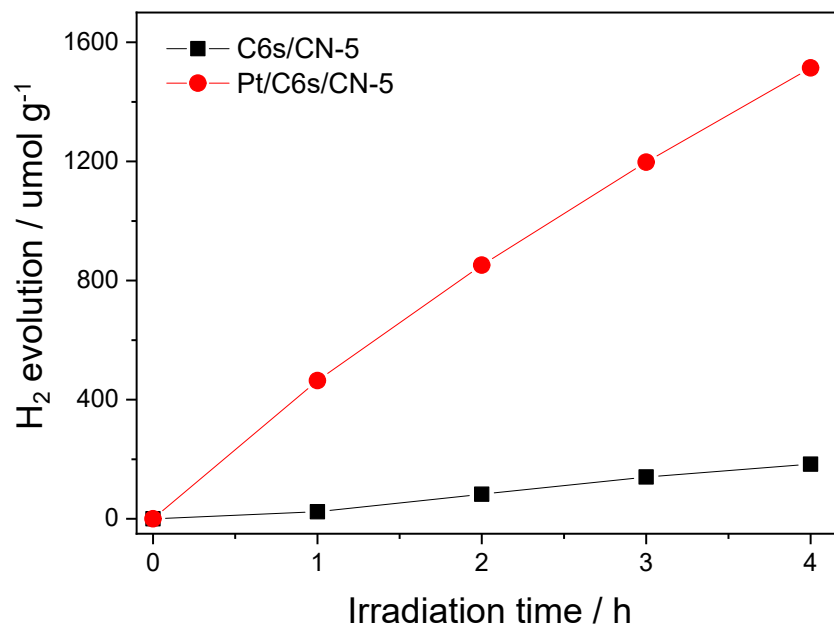


Figure S3. Photocatalytic H₂ generation over C6s/CN-5 and Pt/C6s/CN-5 hybridS under visible light irradiation.

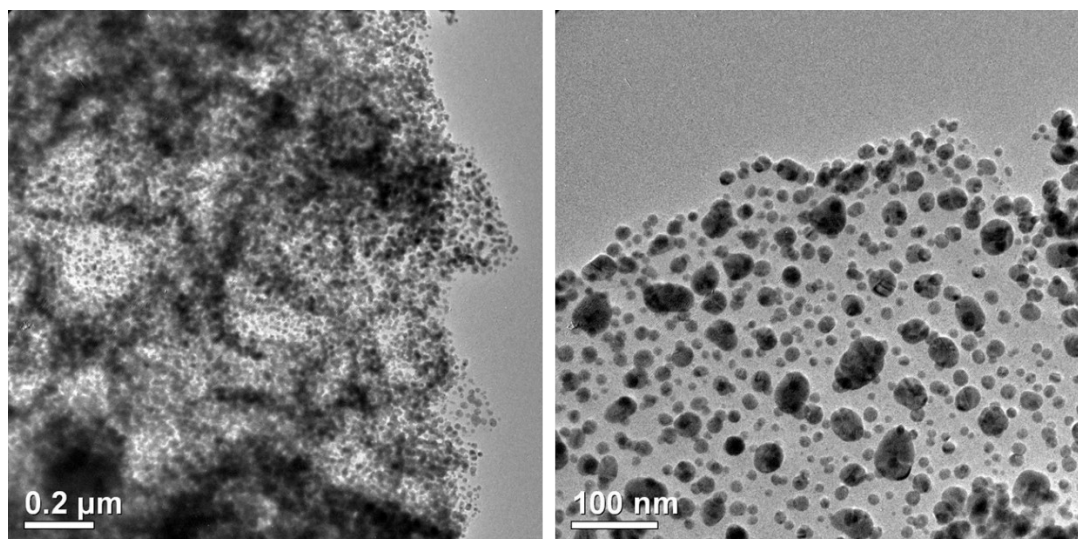


Figure S4. TEM images of Ag nanoparticles deposit on C6s/CN-X after visible light irradiation using Ag^+ as photoelectrons scavengers.

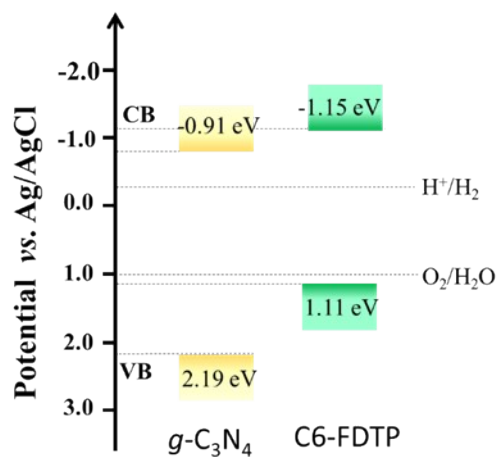


Figure S5. The band alignment of *g*-C₃N₄ and C6-FDTP according to the calculated band positions.

References:

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