

## Electronic Supplementary Information

### **A new method to gain polymers with flexible main chains and photoelectric pendants for organic semiconductors**

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1. Fig. S1 and S2  $^1\text{H}$  NMR spectra of Ma and Mb.

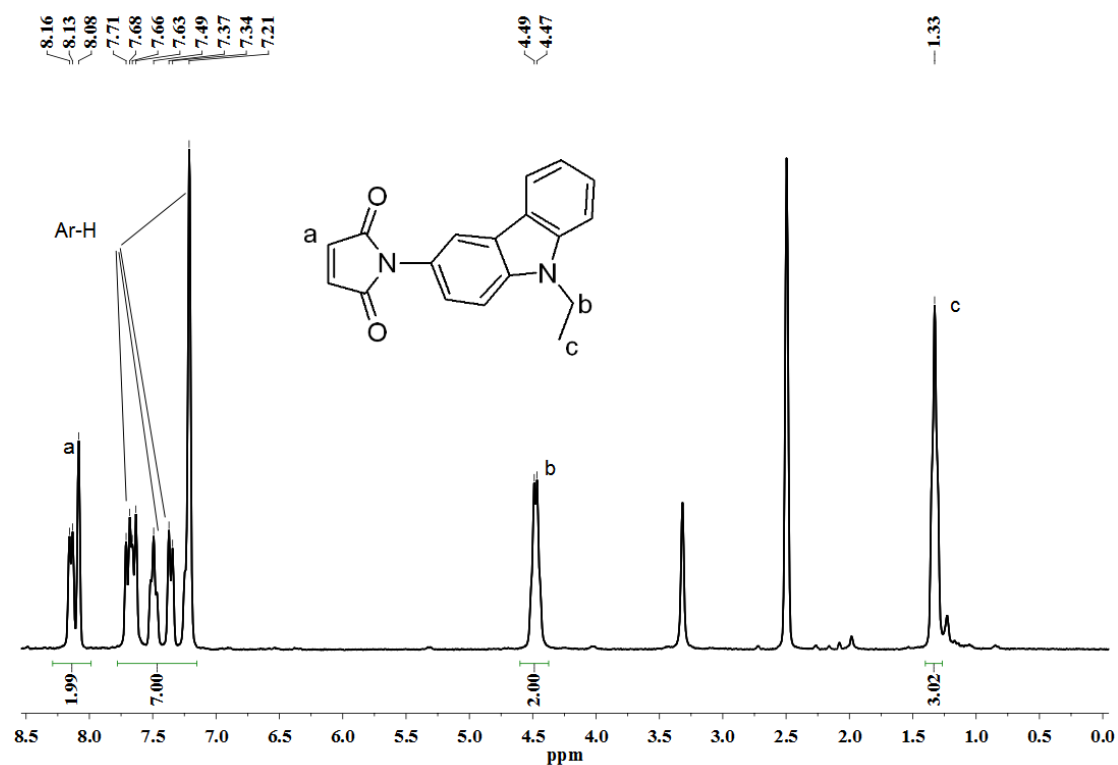


Fig. S1  $^1\text{H}$  NMR spectra of Ma.

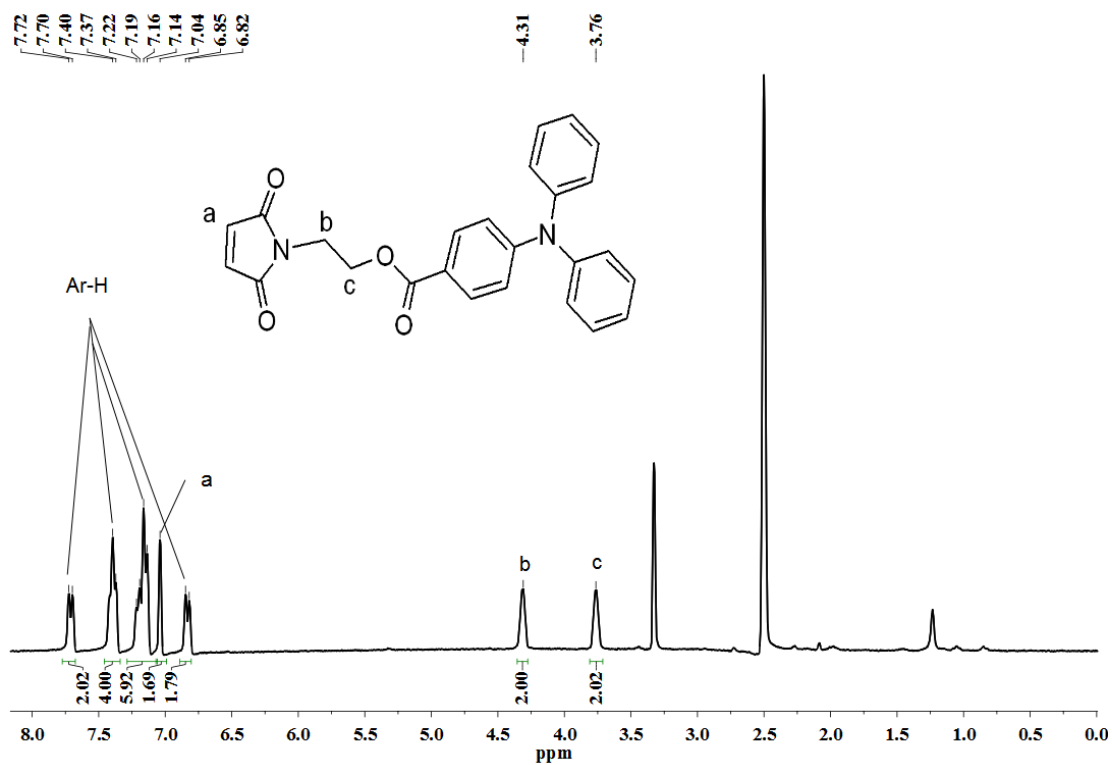


Fig. S2  $^1\text{H}$  NMR spectra of Mb.

2. Fig. S3 Gel permeation chromatography (GPC) traces of polymers.

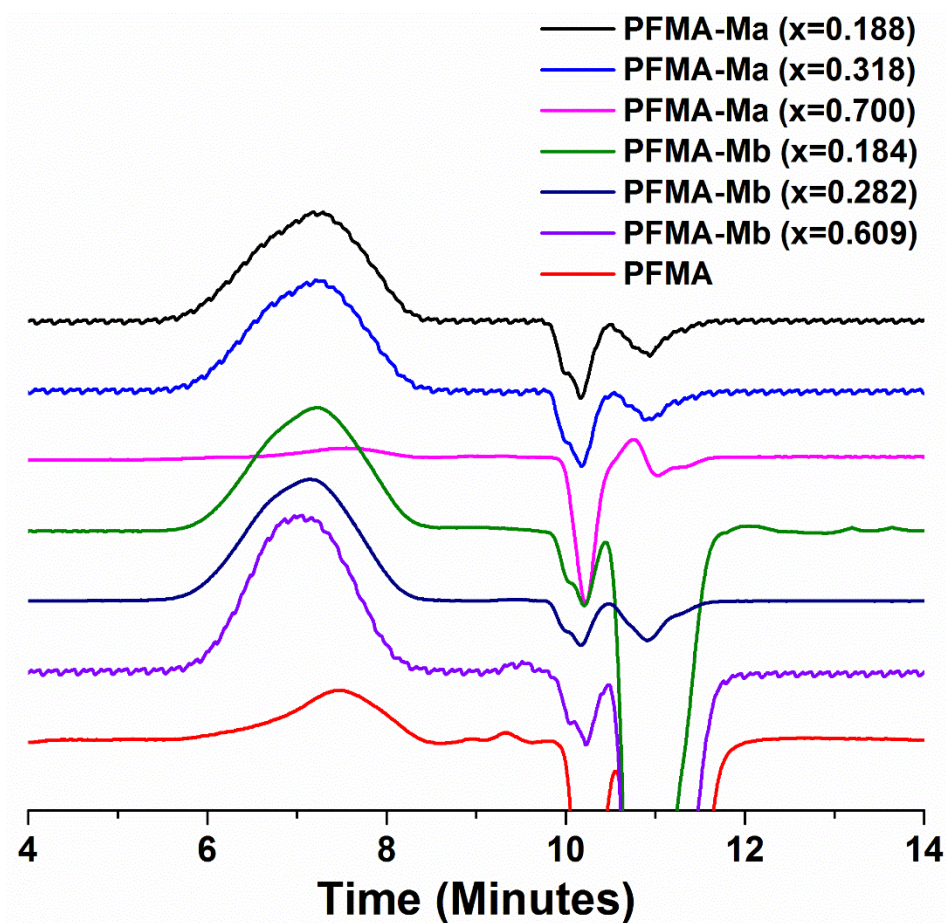


Fig. S3 Gel permeation chromatography (GPC) traces of polymers.

3. Fig. S4 Thermogravimetry spectra of PFMA.

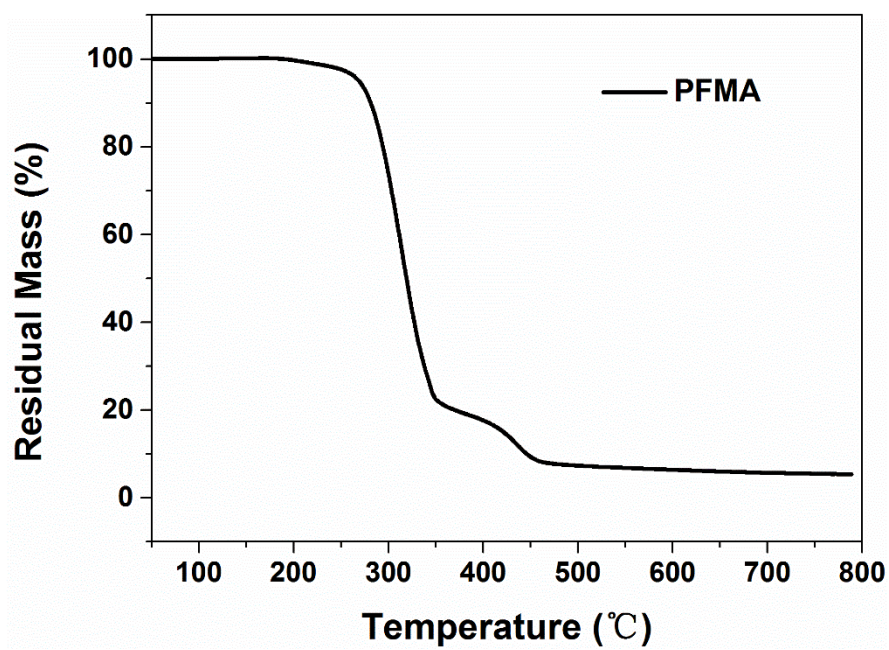


Fig. S4 Thermogravimetry spectra of PFMA.

4. Fig. S5 Cyclic voltammety figures of polymers.

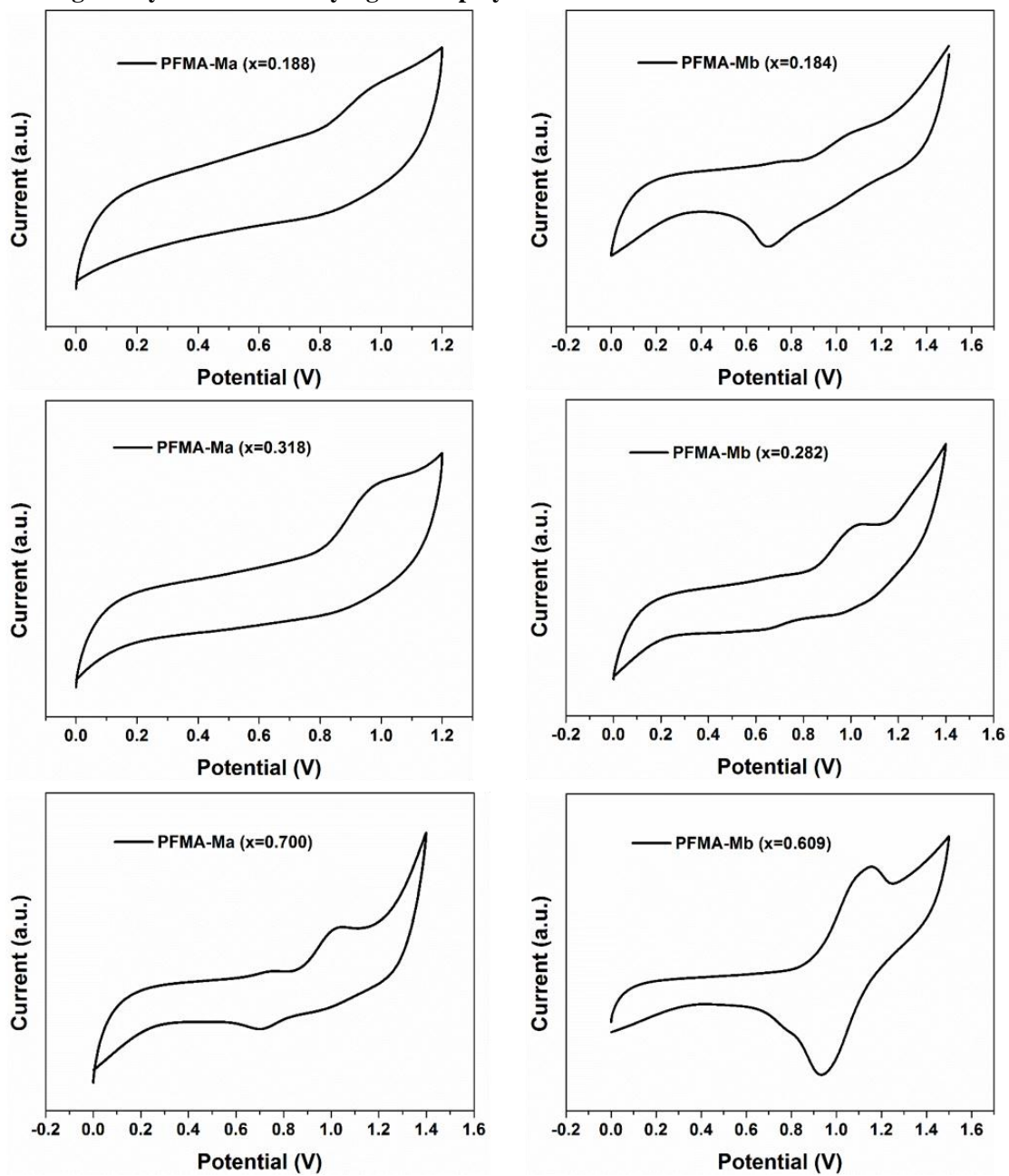


Fig. S5 Cyclic voltammety figures of polymers.

5. UV-vis absorption spectra of PFMA-Ma and PFMA-Mb polymers in dilute  $\text{CHCl}_3$  solution and corresponding optical band gaps.

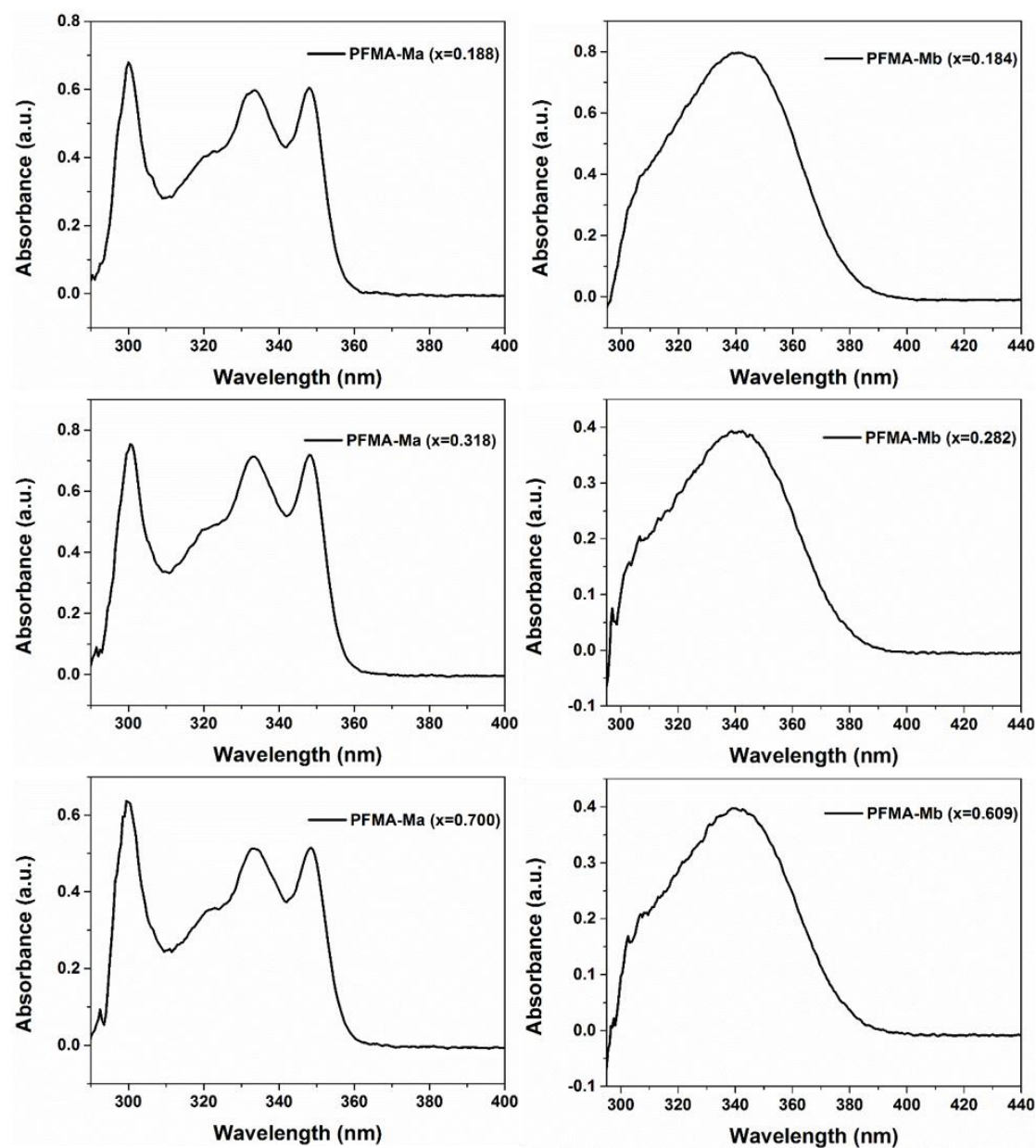


Fig. S6 UV-vis absorption spectra of PFMA-Ma and PFMA-Mb polymers in  $\text{CHCl}_3$

Table S1 Absorption edge obtained from UV-Visible spectroscopy and optical band gap

polymer	PFMA-Ma ( $x=0.700$ )	PFMA-Ma ( $x=0.318$ )	PFMA-Ma ( $x=0.188$ )	PFMA-Mb ( $x=0.609$ )	PFMA-Mb ( $x=0.282$ )	PFMA-Mb ( $x=0.184$ )
absorption edge ( $\lambda/\text{nm}$ )	358	358	357	378	378	378
optical band gap <sup>a</sup> (eV)	3.47	3.47	3.48	3.28	3.28	3.28

a. calculated as  $1241/\lambda$