Electronic Supplementary Material (ESI) for Materials Chemistry Frontiers.

Cost Effective Synthesis and Thin Film Processing of Porous Polymer Networks through Methanesulfonic Acid Mediated Aldol Triple Condensation

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Supplementary Information

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1. Photos of Reaction Process for PPN synthesis

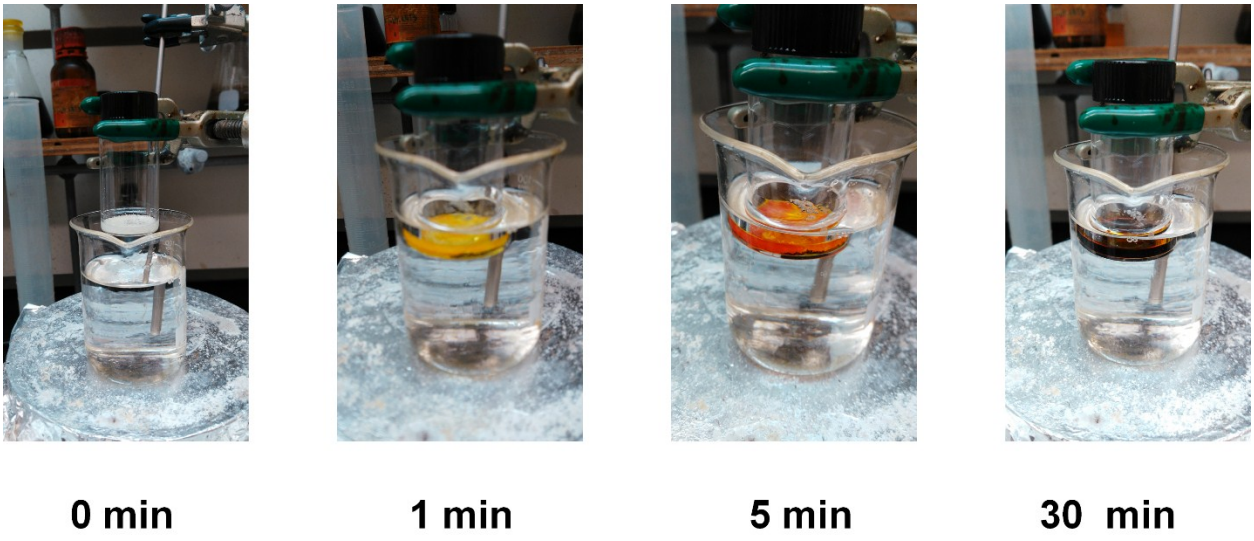

Figure S1. Color change during the synthesis of **PPN1**.

2. Elemental Analysis Results.

Table S1. Results of the elemental analysis.

	C(%)	H(%)	N(%)	O(%)
PPN1 (experiment)	84.64	4.95	N/A	10.41[a]
PPN1 (theoretical)	95.21	4.79	0	0
PPN2 (experiment)	79.91	5.14	N/A	14.95[a]
PPN2 (theoretical)	88.05	4.62	0	7.33
PPN3 (experiment)	71.23	4.92	N/A	N/A
PPN3 (theoretical)	71.85	4.31	0	0
PPN4 (experiment)	85.70	4.78	N/A	9.52[a]
PPN4 (theoretical)	95.57	4.43	0	0
PPN5 (experiment)	81.55	4.98	3.98	9.49[a]
PPN5 (theoretical)	90.82	4.76	4.41	0

a. Estimated from C, H and N atoms.

3. N_2 Adsorption Isotherms

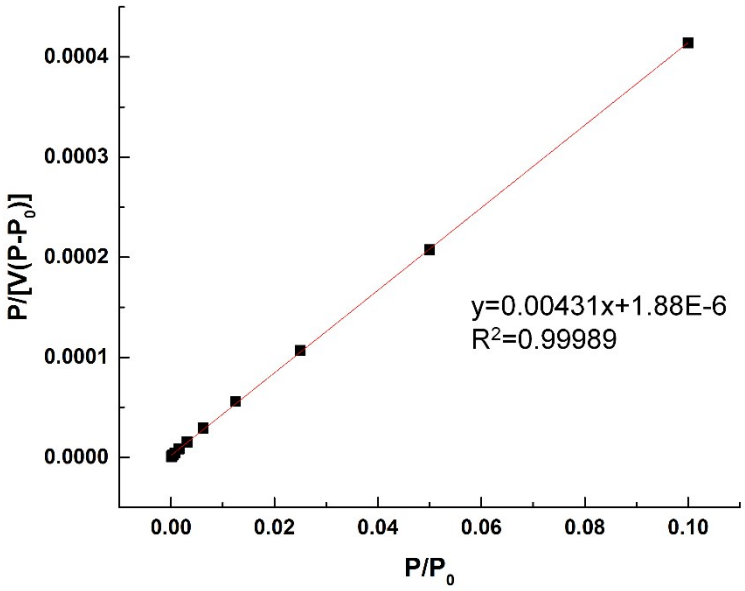

Figure S2. Plot of the linear region on the N2 isotherm of **PPN1** sample synthesized at 110 °C for BET.

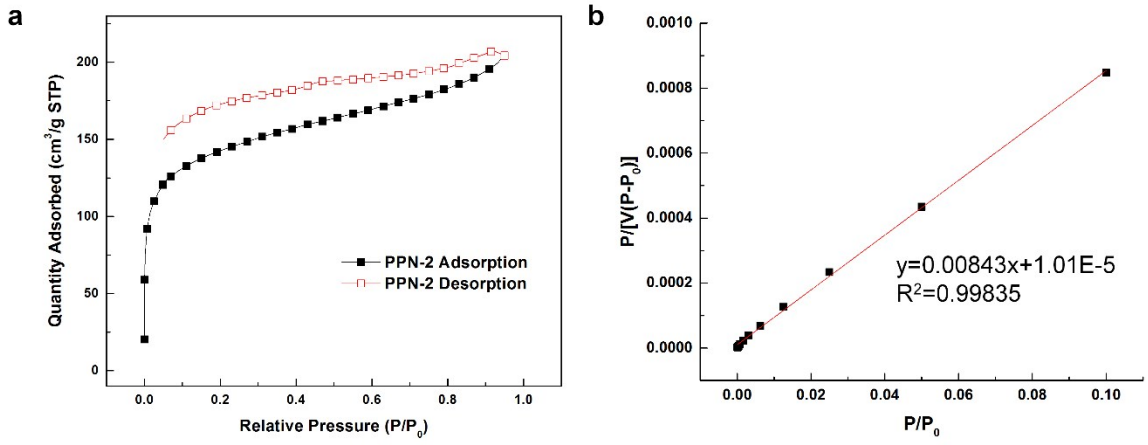

Figure S3. (a) N_2 Adsorption Isotherms of **PPN2** at 77K; (b) Plot of the linear region on the N2 isotherm of **PPN2** for BET.

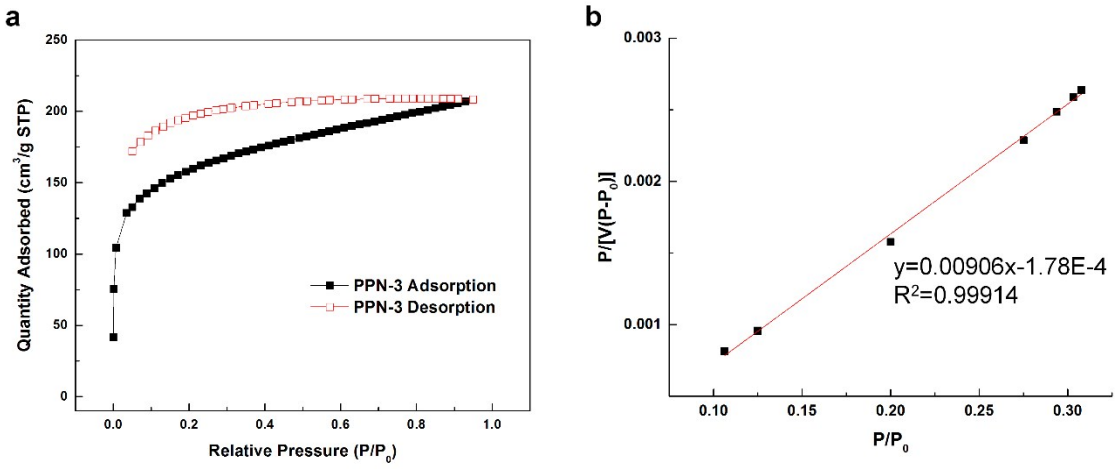

Figure S4. (a) N_2 Adsorption Isotherms of **PPN3** at 77K; (b) Plot of the linear region on the N2 isotherm of **PPN3** for BET.

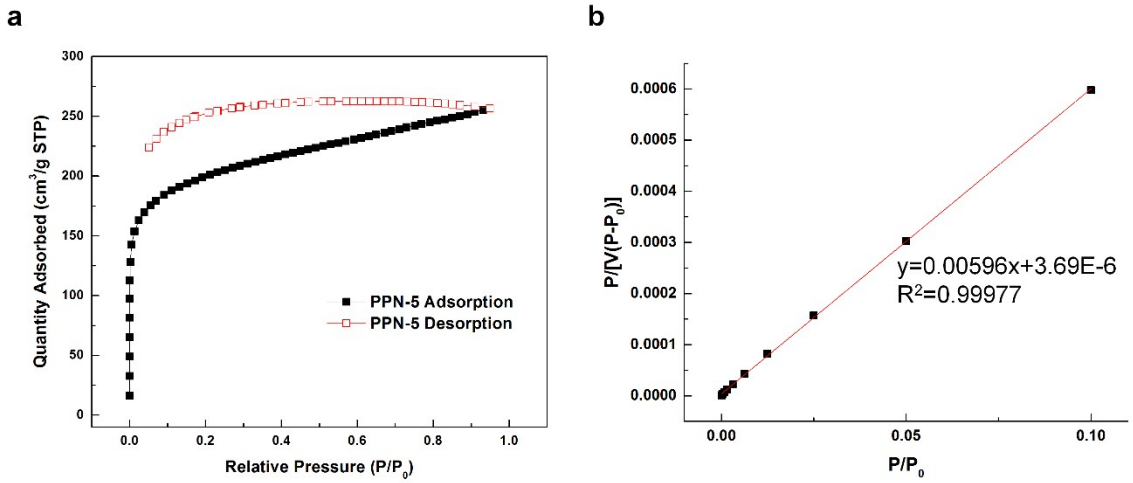

Figure S5. (a) N_2 Adsorption Isotherms of **PPN5** at 77K; (b) Plot of the linear region on the N2 isotherm of **PPN5** for BET.

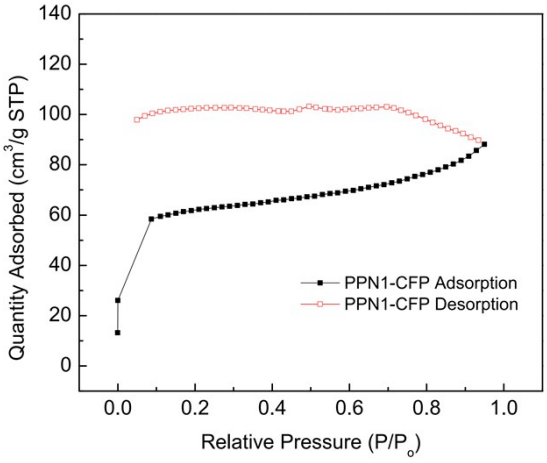

Figure S6. N_2 Adsorption Isotherms of CFP/**PPN1** composite at 77K

4. TGA Data

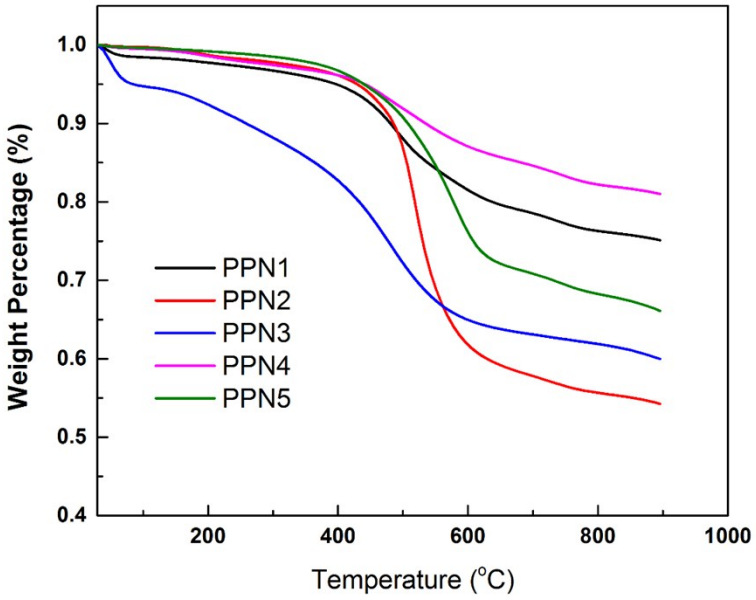

Figure S7. TGA traces of **PPN1-PPN5**

5. Ultraviolet-visible absorption spectra

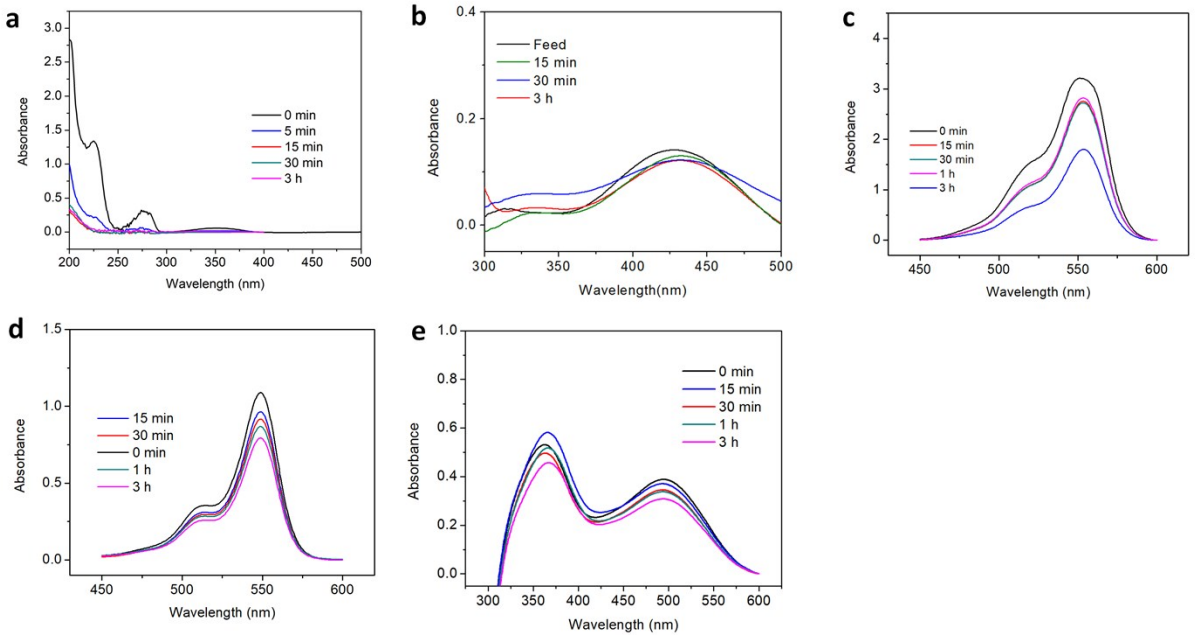

Figure S8. UV-vis spectrum of organic molecules: (a) bisphenol A, (b) bromothymol blue, (c) rhodamine B, (d) rose Bengal, (e) congo red in water absorbed by **PPN1**

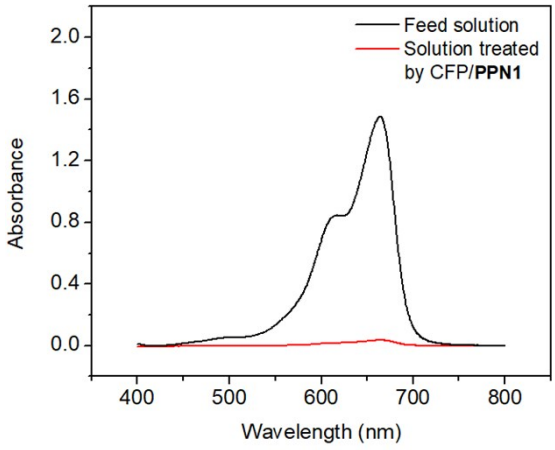

Figure S9. UV-vis spectrum of methylene blue solution treated by CFP/**PPN1**

6. Van del Waals diameter of organic molecules

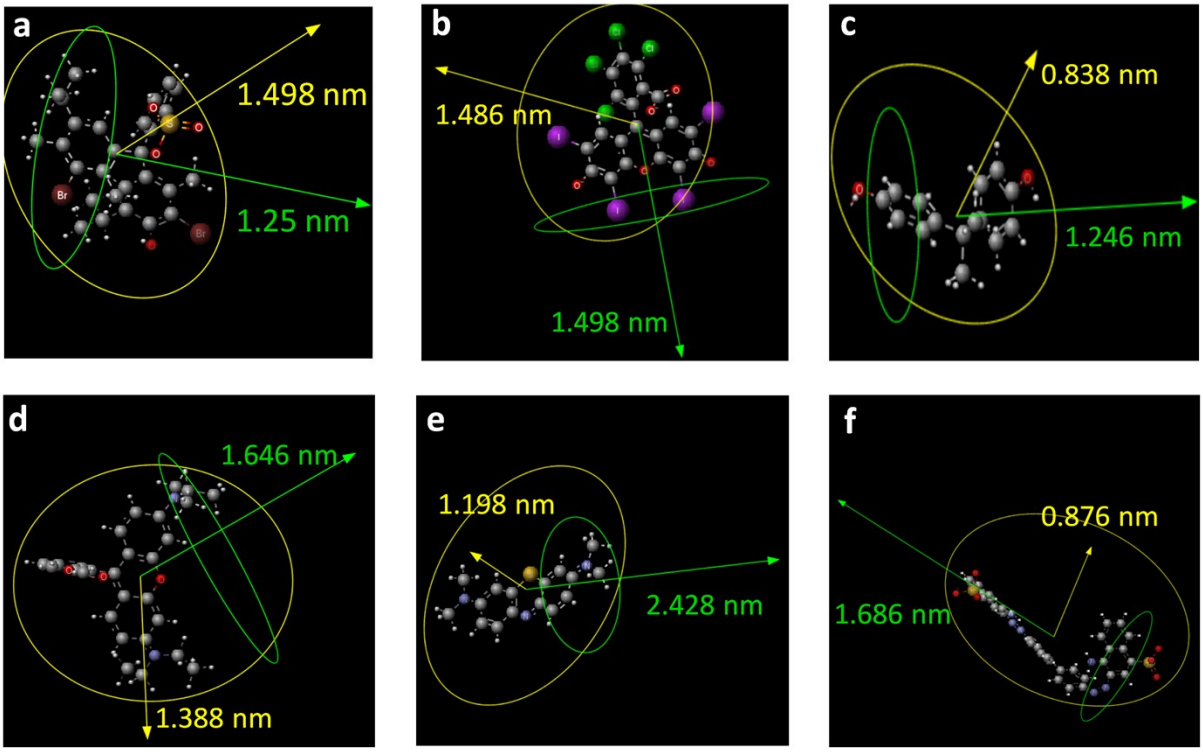

Figure S10. Maximal and minimal projection radius of (a) bromothymol blue, (b) rose bengal, (c) bisphenol A, (d) rhodamine B, (e) congo red, (f) methylene blue.

7. Langmuir adsorption isotherm

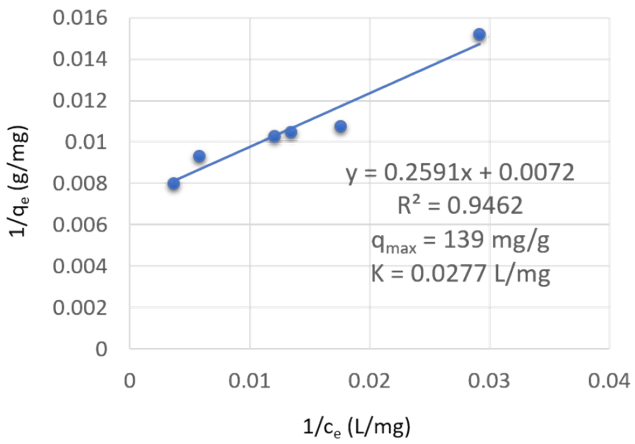

Figure S11. Maximum adsorption capacity of PPN1 to methylene blue solution indicated by Langmuir adsorption isotherm

8. Recycle efficiency of PPN1

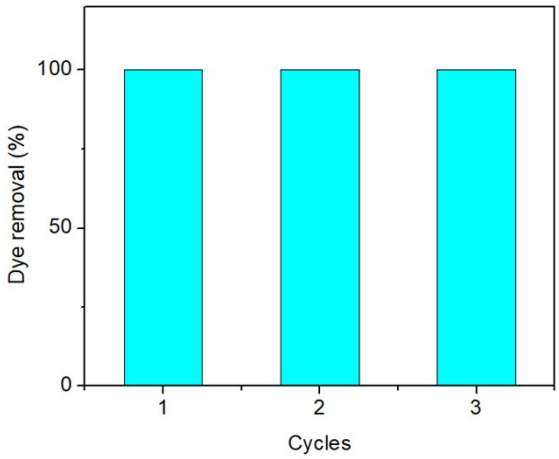

Figure S12. Recycling of **PPN1** for methylene blue adsorption.

9. Weight change of CFP/PPN1 composite by multiple times of loading

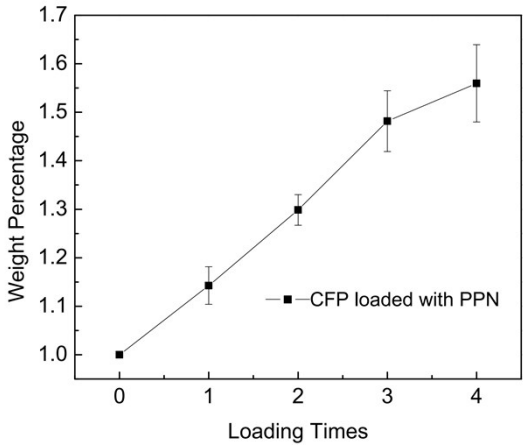

Figure S13 Weight change of CFP/**PPN1** composite

10. SEM images

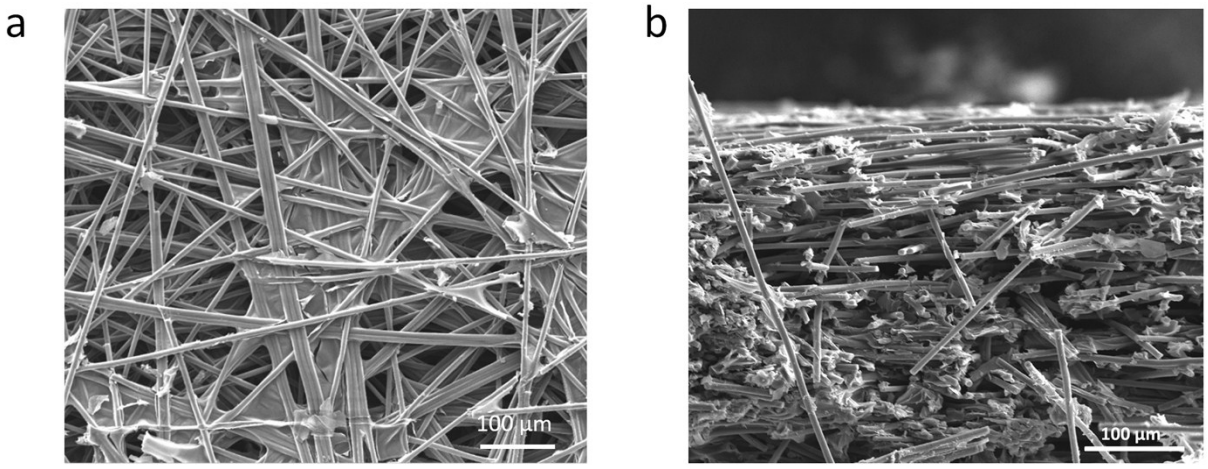

Figure S14. (a) Surface view and (b) cross-section view of CFP.

11. Solid C^{13} NMR

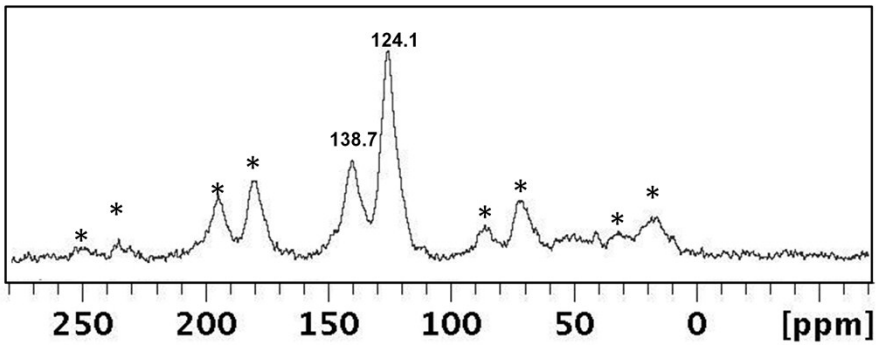

Figure S15. C CP/MAS NMR spectra of the **PPN1** (from 110 ˚C reaction temperature) recorded at magic-angle spinning (MAS) rate of 5 kHz, asterisks (*) indicate rotational sidebands.

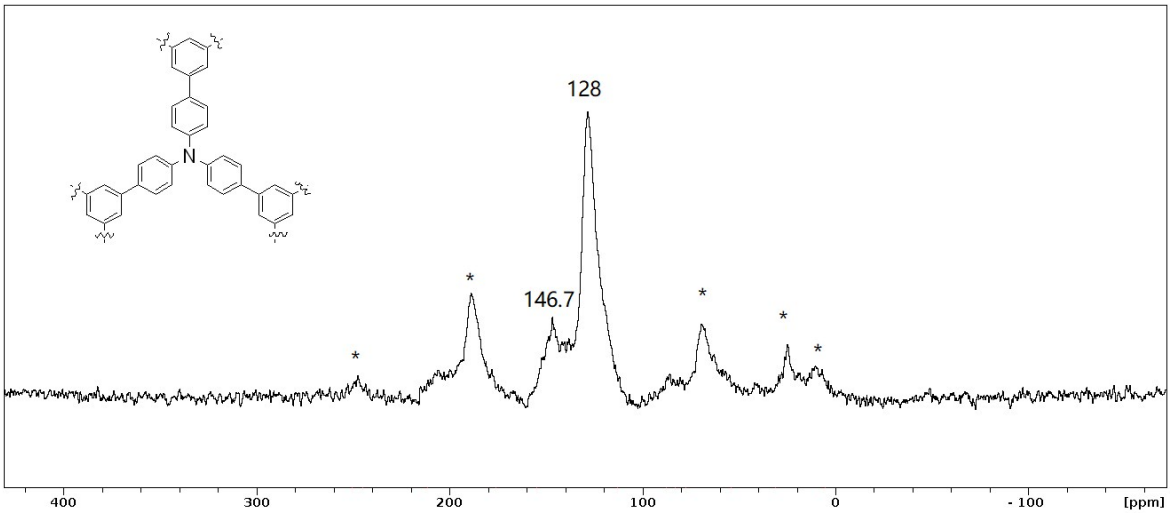

Figure S16. C CP/MAS NMR spectra of the **PPN5** recorded at a rate of 5 kHz, asterisks (*) indicate rotational sidebands. The major two signals at 146.7 ppm and 128 ppm correspond to the carbon connected to nitrogen and other aromatic carbons, respectively.

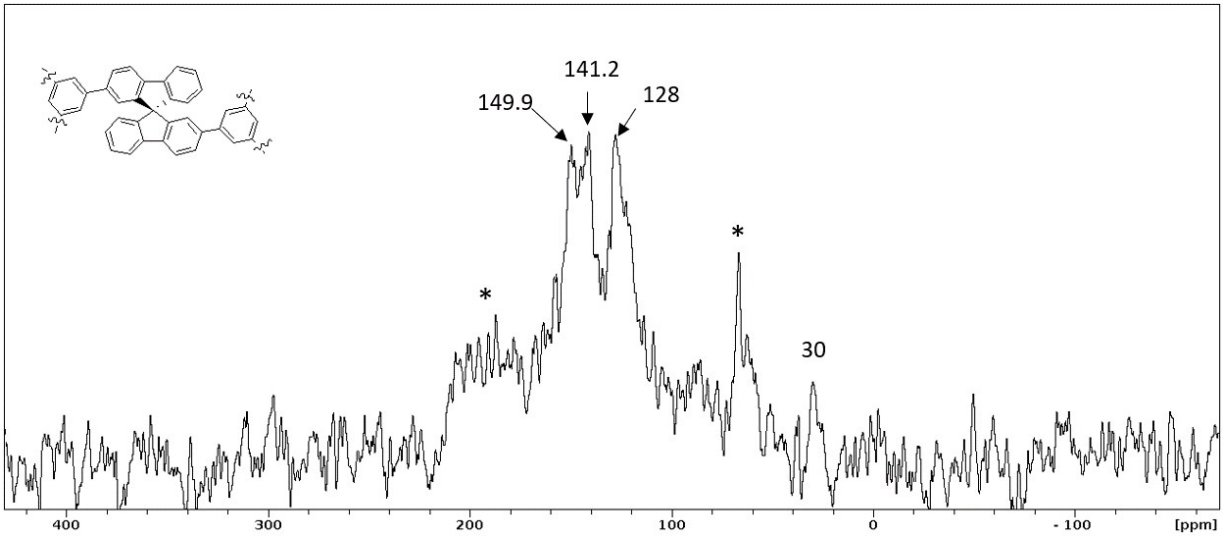

Figure S17. C CP/MAS NMR spectra of the **PPN4** recorded at a rate of 5 kHz, asterisks (*) indicate rotational sidebands. the signals at 149.9 ppm and 141.2 ppm correspond to substituted aromatic carbons, the signal at 128 ppm corresponds to unsubstituted aromatic carbons. The signal at 30 ppm corresponds to the carbon at the center of spirofluorene. Note that the signal/noise ratio of was still low despite 27,000 scans.