

Supporting Information

‘Click’ functionalised polymer resins: a new approach to the synthesis of surface attached bipyridinium and naphthalenediimide [2]rotaxanes

Hannah Wilson, Sean Byrne, Nick Bampos, Kathleen M. Mullen

School of Chemistry, Physics and Mechanical Engineering, Queensland University of Technology, Brisbane, Queensland 4001, Australia.

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UV-Vis Spectroscopy Studies of Rotaxanes

UV-Vis Absorption Spectra

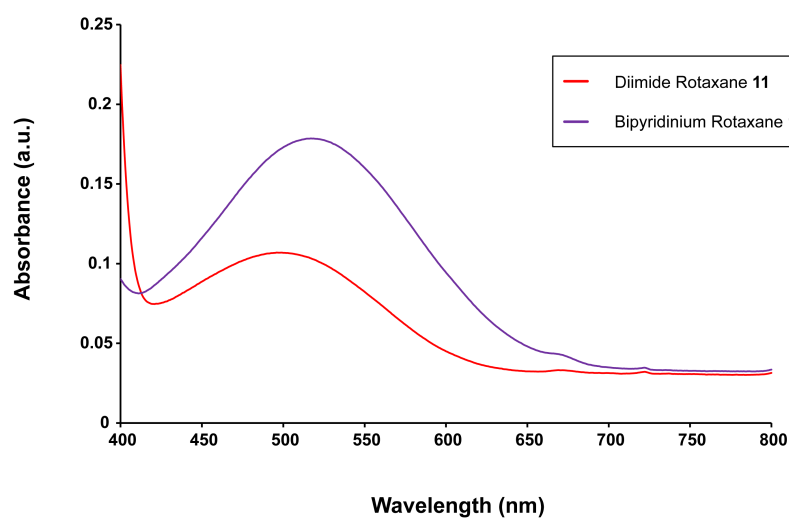


Figure S1: Absorption spectra of the bipyridinium rotaxane **11** and the diimide rotaxane **12** in CHCl_3 (concentration = 0.10 mM^{-1}).

^1H NMR Assignment of Diimide Rotaxane **12**

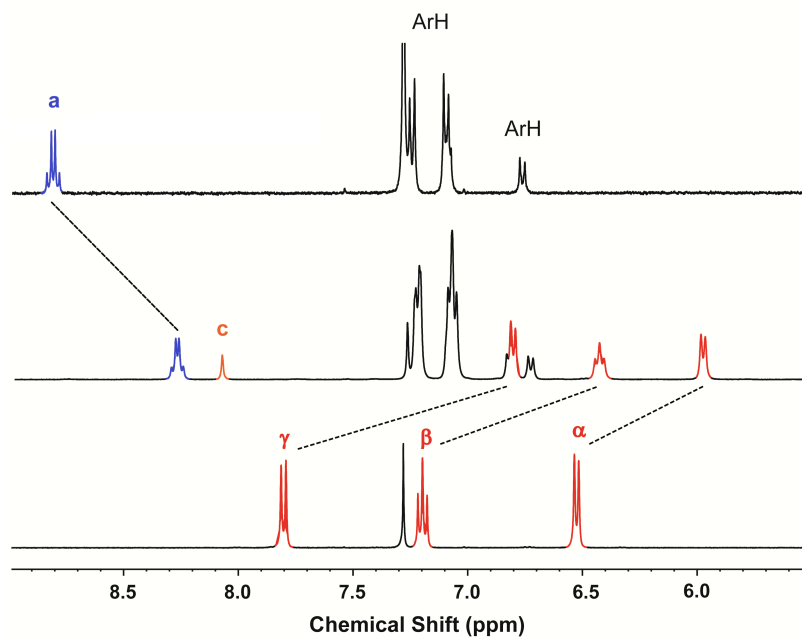


Figure S2: 400 MHz ^1H NMR of mono stoppered diimide thread **9** (top), diimide rotaxane **12** (middle) and dinaphth-38-crown-10 **10** (bottom) in CDCl_3 at 303 K.

IR Spectroscopy Studies

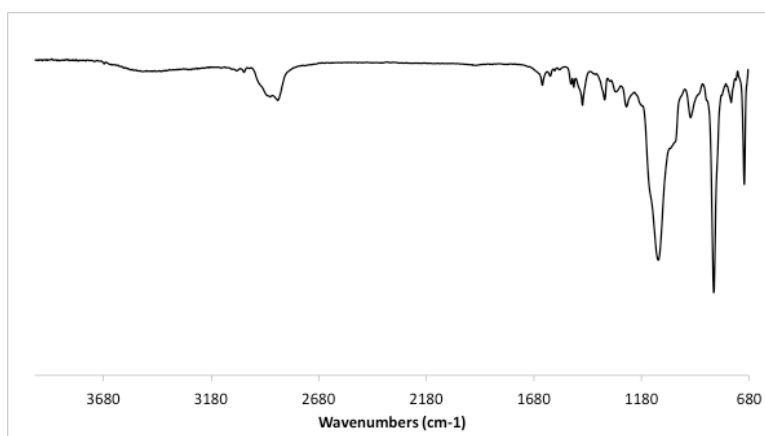


Figure S3: Full IR spectrum for bipyridinium thread functionalised beads **15**.

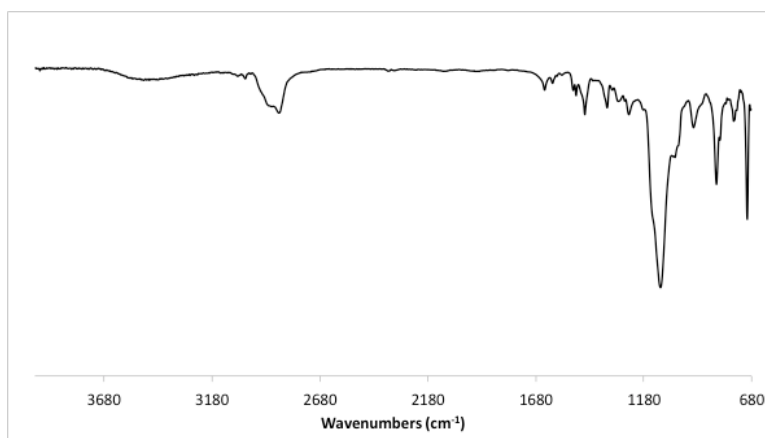


Figure S4: Full IR spectrum for bipyridinium rotaxane functionalised beads **1** using 1 equivalent of crown macrocycle **10** during synthesis.

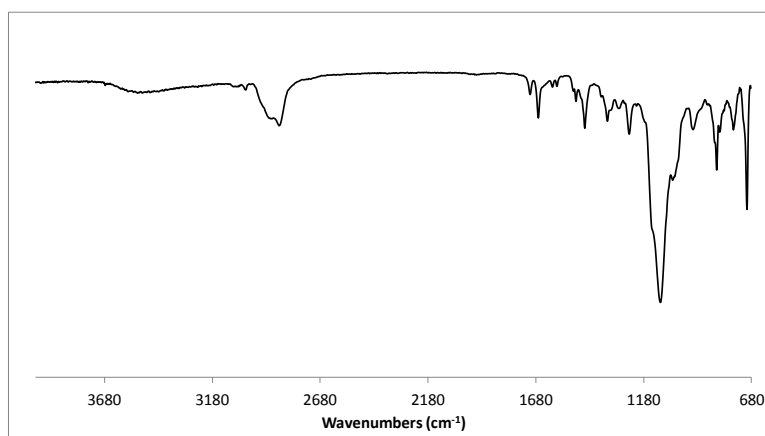


Figure S5: Full IR spectrum for diimide rotaxane functionalised beads **2** using 1 equivalent of crown macrocycle **10** during synthesis.

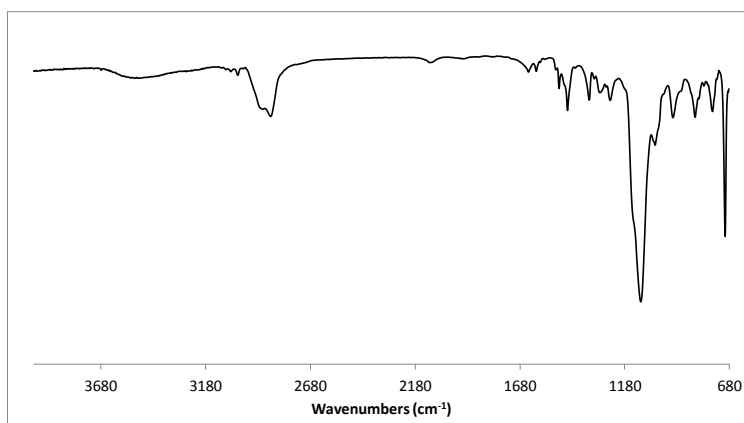


Figure S6: Full IR spectrum for bipyridinium rotaxane functionalised beads **1** using 5 equivalent of crown macrocycle **10** during synthesis.

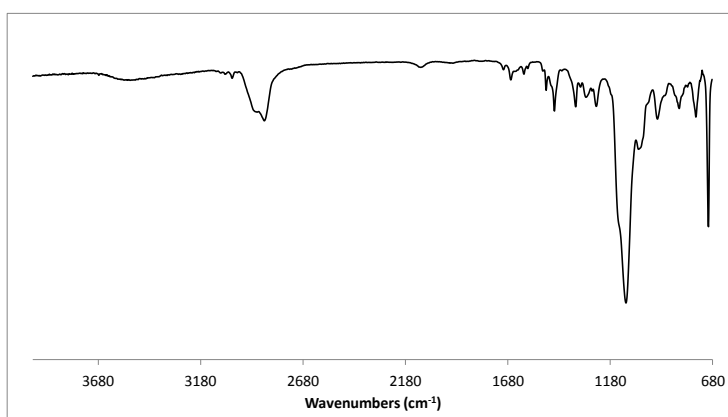


Figure S7: Full IR spectrum for diimide rotaxane functionalised beads **2** using 5 equivalent of crown macrocycle **10** during synthesis.

HR MAS ^1H NMR Assignment of Diimide Thread Functionalised Beads **16**

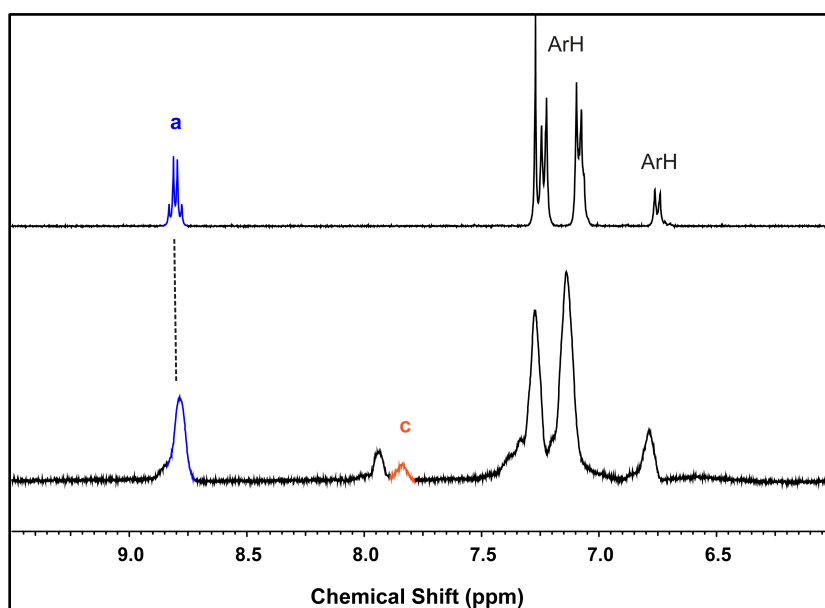


Figure S8: 400 MHz ^1H NMR spectrum of the mono stoppered diimide thread **9** (top) and HR MAS ^1H NMR spectrum of the diimide thread functionalised beads **16** (8 CPMG, bottom) in CDCl_3 .

^1H and ^{13}C NMR Spectra of All Key Compounds

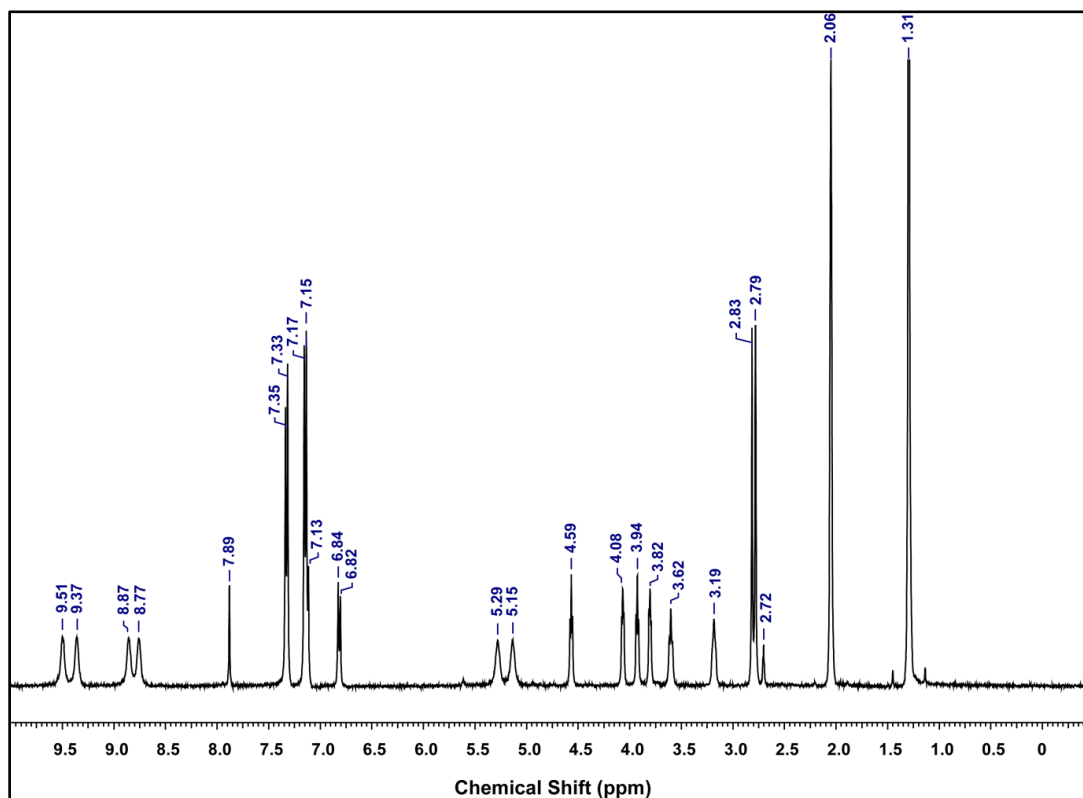


Figure 9. 400 MHz ^1H NMR spectrum of mono-stoppered BIPY.2PF₆ thread **5**

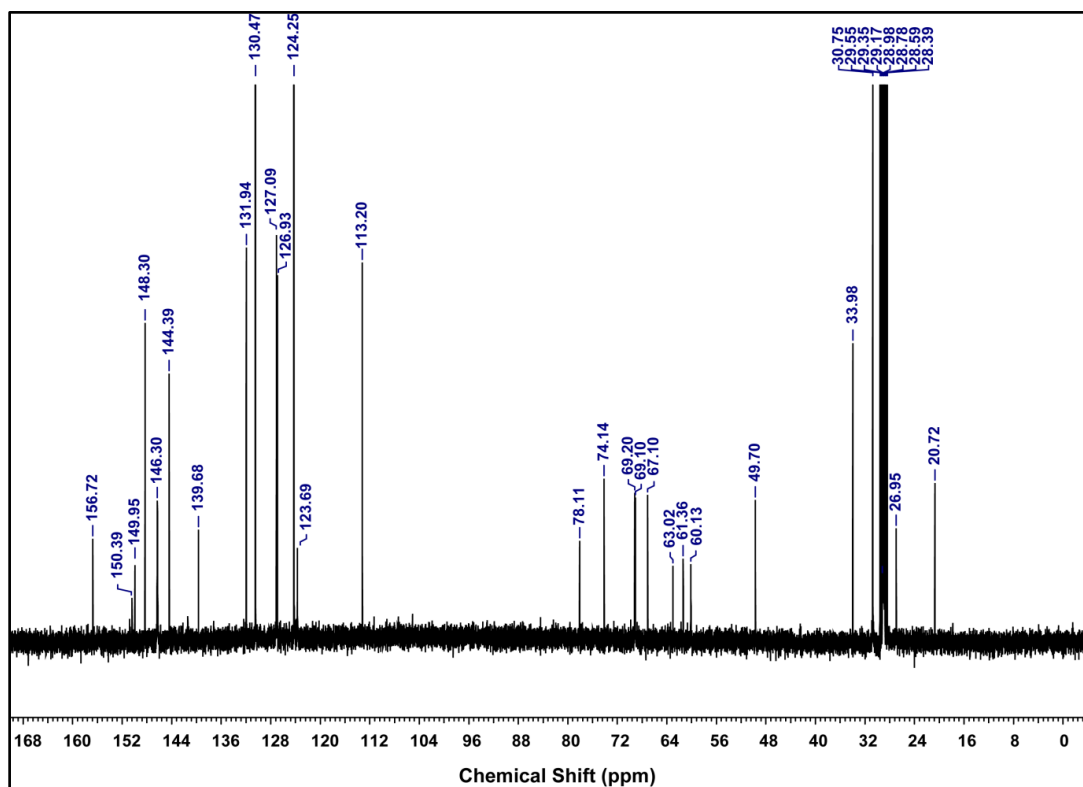


Figure S10. 100 MHz ^{13}C NMR spectrum of mono-stoppered BIPY. 2PF_6 thread 5

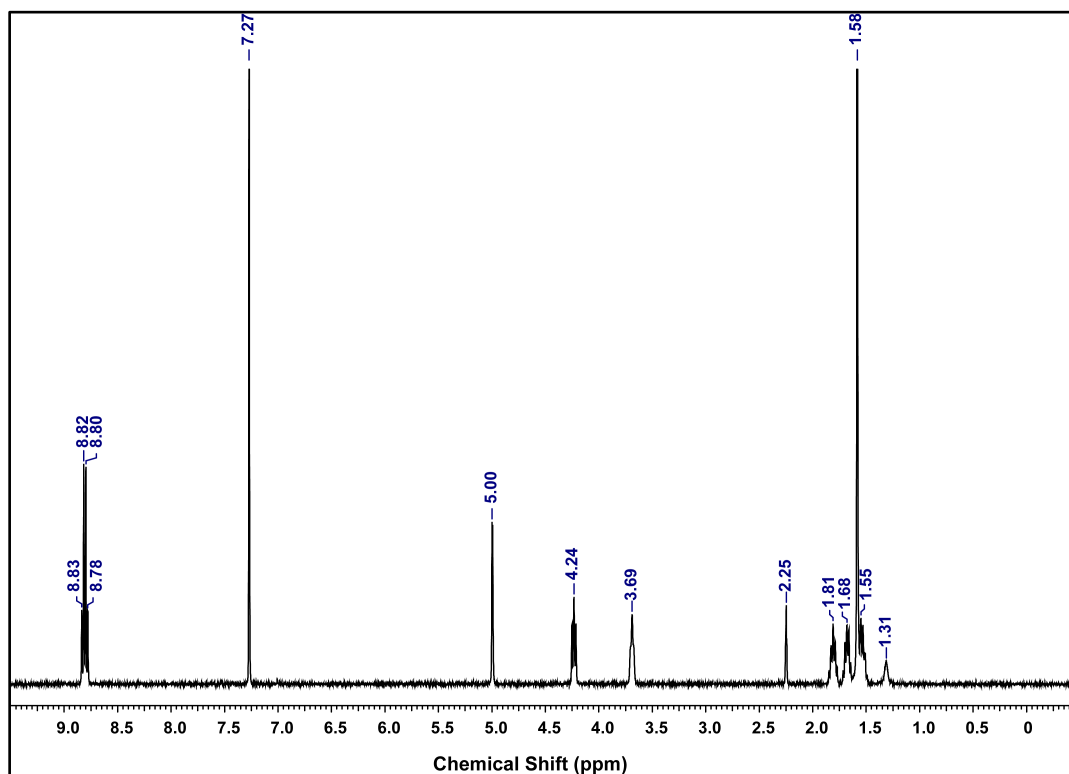


Figure S11. 400 MHz ^1H NMR spectrum of unsymmetrical NDI thread 8

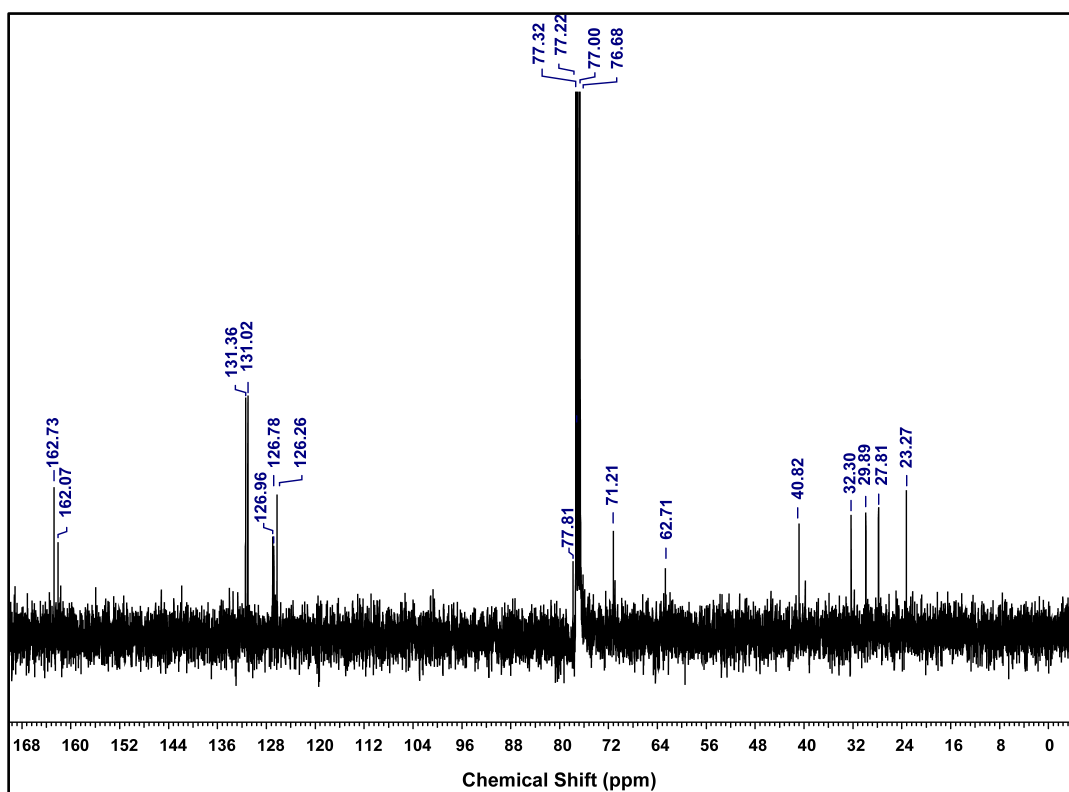


Figure S12. 100 MHz ^{13}C NMR spectrum of spectrum of unsymmetrical NDI thread **8**

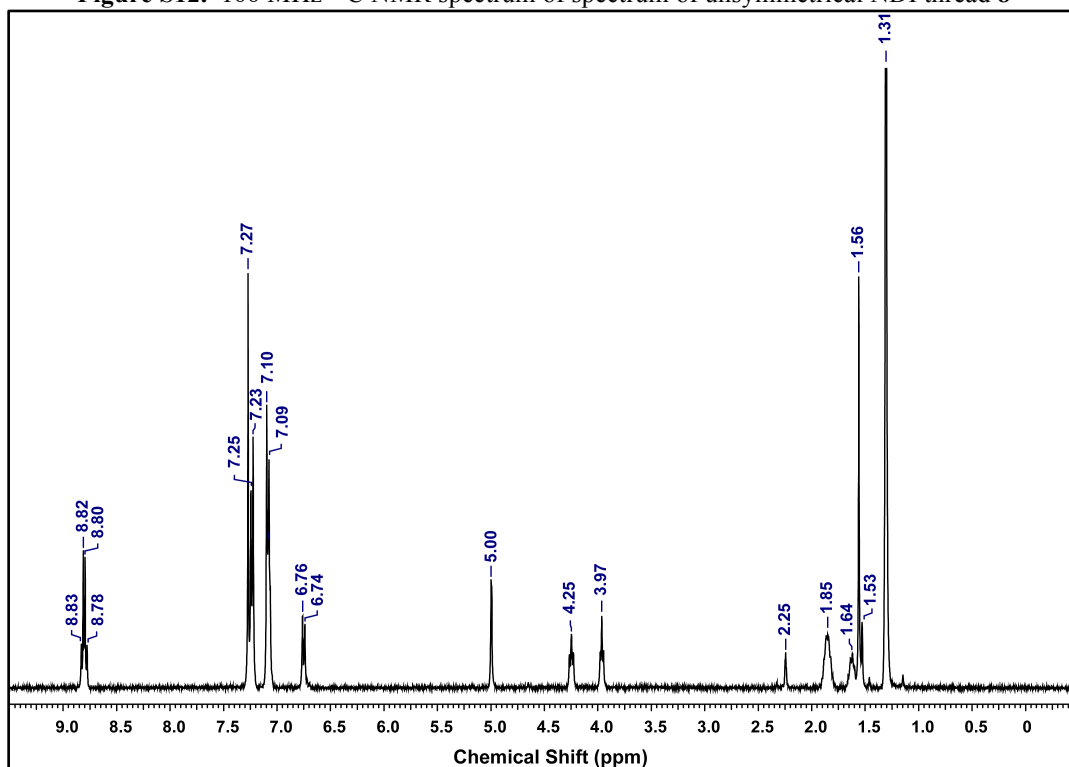


Figure S13. 400 MHz ^1H NMR spectrum of mono-stoppered NDI thread **9**

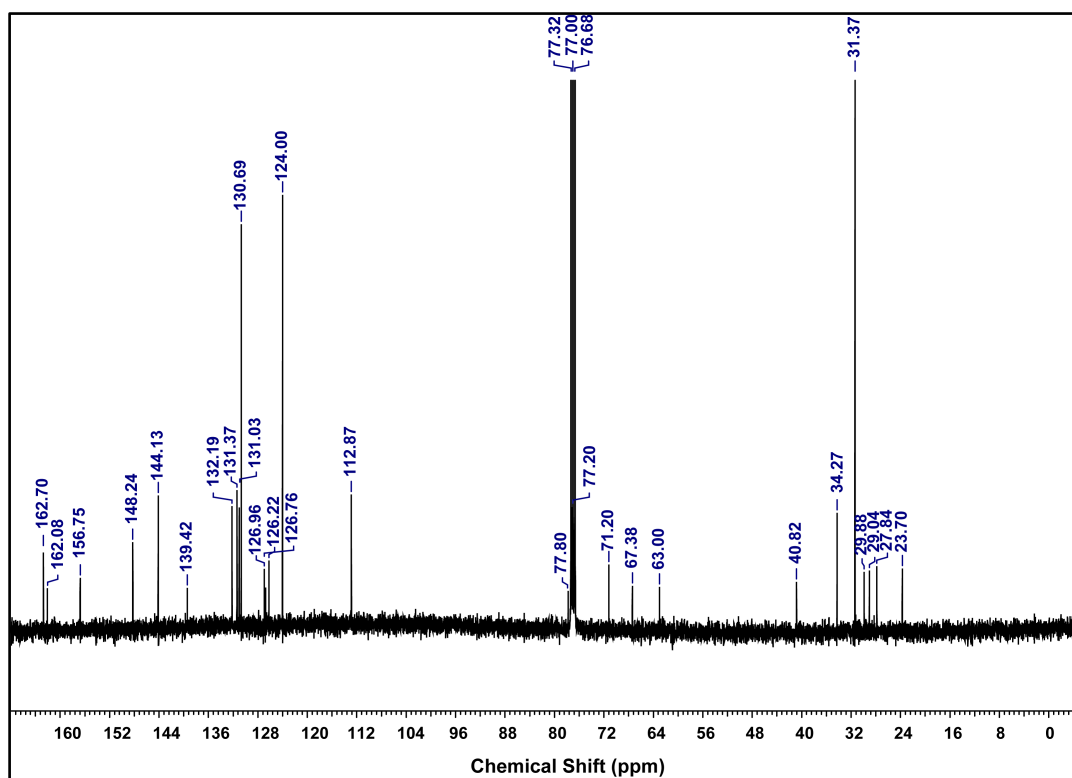


Figure S14. 100 MHz ^{13}C NMR spectrum of mono-stoppered NDI thread **9**

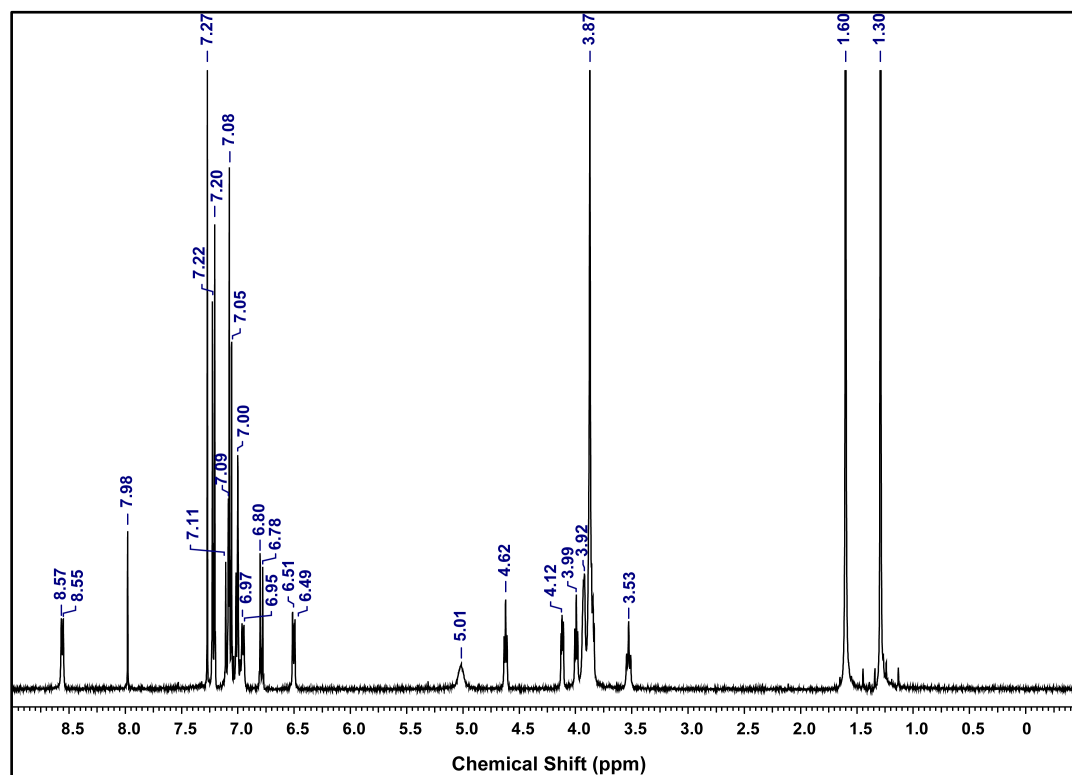


Figure S15. 400 MHz ^1H NMR spectrum of BIPY.2PF₆ rotaxane **11**

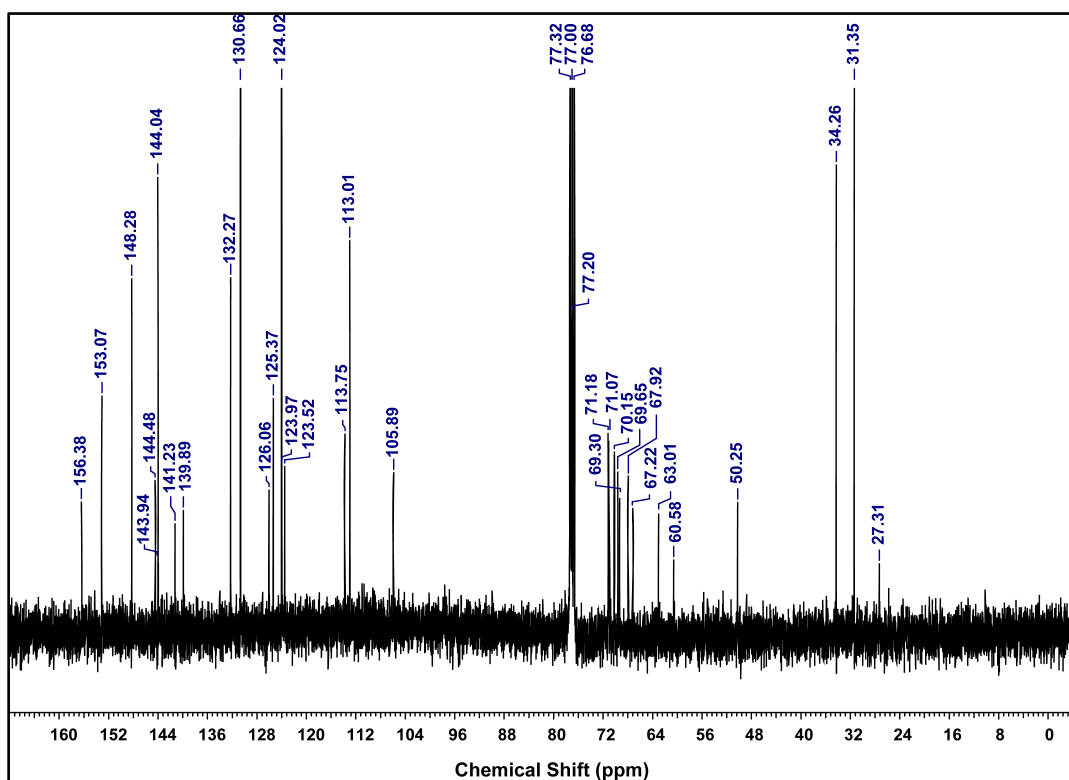


Figure S16. 100 MHz ¹³C NMR spectrum of spectrum of BIPY.2PF₆ rotaxane 11

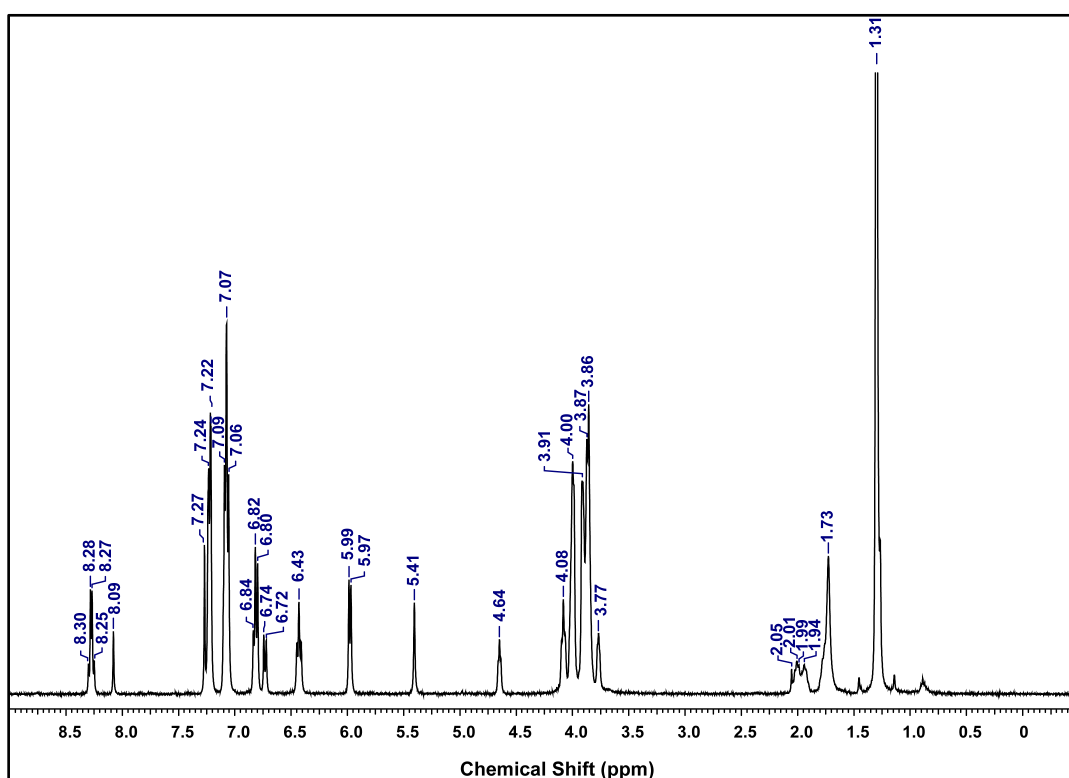


Figure S17. 400 MHz ¹H NMR spectrum of NDI rotaxane 12

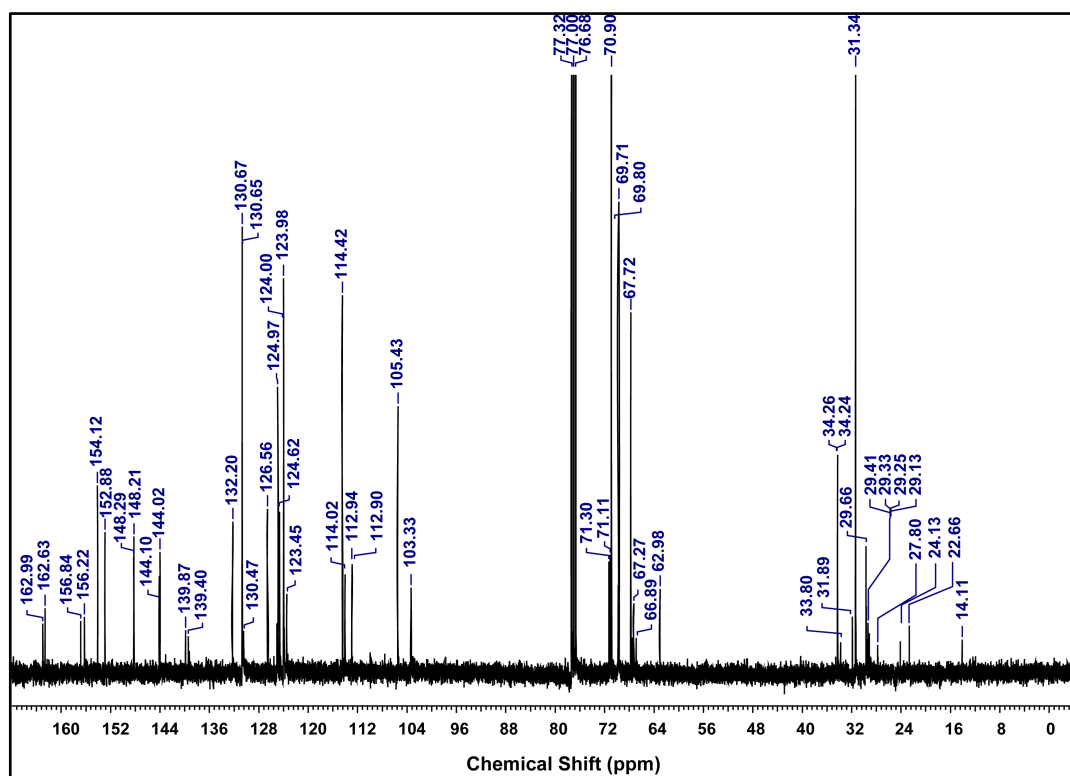


Figure S18. 100 MHz ¹³C NMR spectrum of spectrum of NDI rotaxane 12