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**SUPPLEMENTARY MATERIAL**

# Tuning the Light Absorption of Donor-Acceptor Conjugated Polymers: Effects of Side Chains and 'Spacer' Units in Thieno[3,4-b]pyrazine-Flourene Copolymers

Michael E. Mulholland, Kristine L. Konkol, Trent E. Anderson, Ryan L. Schwiderski, and Seth C. Rasmussen*

*Department of Chemistry and Biochemistry, North Dakota State University, NDSU Dept. 2735, P.O. Box 6050, Fargo, ND 58108-6050, United States. Fax: 1-701-231-8747; Tel: 1-701-231-8831; E-mail: seth.rasmussen@ndsu.edu*

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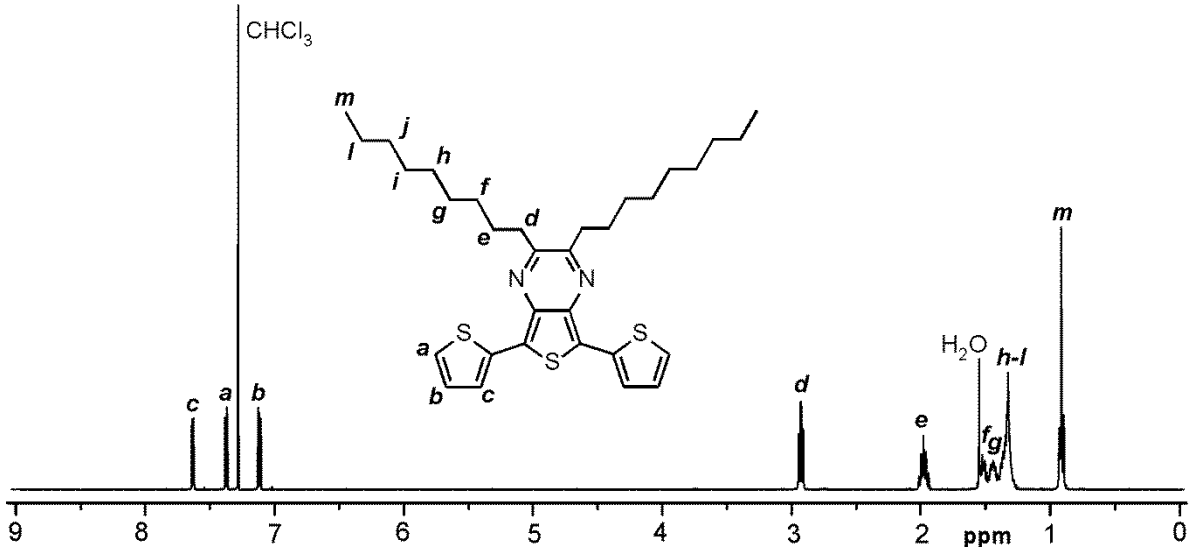


**Figure S1.** $^{1}$H NMR Spectrum of Compound **7**

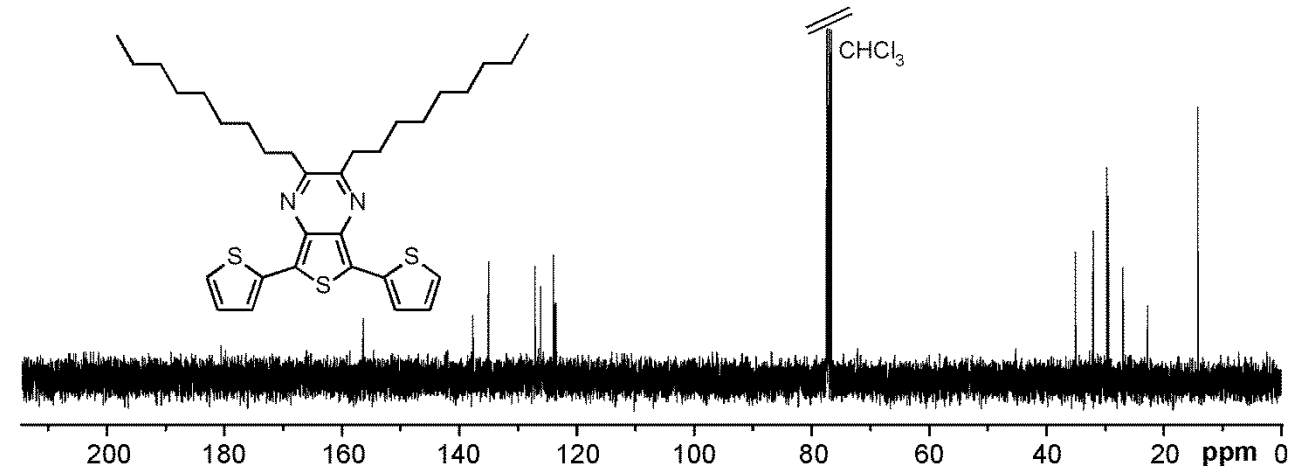


**Figure S2.** $^{13}$C NMR Spectrum of Compound **7**

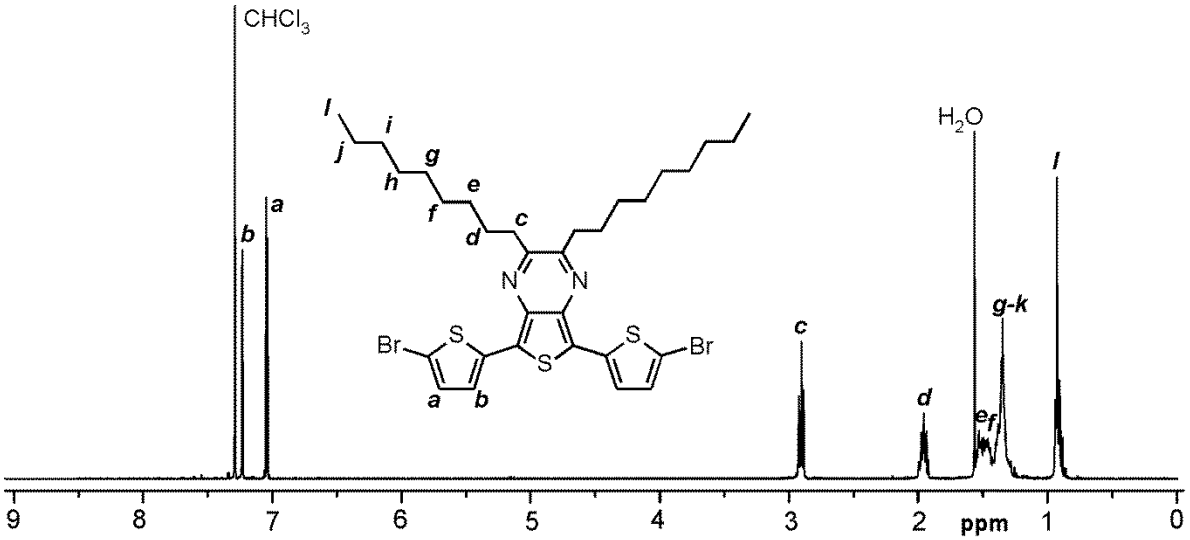


**Figure S3.** $^{1}$H NMR Spectrum of Compound **8**

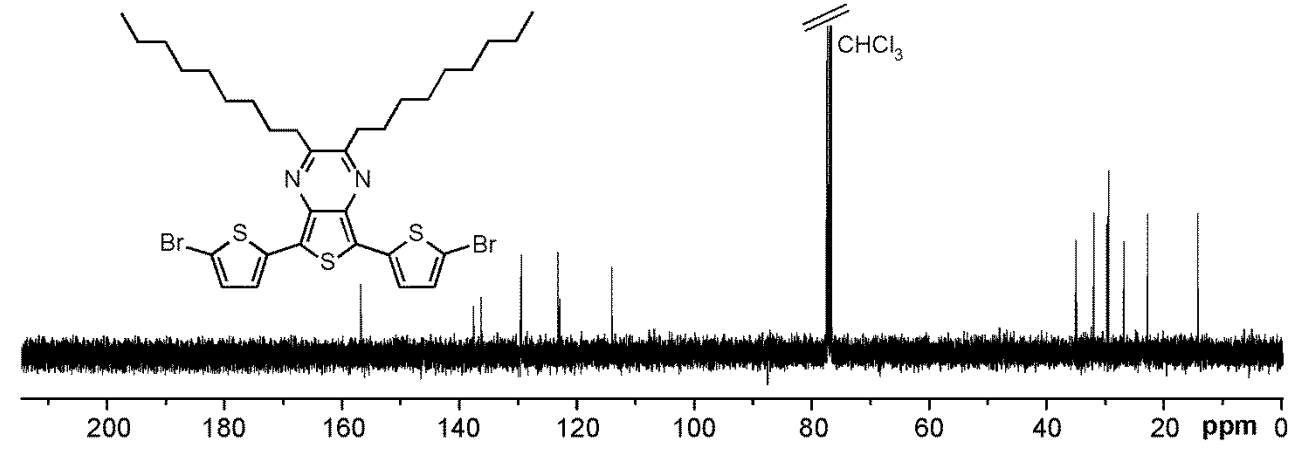


**Figure S4.** $^{13}$C NMR Spectrum of Compound **8**

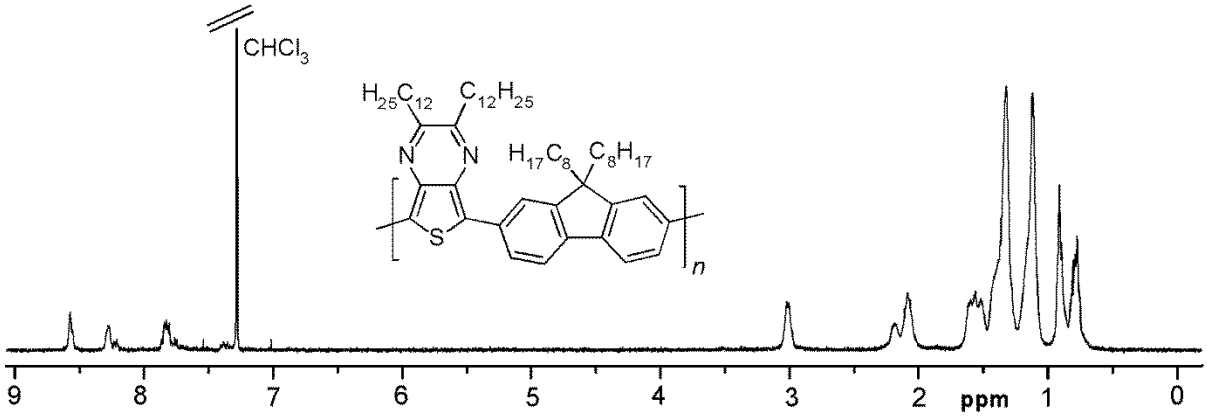


**Figure S5.** [1]H NMR Spectrum of Polymer **2a**

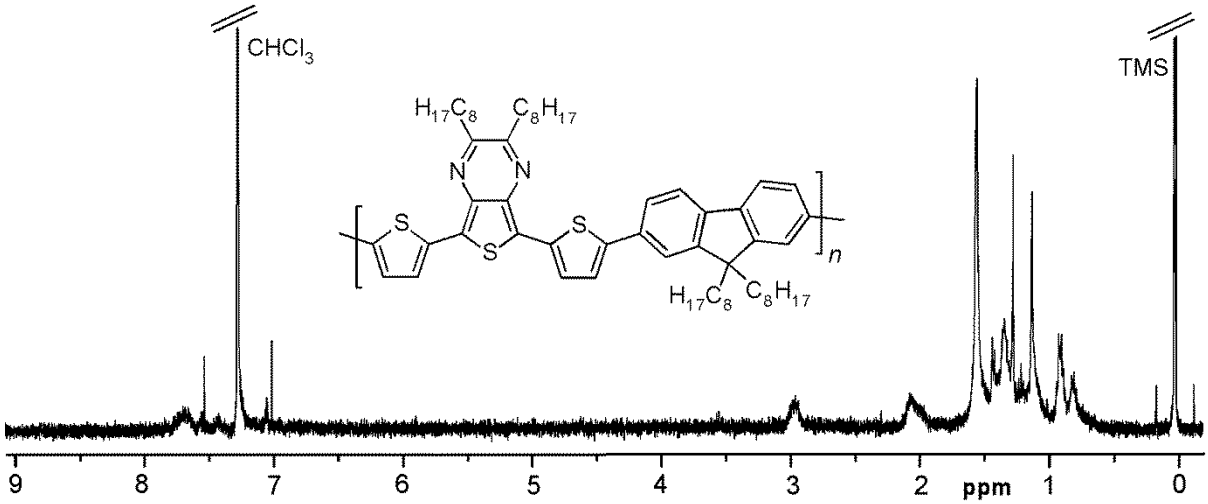


**Figure S6.** [1]H NMR Spectrum of Polymer **4a**

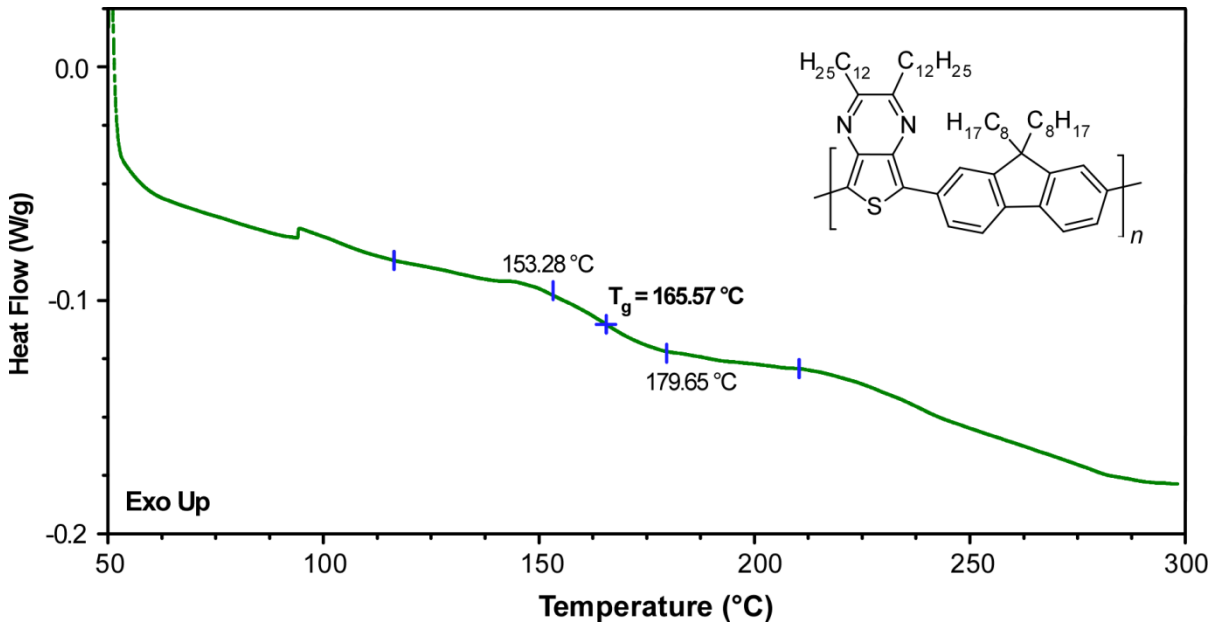


**Figure S7.** DSC data for Polymer **2a**

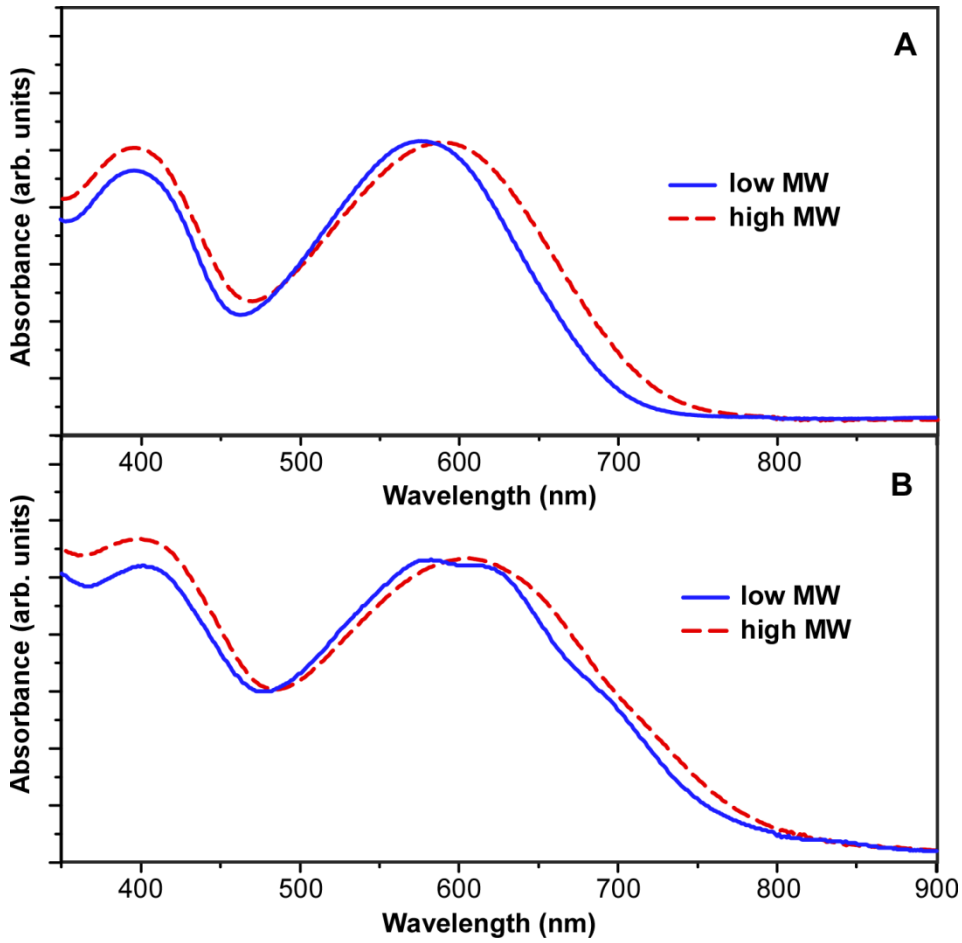


**Figure S8**. Comparative UV-vis data for the high and low MW fractions of Polymer **4a** in $CHCl_3$ (**A**) and as thin films (**B**).

**Table S1.** Electrochemical data for various conjugated units.

| Monomer | $E_p^{ox}$ (V)[A] | $E_{HOMO}$ (eV)[B] | Reference |
|---|---|---|---|
| thieno[3,4-*b*]pyrazine | 1.33 | -6.3 | this work |
| thiophene | 1.90 | -6.7 | this work |
| fluorene | 1.48 | -6.4 | this work |
| 2,2'-bithiophene | 1.04 | -5.9 | [1] |
| 5,5'-bis(thieno[3,4-*b*]pyrazine) | 0.50 | -5.5 | [2] |

[A] $E_p$ vs. $Ag/Ag^+$. [B] $E_{HOMO} = -(E_{[onset,ox\ vs.\ Fc+/Fc]} + 5.1)$(eV) [3].

## References

[1] S. C. Rasmussen, J. C. Pickens, J. E. Hutchison, *Chem. Mater.* **1998**, *10*, 1990.

[2] L. Wen, C. L. Heth, S. C. Rasmussen, *Phys. Chem. Chem. Phys.* **2014**, *16*, 7231.

[3] C. M. Cardona, W. Li, A. E. Kaifer, D. Stockdale, G. C. Bazan, *Adv. Mater.* **2011**, *23*, 2367.