Supplementary Information

Indenofluorene and carbazole based copolymers for blue PLEDs simultaneously with high efficiency and good color purity

Dengfeng Mei,[a,b,c] *Liuqing Yang,*[a,b,c] *Lei Zhao,*[a,*] *Shumeng Wang,*[a] *Hongkun Tian,*[a,b,*] *Junqiao Ding,*[a,b,c,*] *and Lixiang Wang*[a,b]

[a]State Key Laboratory of Polymer Physics and Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun 130022, P. R. China

[b]University of Science and Technology of China, Hefei 230026, P. R. China

[c]School of Chemical Science and Technology, Yunnan University, Kunming 650091, P. R. China

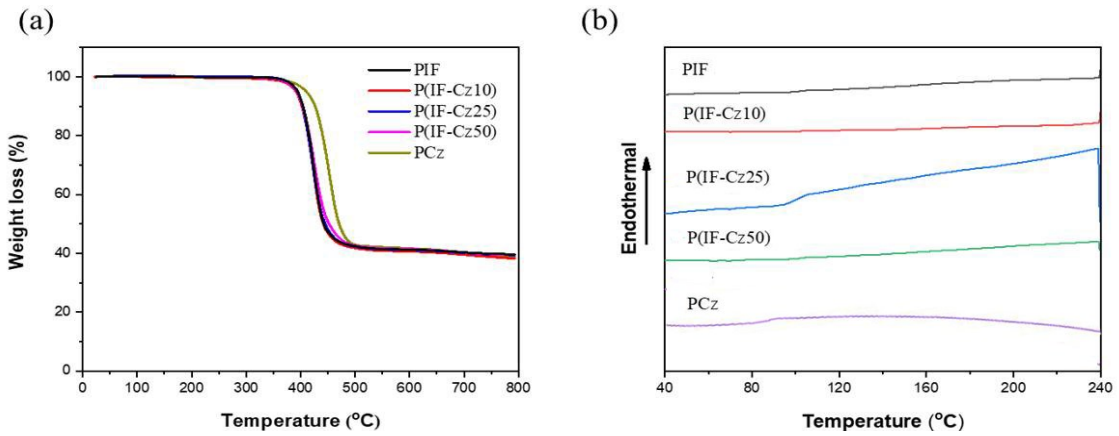

Figure S1. TGA (a) and DSC traces (b) for P(IF-Cz10), P(IF-Cz25) and P(IF-Cz50) compared with PIF and PCz.

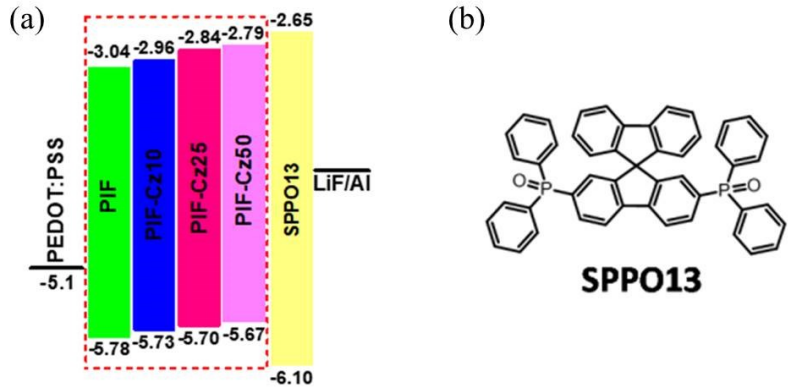

Figure S2. Energy level alignment of PLEDs (a) and molecular structure of used electron-transporting material (b).

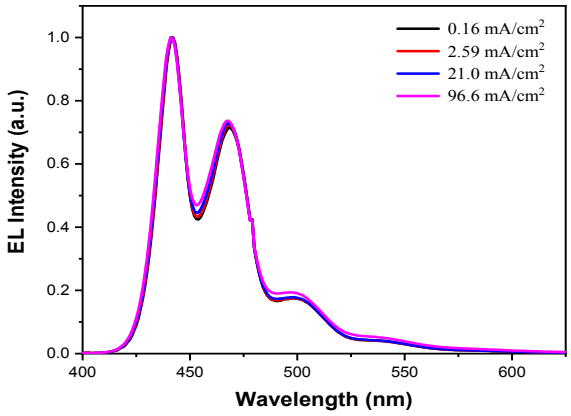

Figure S3. EL spectra of P(IF-Cz25) under various current density.

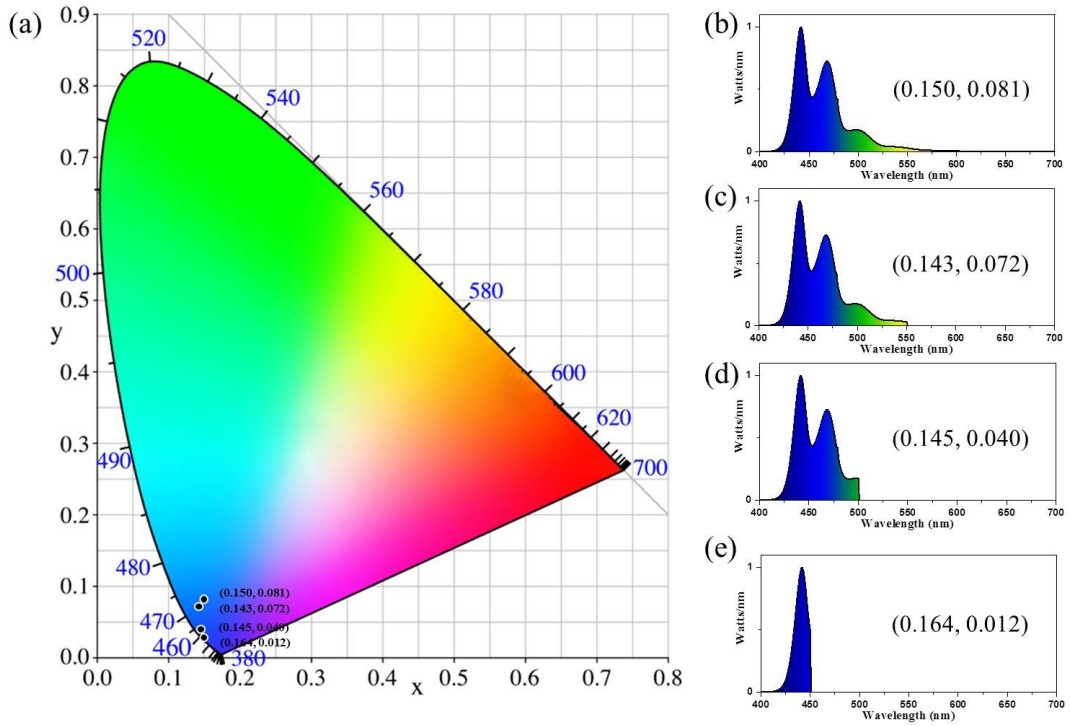

Figure S4. (a) CIE color coordinates of EL spectra of P(IF-Cz25) with and without optical filters; (b) full spectrum; (c) spectrum cut off above 550 nm; (d) spectrum cut off above 500 nm; and (e) spectrum cut off above 450 nm.

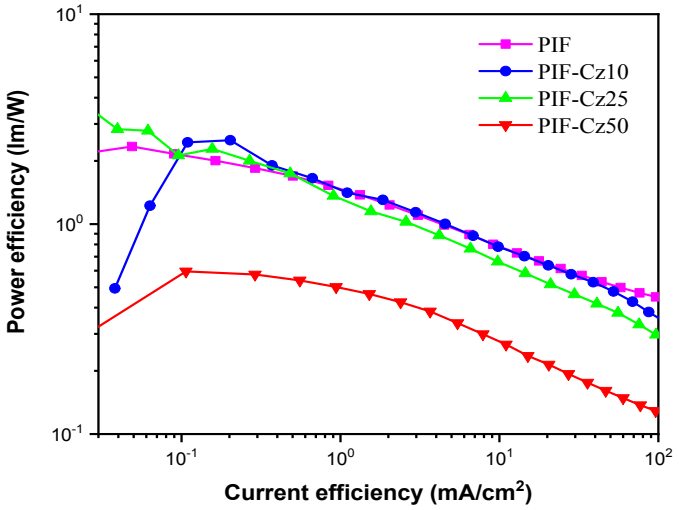

Figure S5. Power efficiency as a function of current density for P(IF-Cz10), P(IF-Cz25) and P(IF-Cz50) compared with PIF.

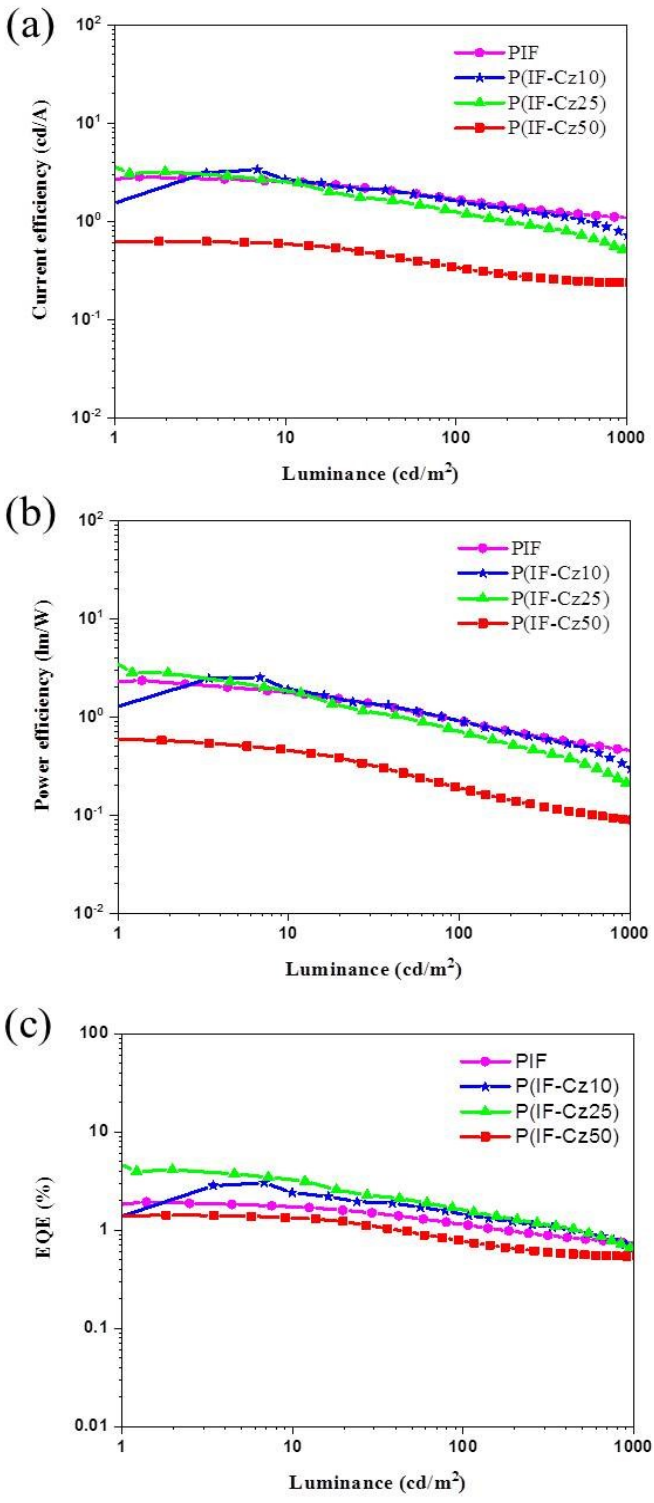

Figure S6. Luminance dependence of current efficiency, power efficiency and EQE for P(IF-Cz10), P(IF-Cz25) and P(IF-Cz50) compared with PIF.

Table S1. Device performance comparison between blue-emitting CPs with CIEy < 0.10.

Polymer	EQE (%)	CIE (x, y)	Ref.
PSiFF90	3.34	(0.16, 0.07)	*J. Mater. Chem*., **2006**, *16*, 4133
P36-27SiF90	1.95	(0.162, 0.084)	*J. Polym. Sci. Part A: Polym. Chem*., **2007**, *45*, 4941
PFO	1.94	(0.16, 0.08)	*Macromolecules,* **2007**, *40,* 804
PFCz-DPS1	1.46	(0.159, 0.063)	*Adv. Funct. Mater.,* **2007**, *17*, 3808
PFCz-DPS1-OXD5	2.83	(0.156, 0.08)	
PSiC8OF5	1.35	(0.14, 0.05)	*Macromolecules*, **2008**, *41*, 8354
G-sPF	2.23	(0.16, 0.07)	*Macromolecules,* **2012**, *45*, 1281
G-sPF-end-TAZ	7.28	(0.16, 0.07)	
PFO-TFP	5.02	(0.16, 0.05)	*J. Mater. Chem. C*, **2013**, *1*, 5322
P2	3.9	(0.16, 0.06)	*J. Mater. Chem. C*, **2015**, *3*, 2479
PSF-Cz	4.10	(0.16, 0.08)	*J. Mater. Chem*. C, **2016**, *4*, 905
P(Cz-SF)	3.0	(0.17, 0.06)	*Polym. Chem.,* **2017**, *8*, 2182
PSSiBF	2.8	(0.16, 0.06)	*Org. Electron.*, **2018**, *59*, 77
PSDBASiF	2.74	(0.16, 0.06)	*J. Mater. Chem. C,* **2018**, *6*, 9599
P(IF-Cz25)	4.12	(0.150, 0.081)	This work

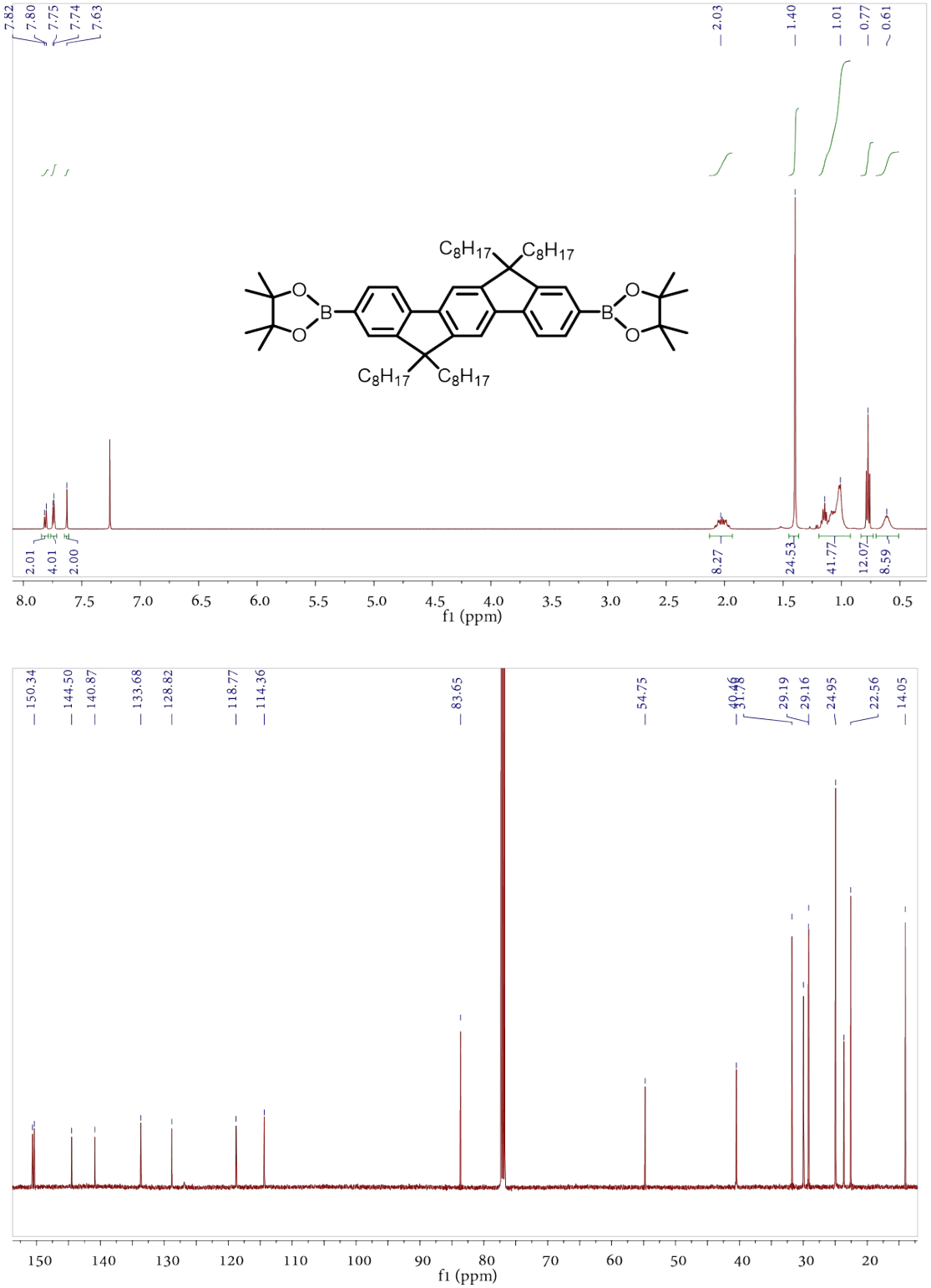

Figure S7. ^{1}H and ^{13}C NMR spectra of the monomer **M2**.

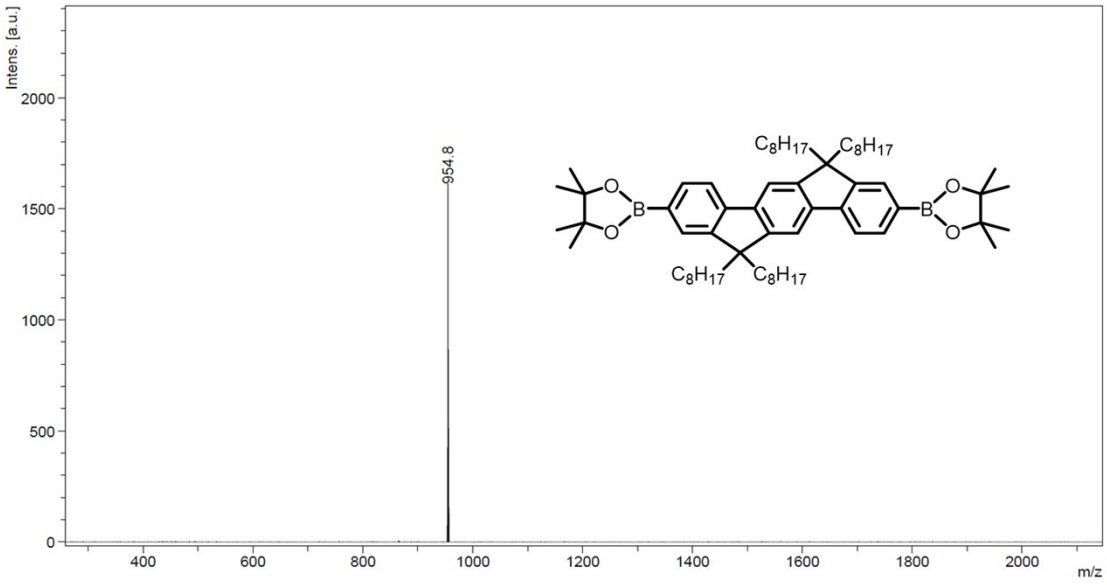

Figure S8. MALDI-TOF MS spectrum of the monomer **M2**.

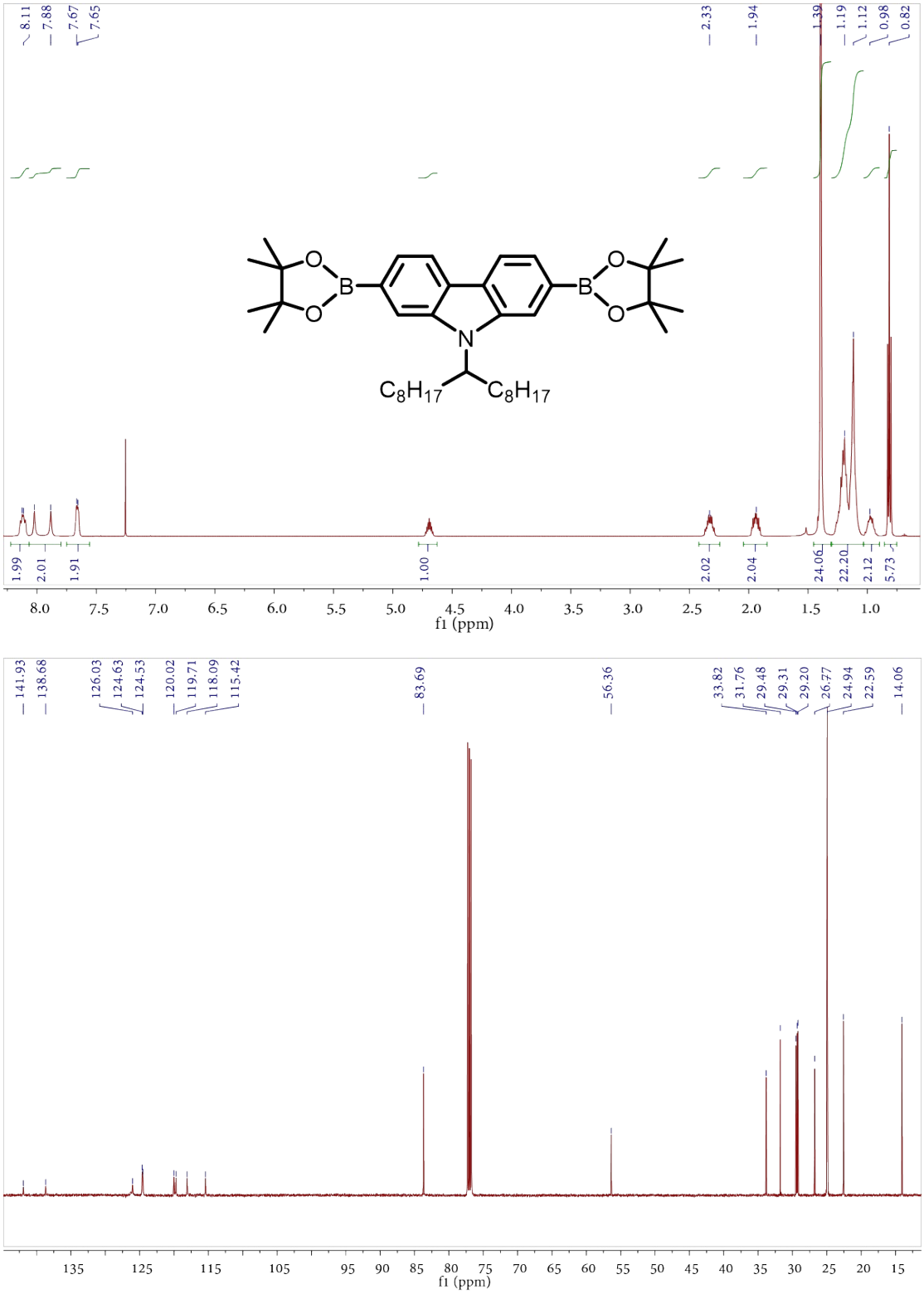

Figure S9. ^{1}H and ^{13}C NMR spectra of the monomer **M4**.

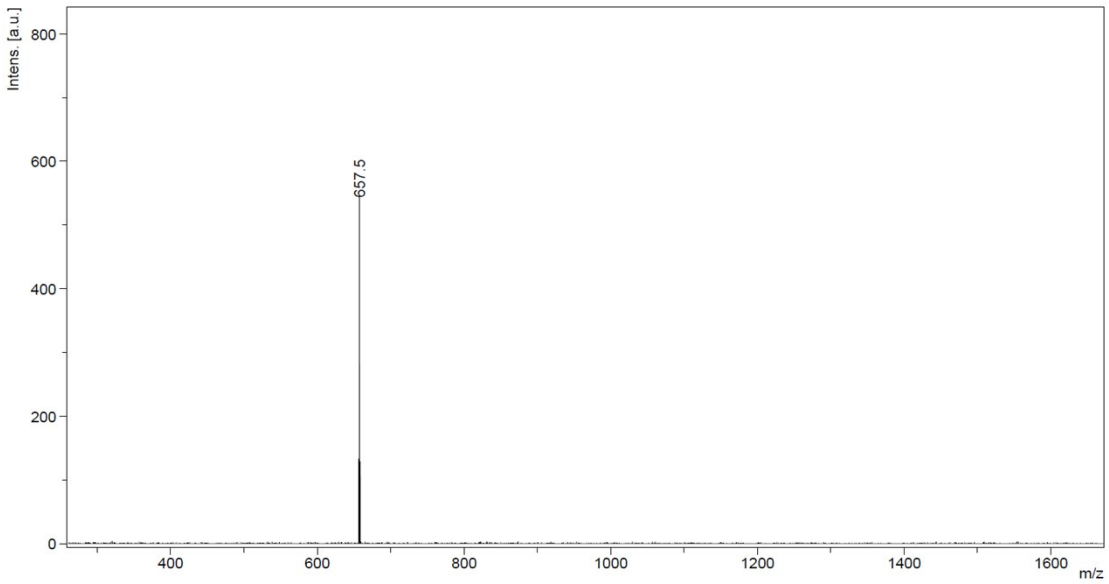

Figure S10. MALDI-TOF MS spectrum of the monomer **M4**.

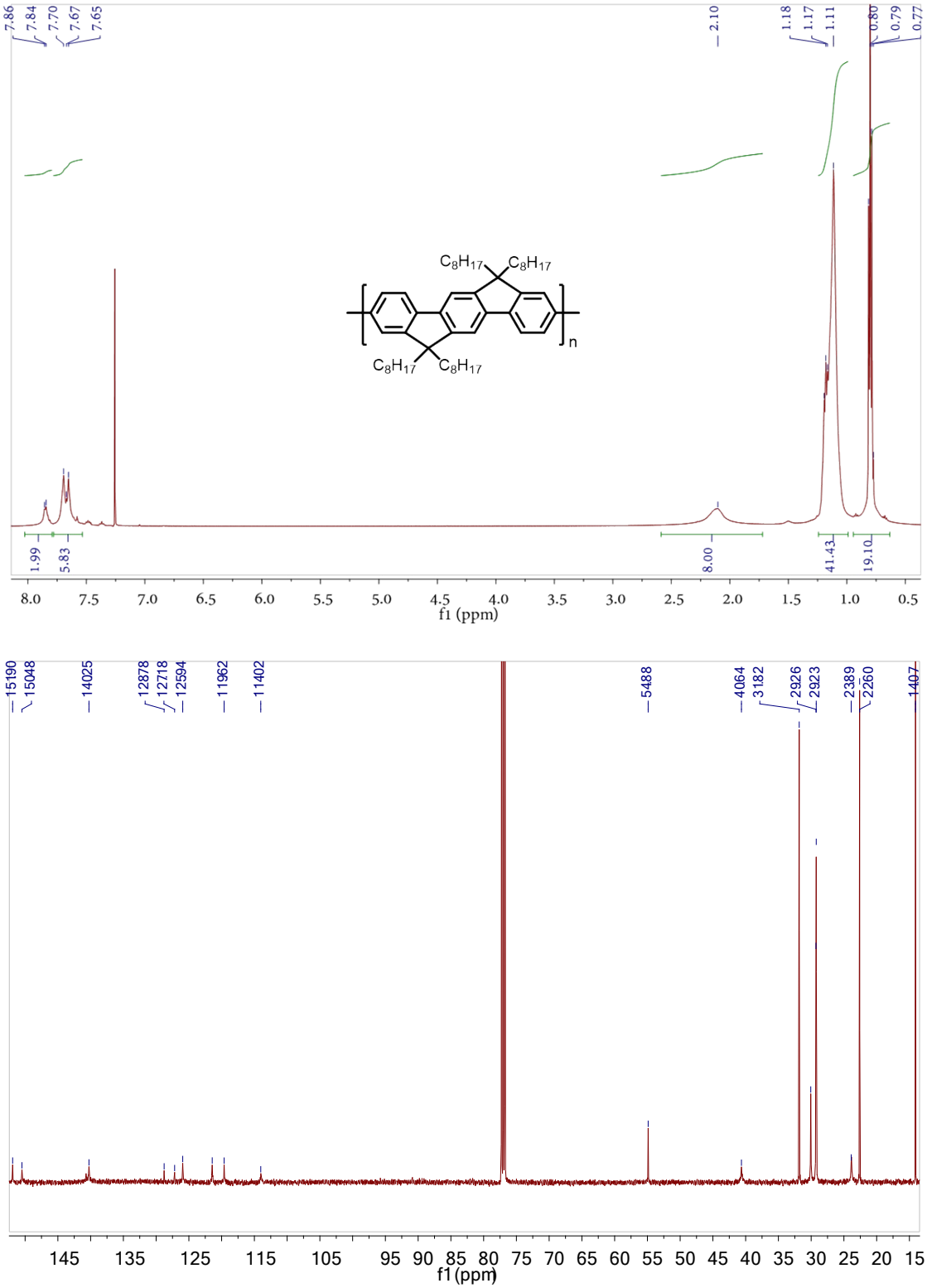

Figure S11. ^{1}H and ^{13}C NMR spectra of PIF.

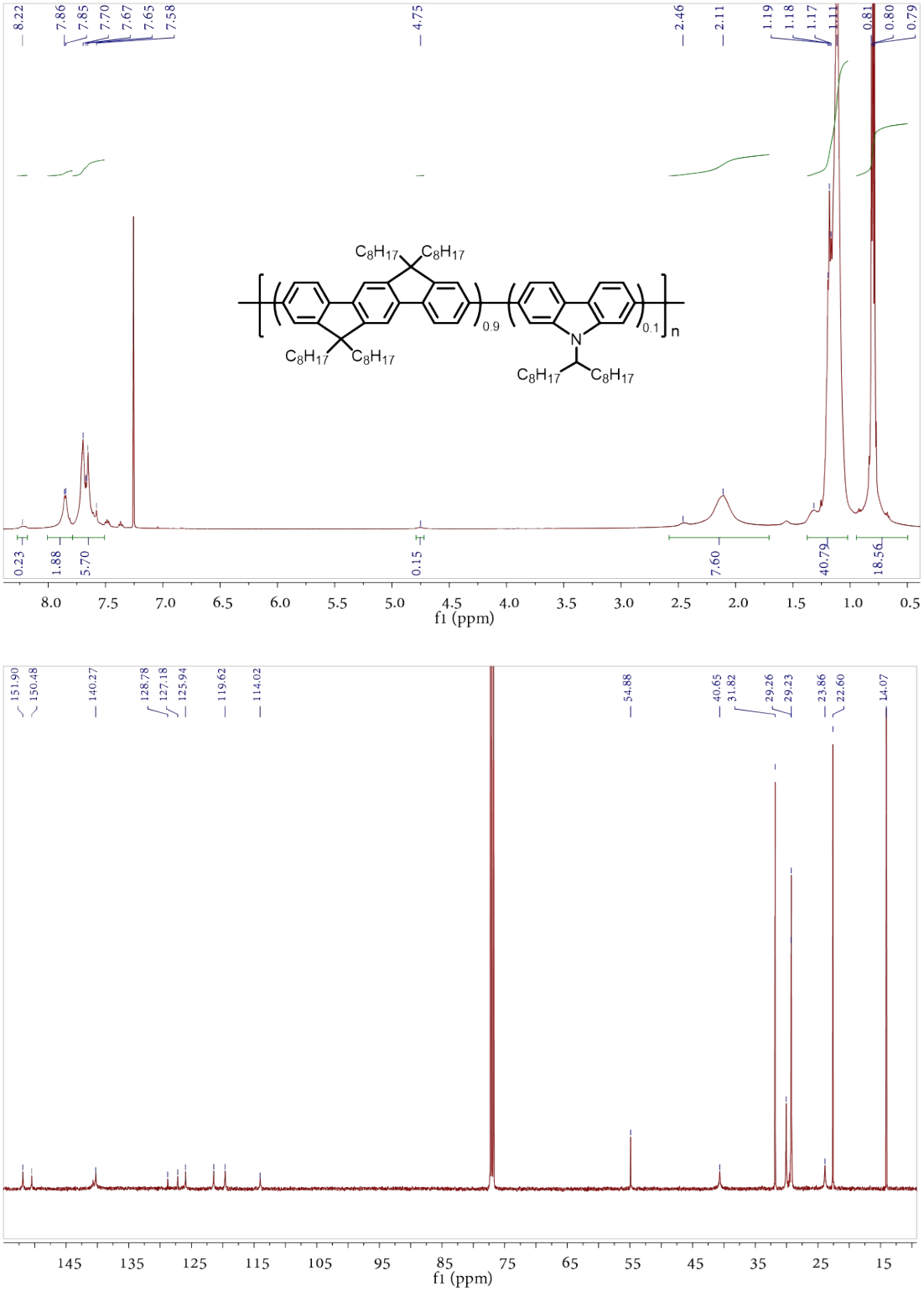

Figure S12. ^{1}H and ^{13}C NMR spectra of P(IF-Cz10).

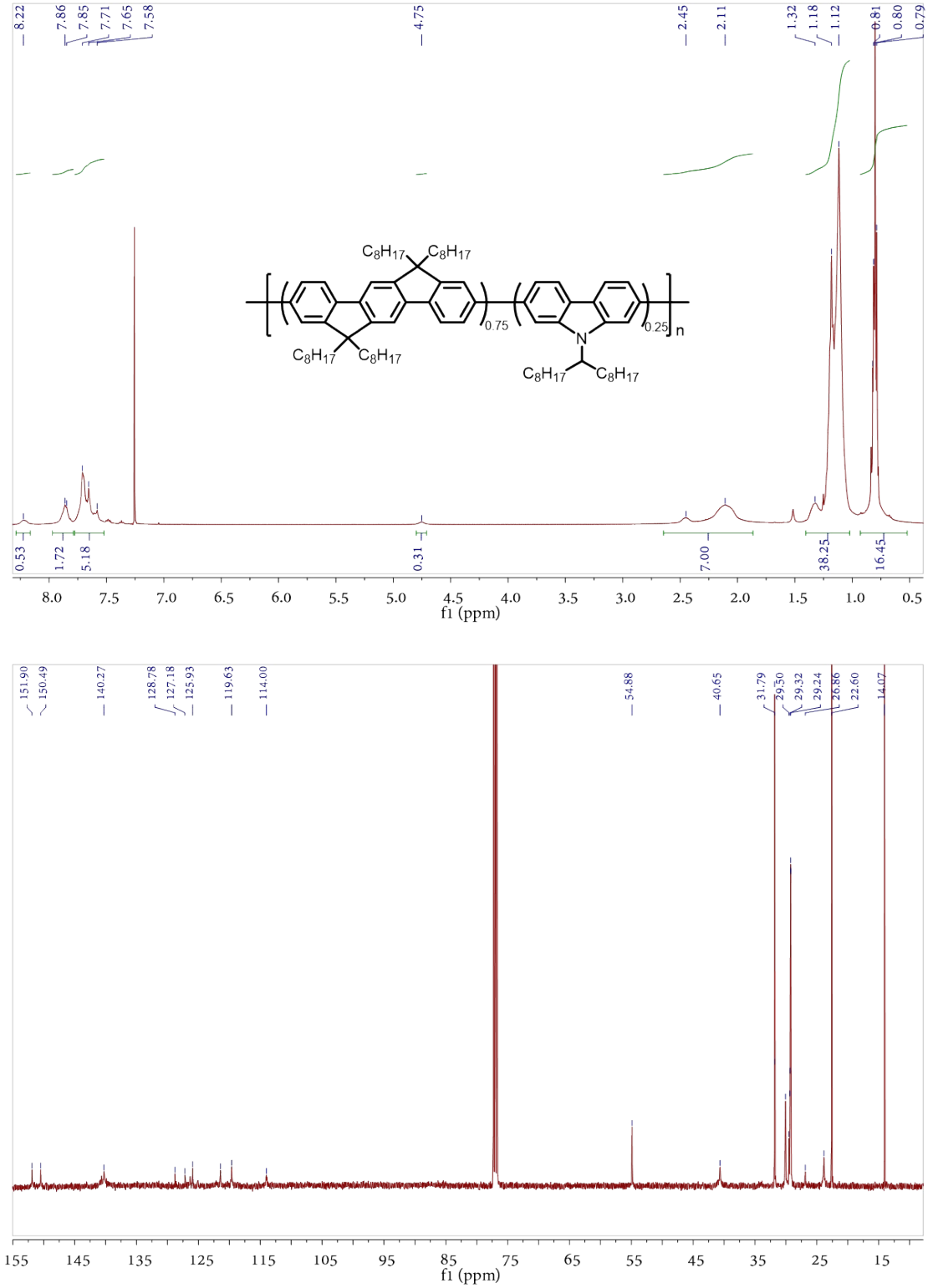

Figure S13. ^{1}H and ^{13}C NMR spectra of P(IF-Cz25).

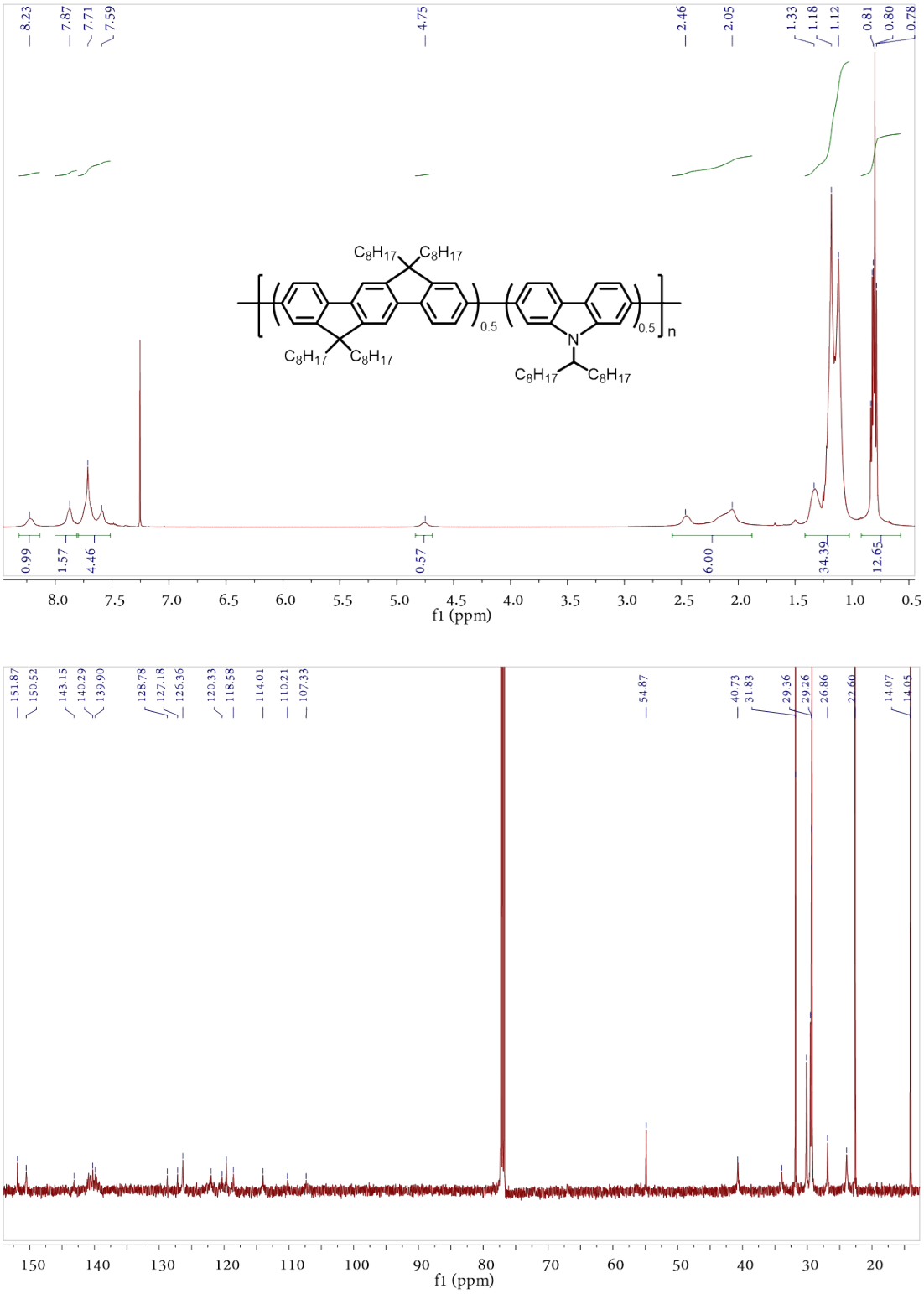

Figure S14. ^{1}H and ^{13}C NMR spectra of P(IF-Cz50).

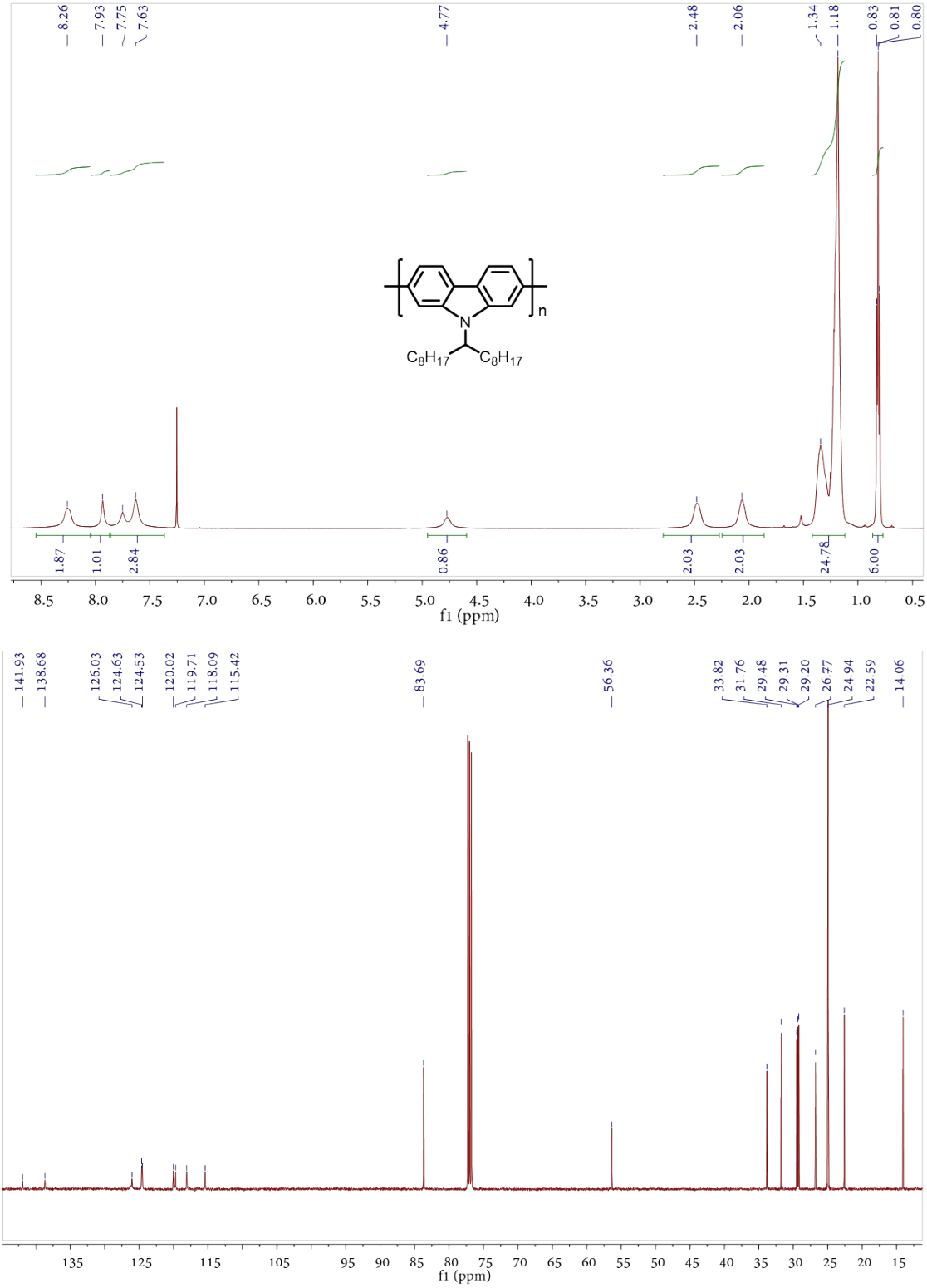

Figure S15. ^{1}H and ^{13}C NMR spectra of PCz.