

Supplementary Material (ESI) for RSC advances

Impact of Fluorine Substitution upon the Photovoltaic Properties of Benzothiadiazole-Fluorene Alternate Copolymers

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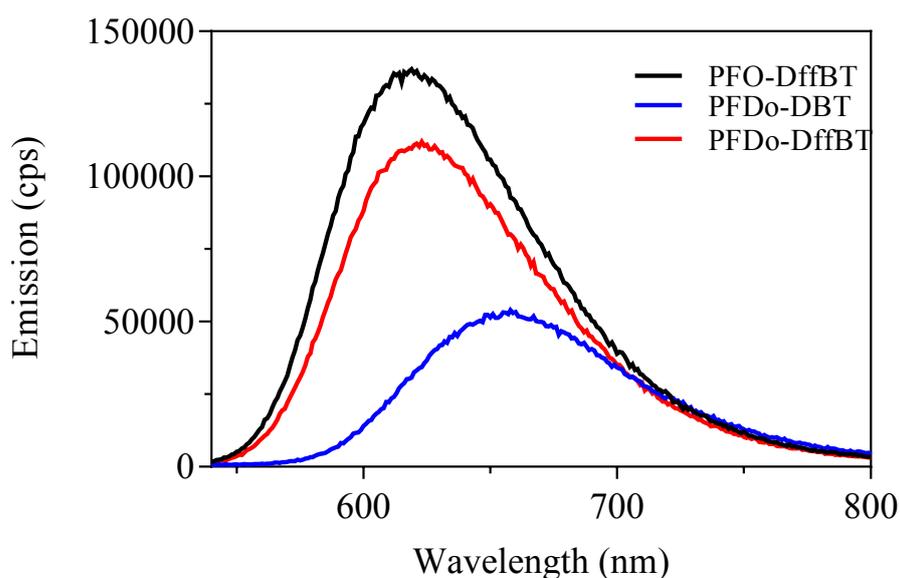


Figure S1. Photoluminescence spectra of **PFO-DffBT** (black line), **PFDo-DBT** (blue line) and **PFDo-DffBT** (red line) in chloroform solution (0.01 mg cm^{-1}) by exciting at the absorption λ_{max} .

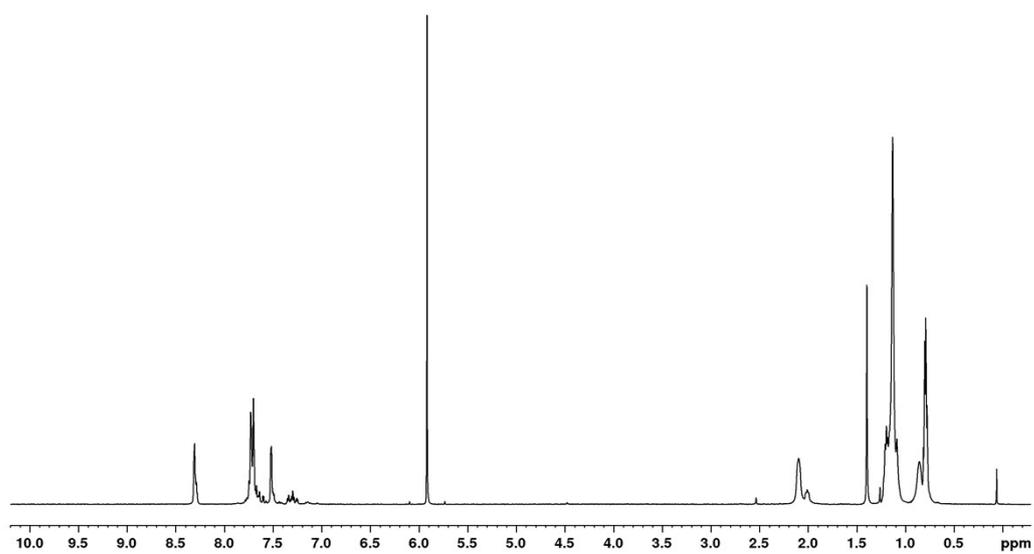


Figure S2. ^1H NMR spectrum of the toluene fraction of **PFO-DffBT** in $\text{C}_2\text{D}_2\text{Cl}_4$ at 100°C .

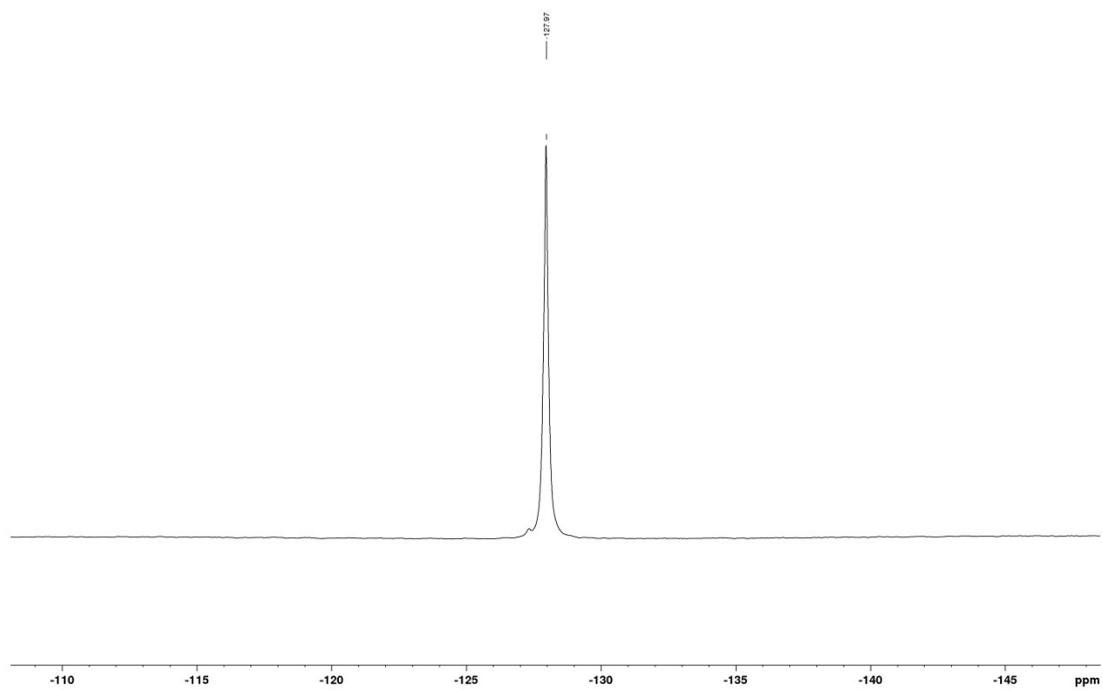


Figure S3. ^{19}F NMR spectrum of the toluene fraction of **PFO-DffBT** in $\text{C}_2\text{D}_2\text{Cl}_4$ at 100°C .

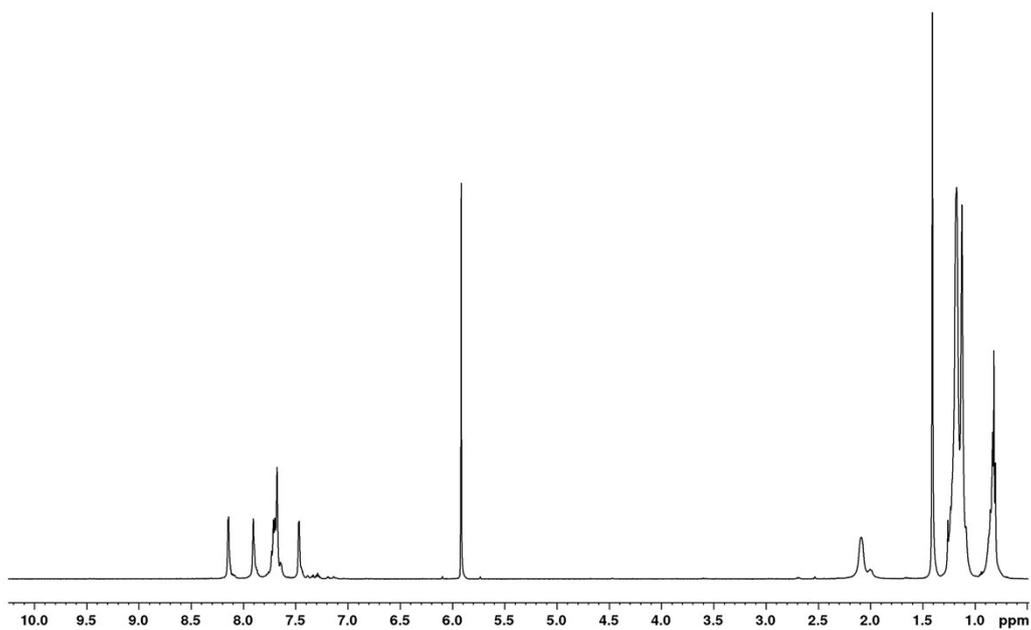


Figure S4. ¹H NMR spectrum of the toluene fraction of **PFD0-DBT** in C₂D₂Cl₄ at 100°C.

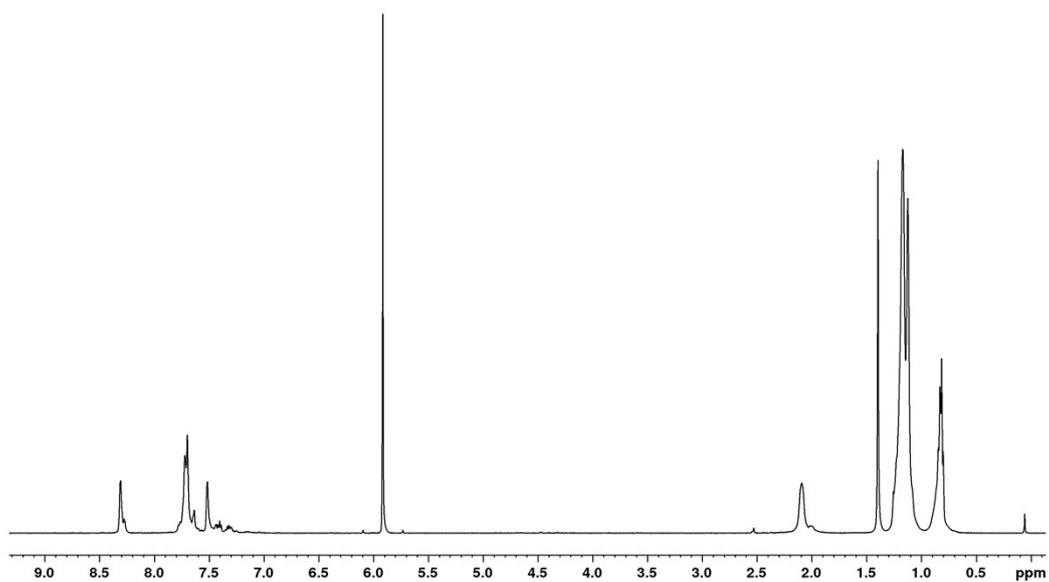


Figure S5. ¹H NMR spectrum of the toluene fraction of **PFD0-DffBT** in C₂D₂Cl₄ at 100°C.

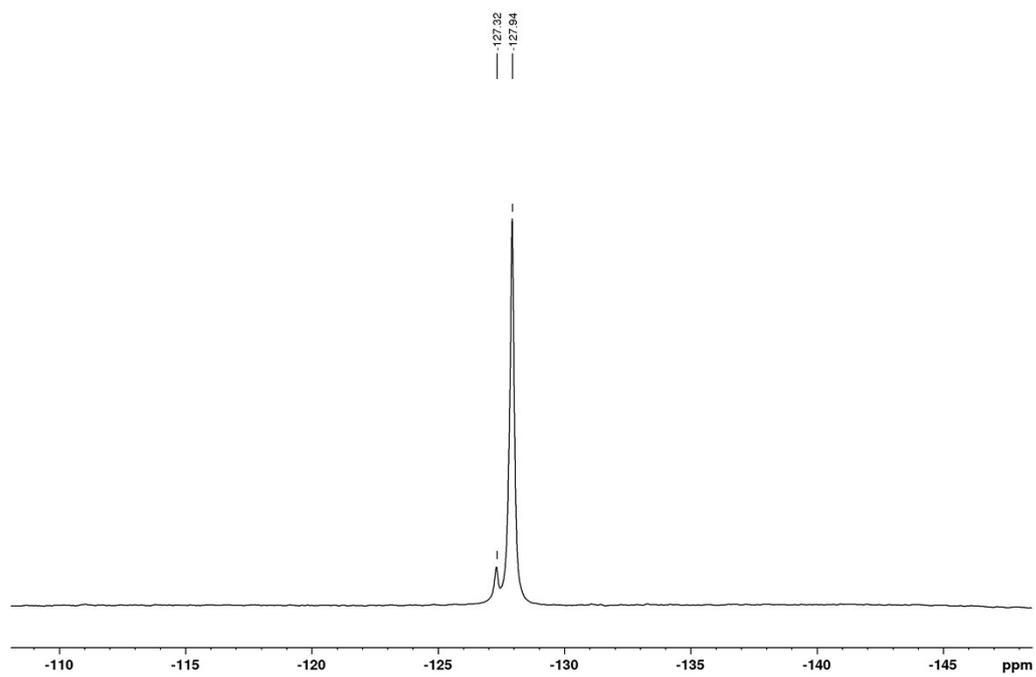


Figure S6. ^{19}F NMR spectrum of the toluene fraction of **PFDo-DfBT** in $\text{C}_2\text{D}_2\text{Cl}_4$ at 100°C .