

Supporting Information

The Effect of molecular structure and fluorination on the properties of pyrene-benzothiadiazole-based conjugated polymers for visible-light-driven hydrogen evolution

Chang Cheng,^a Xunchang Wang,^a Yaoyao Lin,^a Luying He,^a Jia-Xing Jiang,^b Yunfeng Xu^{b,c} and Feng Wang^{*a}

^a *Key Laboratory for Green Chemical Process of Ministry of Education, School of Chemical Engineering and Pharmacy, Wuhan Institute of Technology, Wuhan 430073, P. R. China*

^b *Key Laboratory for Macromolecular Science of Shaanxi Province, School of Materials Science and Engineering, Shaanxi Normal University, Xi'an 710062, P. R. China*

^c *Key Laboratory of Organic Polymer Optoelectronic Materials, Xijing University, Xi'an 710123, P. R. China*

E-mail address: psfwang@wit.edu.cn (F. Wang).

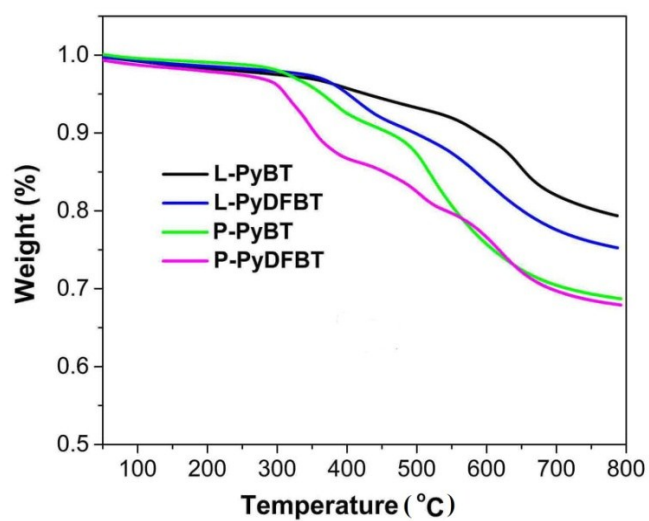


Fig. S1. TGA curves of the polymers.

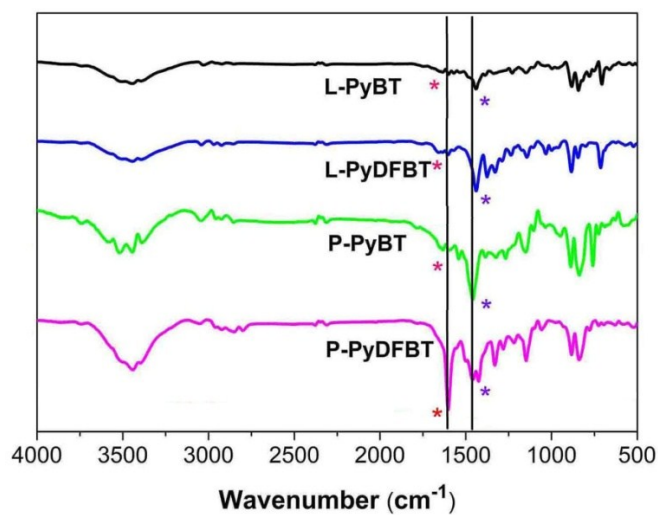


Fig. S2. FT-IR spectrum of the polymers.

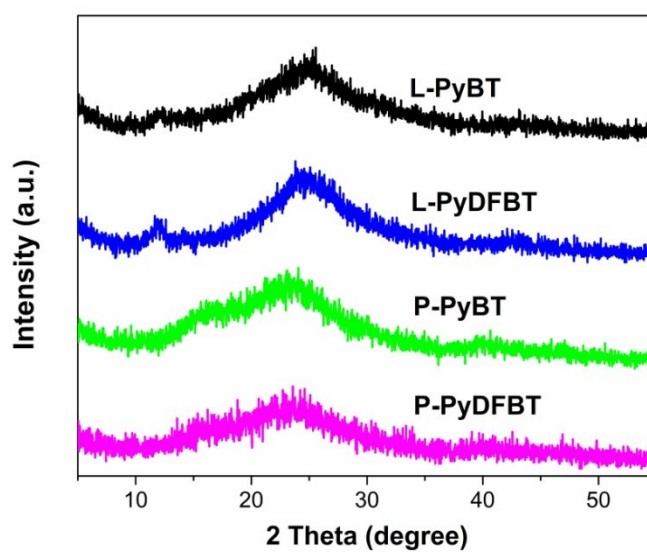


Fig. S3. Powder X-ray diffraction pattern of the polymers.

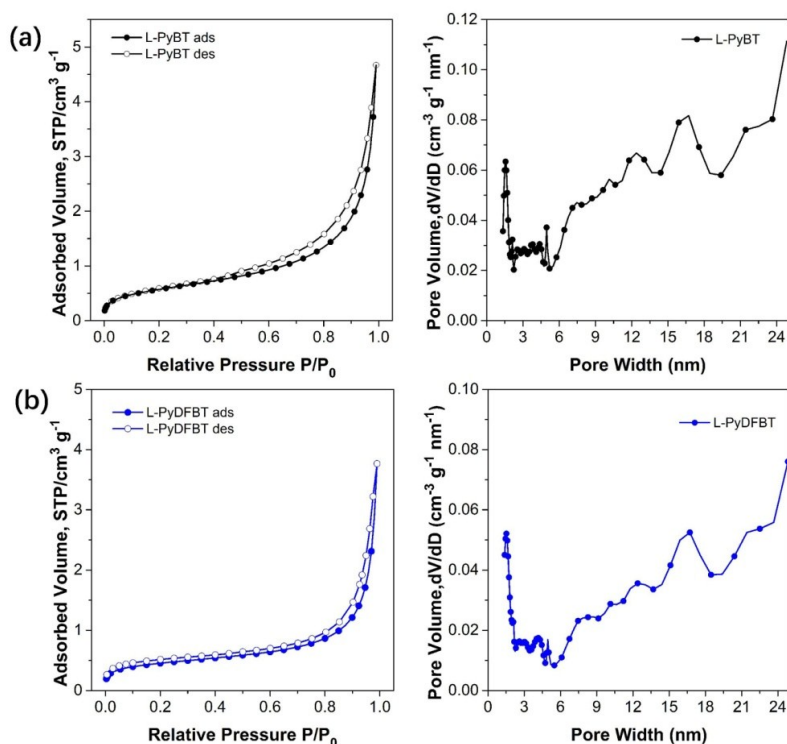


Fig. S4. Nitrogen adsorption/desorption isotherms (the adsorption branch is labeled with filled symbols and desorption branch is labeled with open symbols) and pore size distribution curves calculated by NL-DFT for L-PyBT and L-PyDFBT.

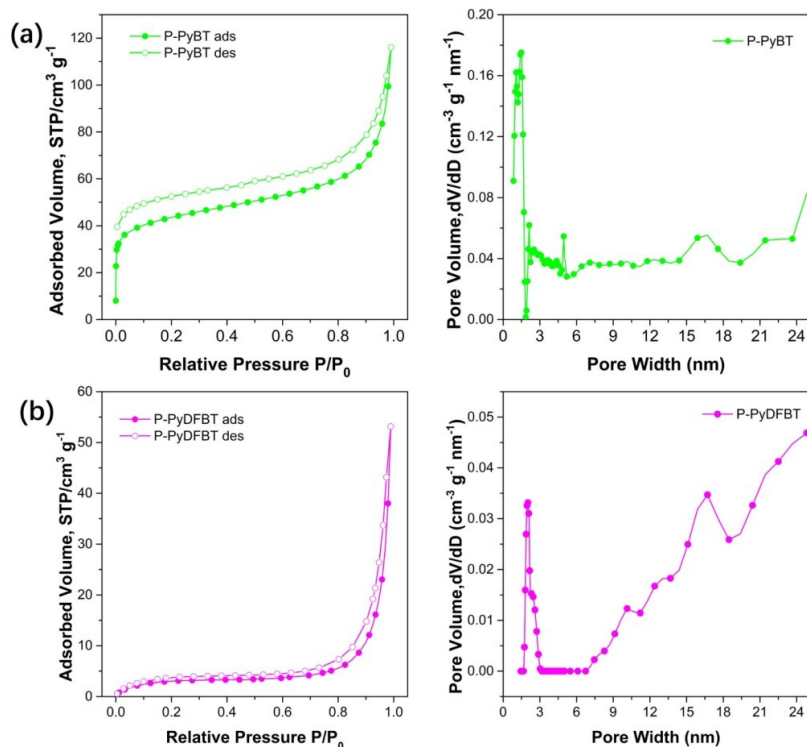


Fig. S5. Nitrogen adsorption/desorption isotherms (the adsorption branch is labeled with filled symbols and desorption branch is labeled with open symbols) and pore size distribution curves calculated by NL-DFT for P-PyBT and P-PyDFBT.

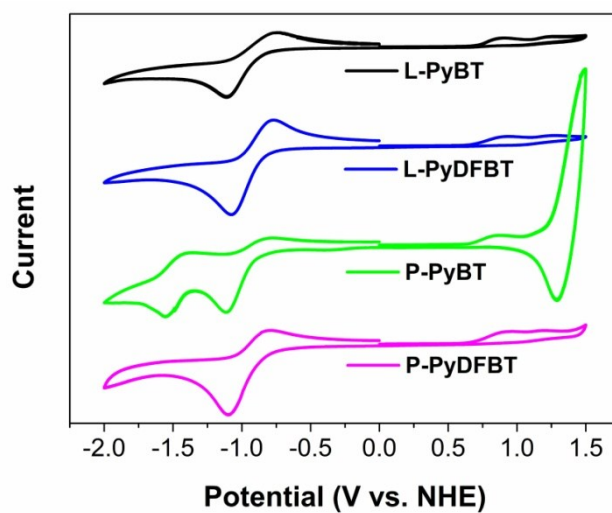


Fig. S6. Cyclic voltammogram curves of the polymers

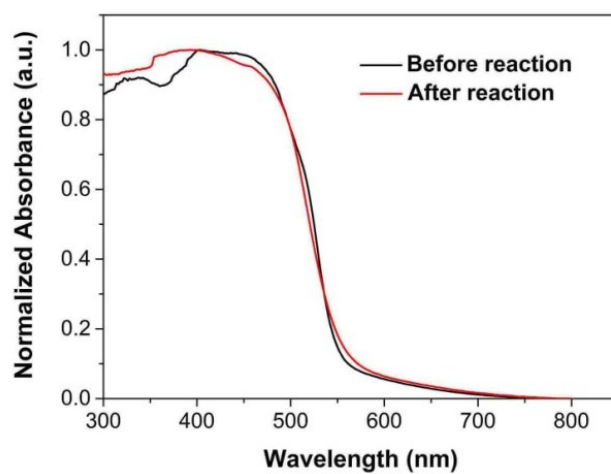


Fig. S7. UV/Vis absorption spectra for L-PyBT before and after the photocatalytic reaction

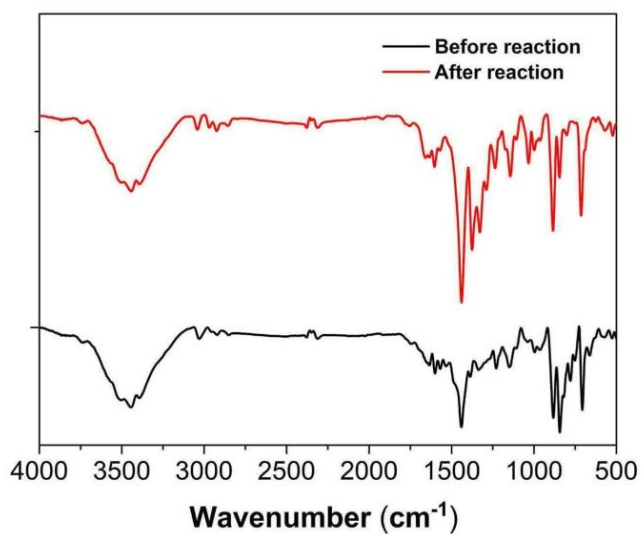


Fig. S8. FT-IR spectra for L-PyBT before and after the photocatalytic reaction.

Table S1. Summary of HER for the conjugated polymer photocatalysts.

Entry	Sample	Polymer dosage	Co-catalyst	HER ($\mu\text{mol h}$)		Ref.
				full-arc irradiation	visible light irradiation	
1	P7	25/25 mg/mL	-	145	92	55
2	PyBT-2	100/100 mg/mL	Pt	106.2	29.6	32
3	CP-CMP10	100/100 mg/mL	-		17.4	44
4	B-BT-1,4	50/110 mg/mL	Pt		116	31
5	PCP-11	12/24 mg/mL	-	106.9	28	56
6	OB-POP	50/100 mg/mL	Pt	66.1	45.4	57
7	PMTPA-250	100/260 mg/mL	Pt		58.4	58
8	L-PyBT	50/100 mg/mL	Pt		83.7	This work
9	L-PyBT	50/100 mg/mL	-		27.8	This work