Supporting Information

Tuning the Optical and Electrochemical Properties of Conjugated *all*-Thiophene Dendrimers via Core Functionalization with Benzothiadiazole Unit

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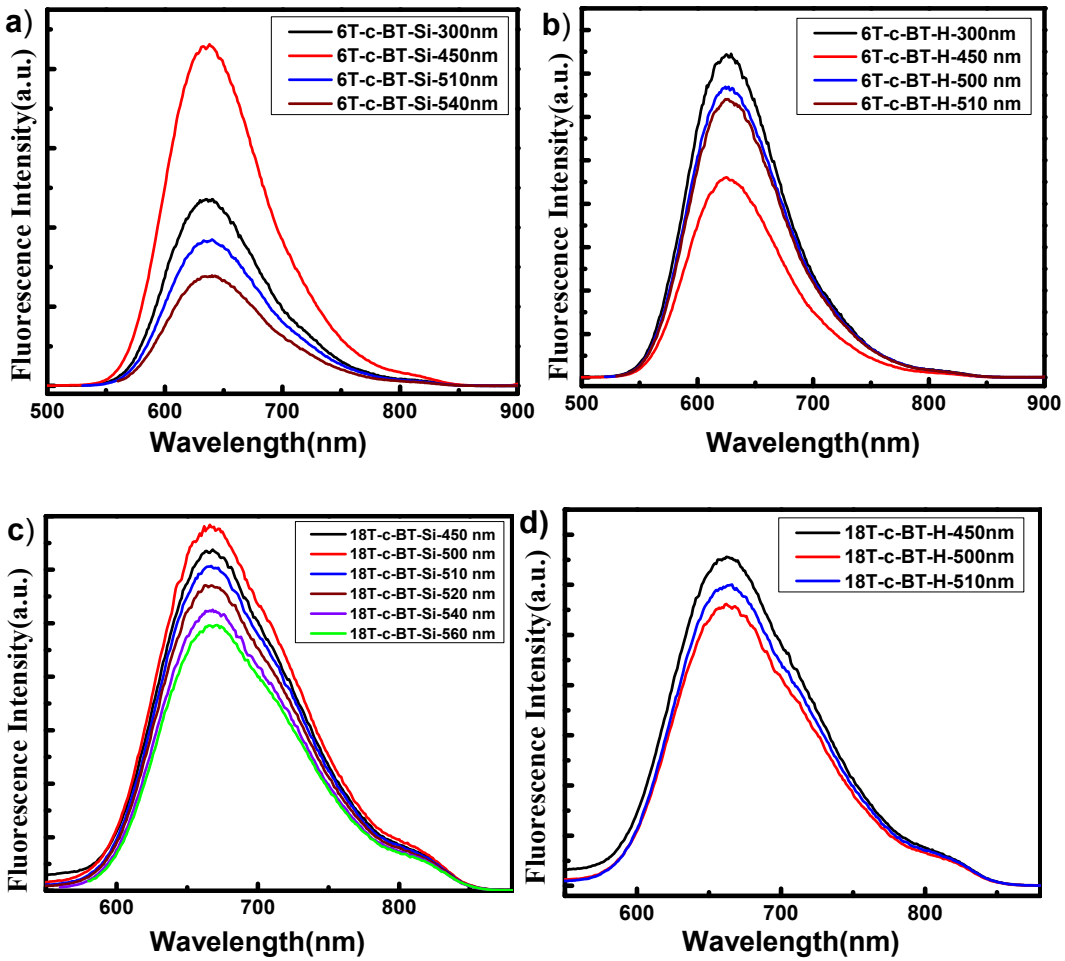


Figure S1. Emission spectra of DOT-c-BTs measured at different excitation wavelengths.

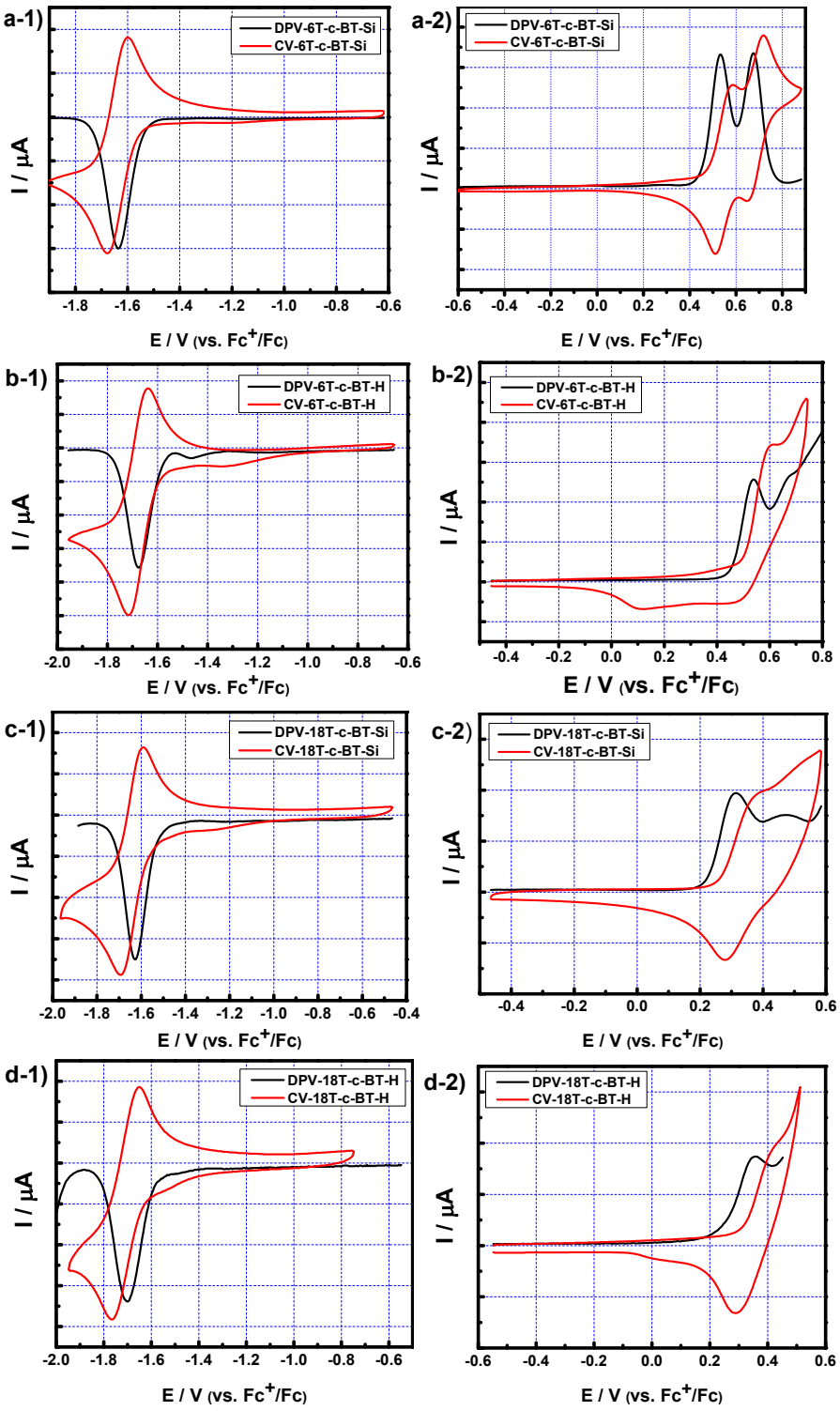


Figure S2. a, b, c) CV and DPV of 6T-c-BT-Si, 6T-c-BT-H, 18T-c-BT-Si at 1×10^{-3} mol·L^{-1} in CH_2Cl_2 $TBAPF_6$(0.1 M), room temperature, V = 100 mv·S^{-1}; d) CV and DPV of 18T-c-BT-H at 1×10^{-3} mol·L^{-1} in o-dichlorobenzene, room temperature, $TBAPF_6$(0.1 M), V = 100 mv·S^{-1}.

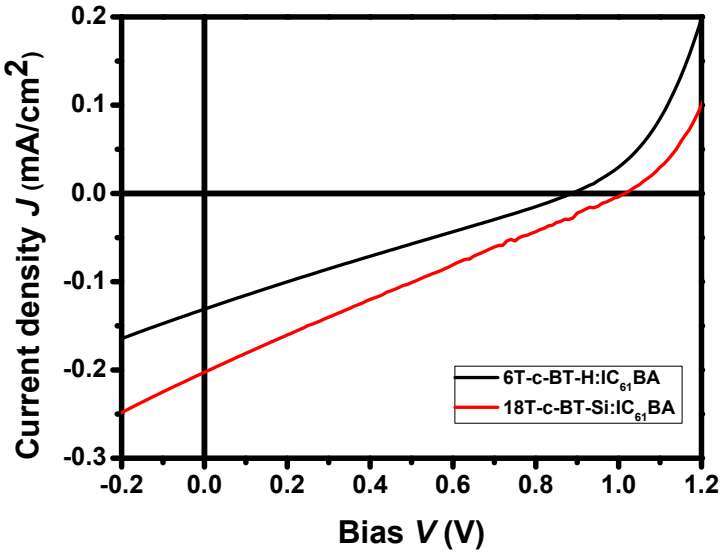


Figure S3. *J-V* curves of the optimized **DOT-c-BT**: $IC_{61}BA$ based BHJ solar cells illuminated under standard AM1.5G conditions (100 mW cm^{-2})

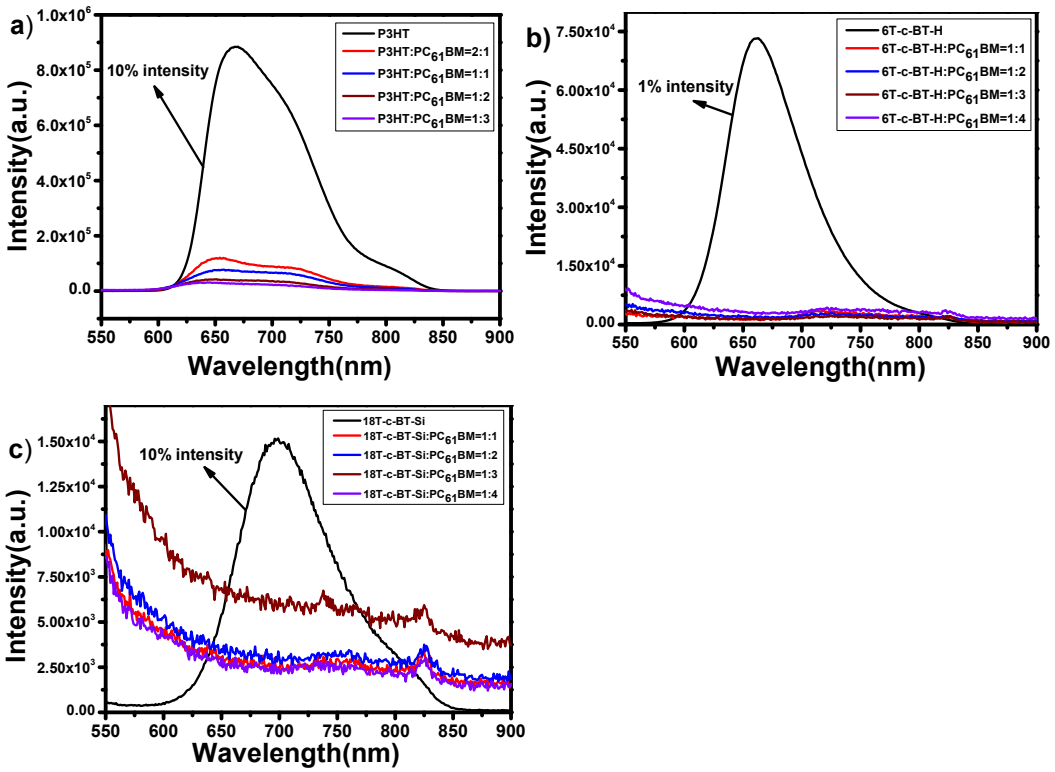
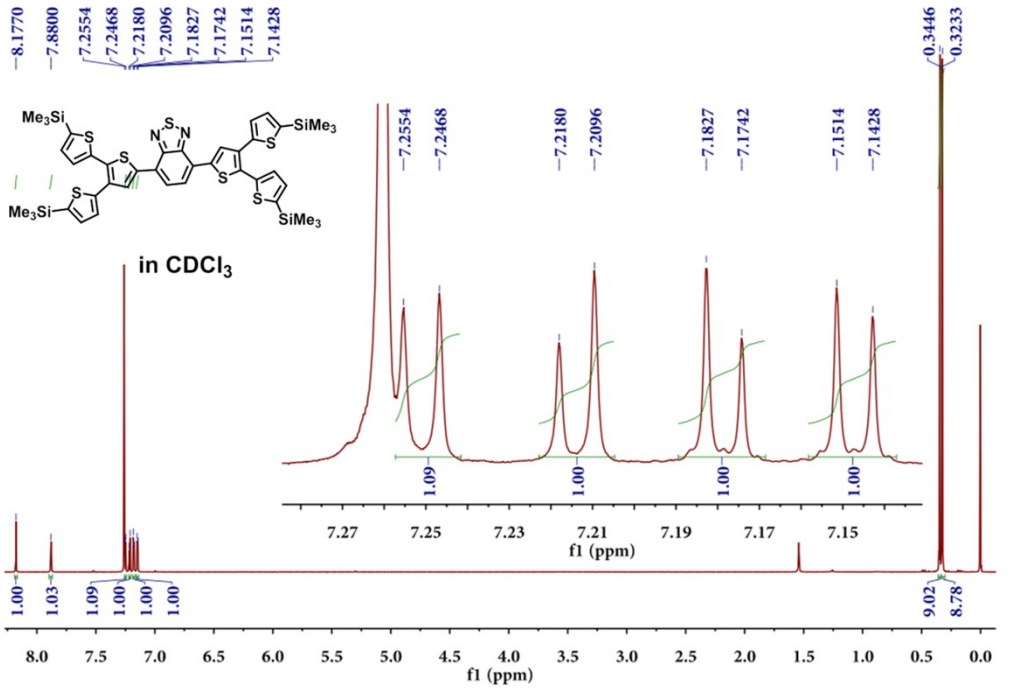
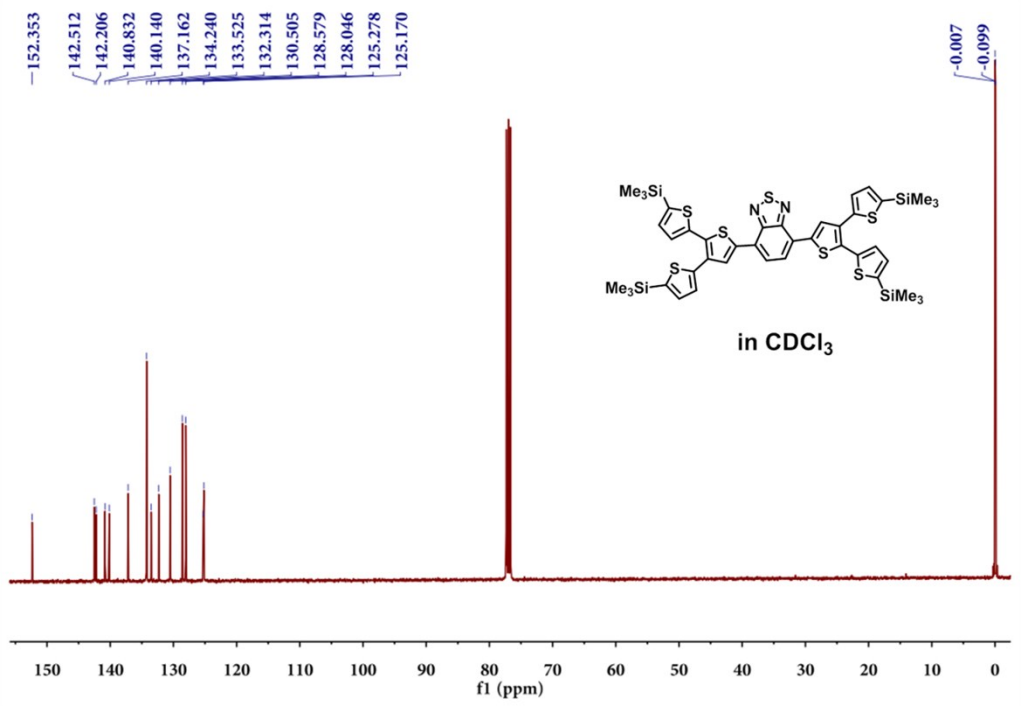


Figure S4. a) Emission spectrum of pure P3HT, and in the presence of $PC_{61}BM$ at different P3HT:$PC_{61}BM$ weight ratio; b) Emission spectrum of pure 6T-c-BT-H, and in the presence of $PC_{61}BM$ at different 6T-c-BT-H:$PC_{61}BM$ weight ratio; b) Emission spectrum of pure 18T-c-BT-Si, and in the presence of $PC_{61}BM$ at different 18T-c-BT-Si:$PC_{61}BM$ weight ratio.

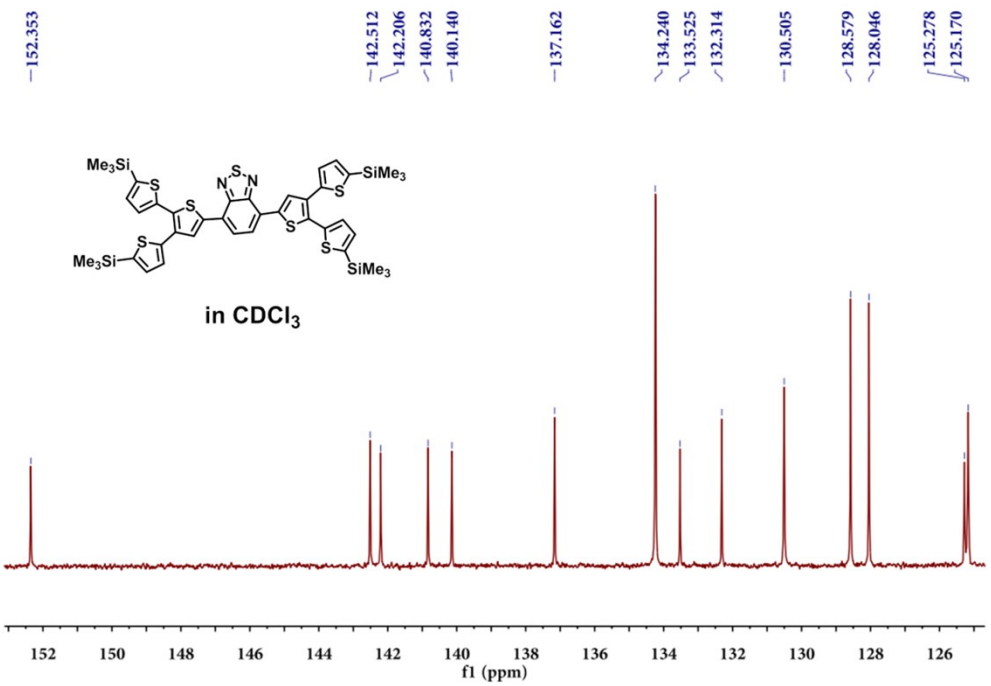
Experimental Section



^{1}H NMR of **6T-c-BT-Si**



^{13}C NMR of **6T-c-BT-Si**



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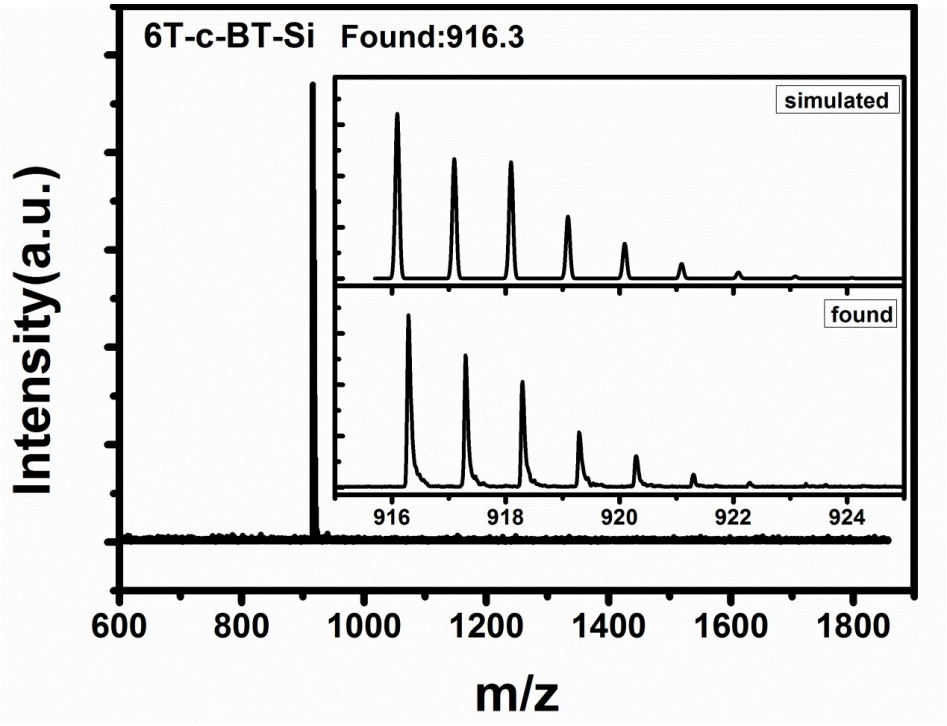
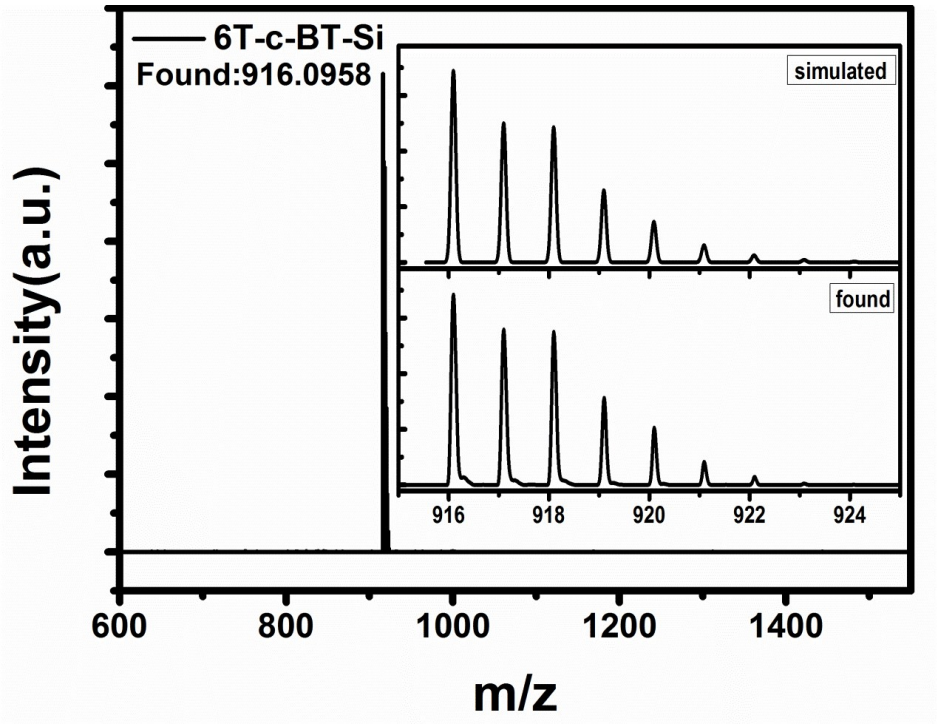


MALDI-TOF MS of **6T-c-BT-Si**



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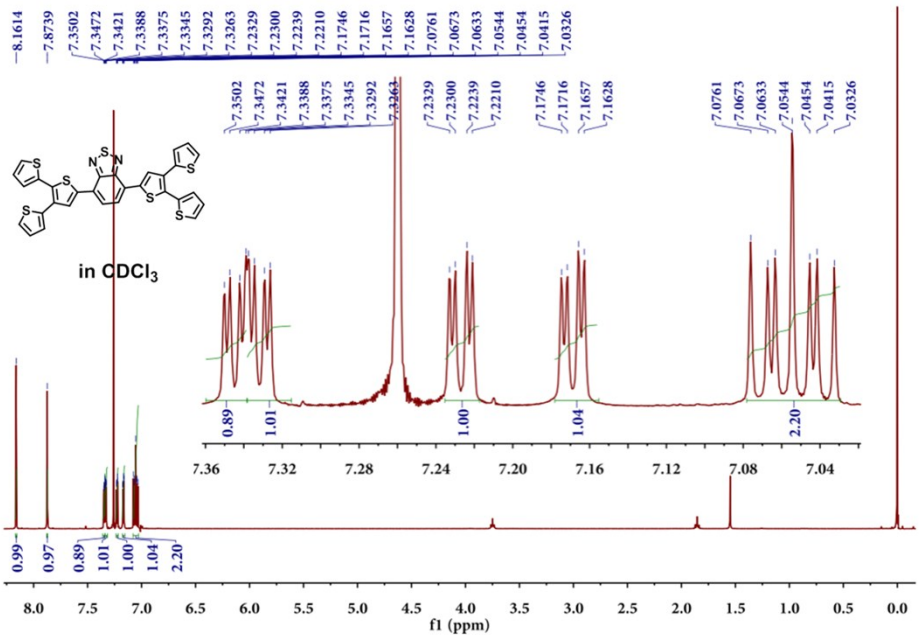
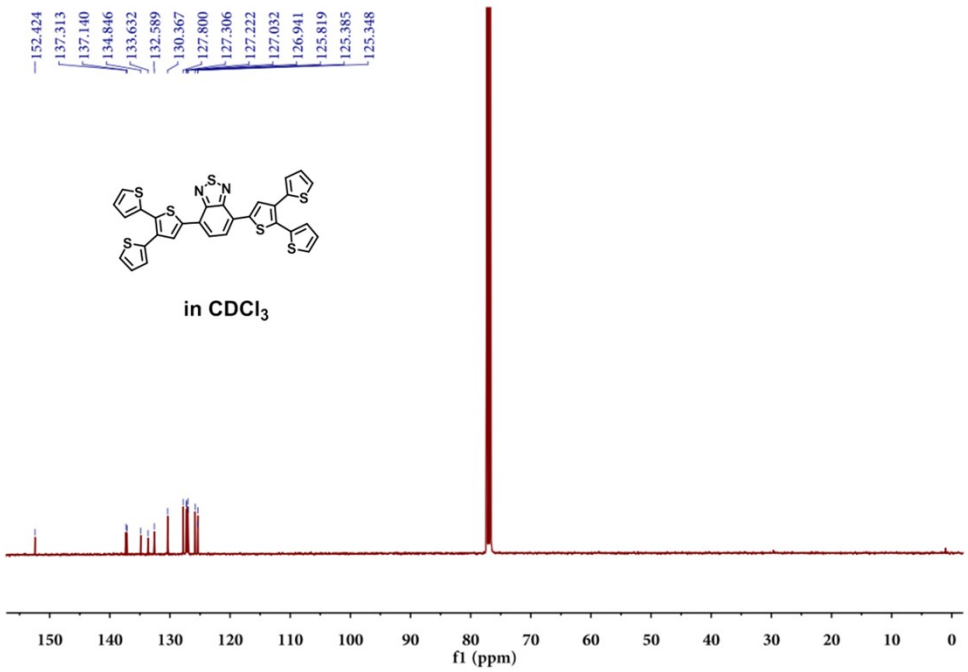


^{1}H NMR of **6T-c-BT-H**



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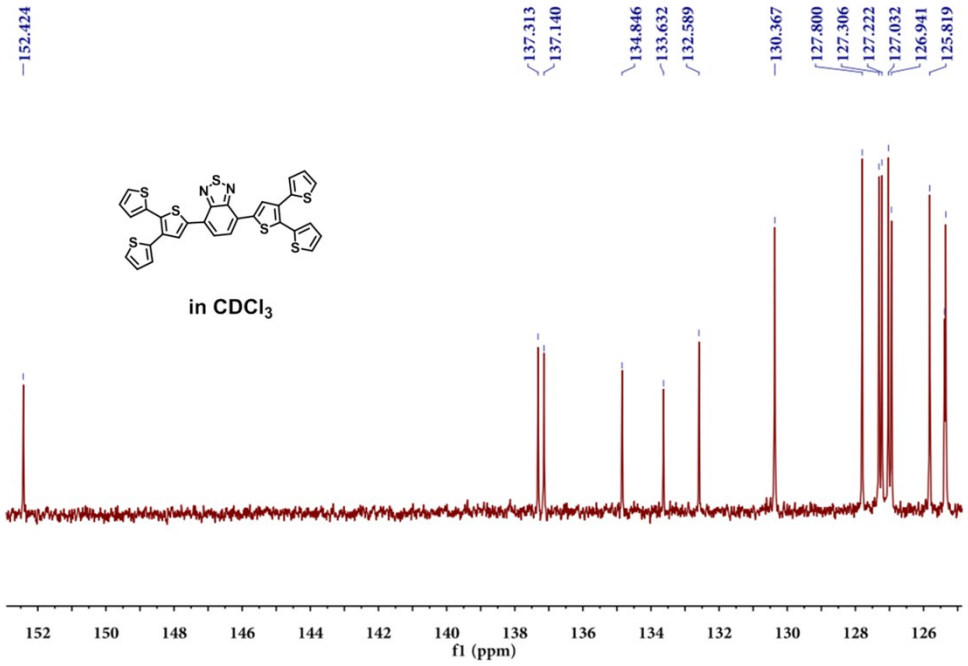
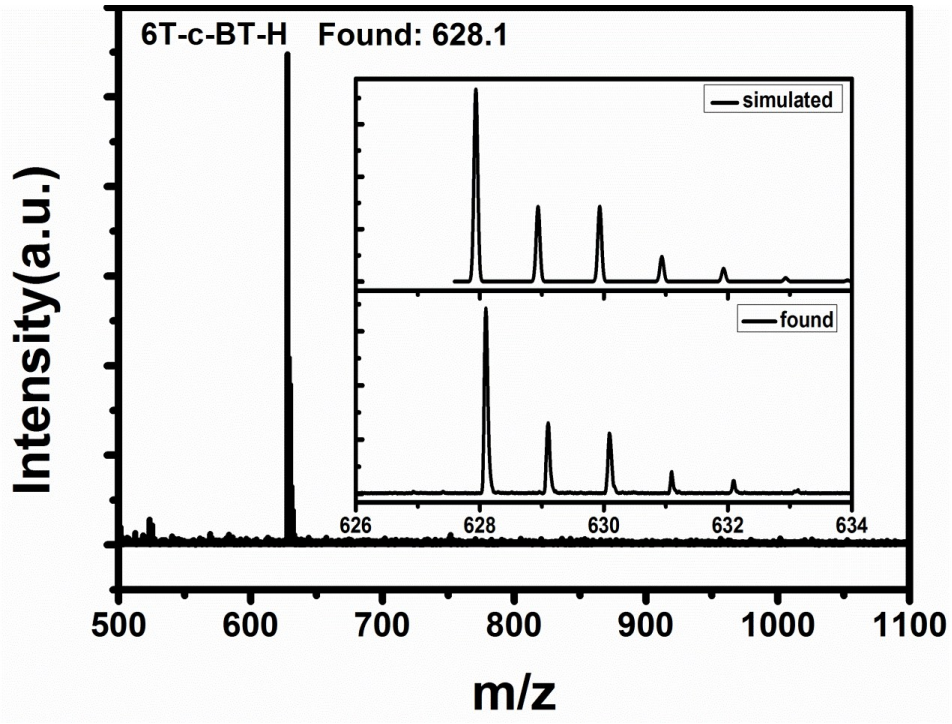


^{13}C NMR of **6T-c-BT-H**



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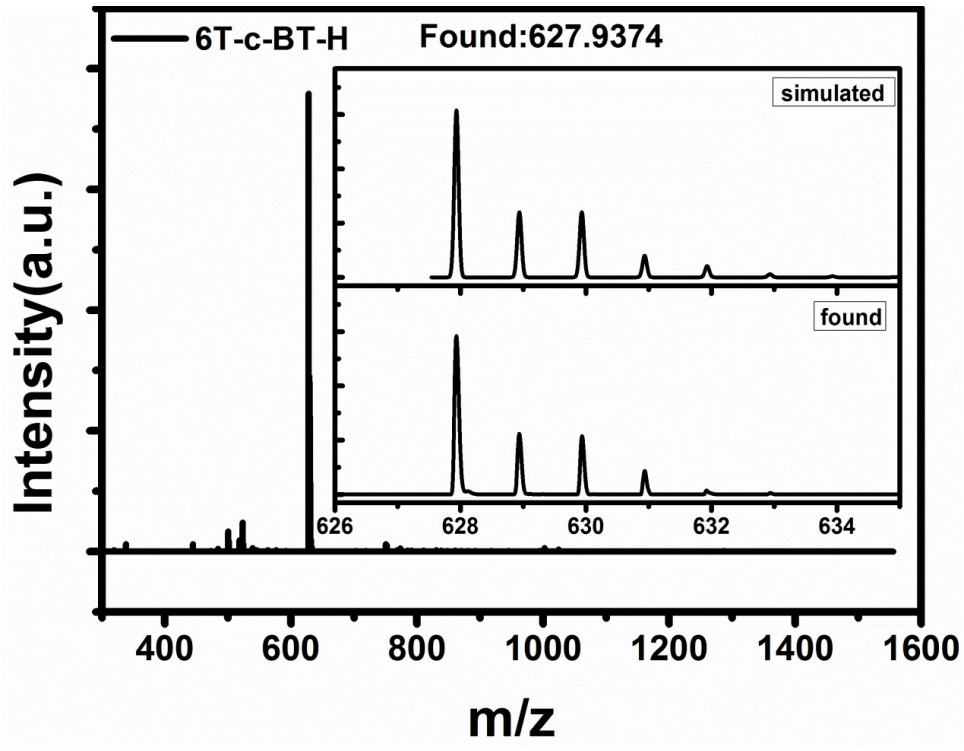

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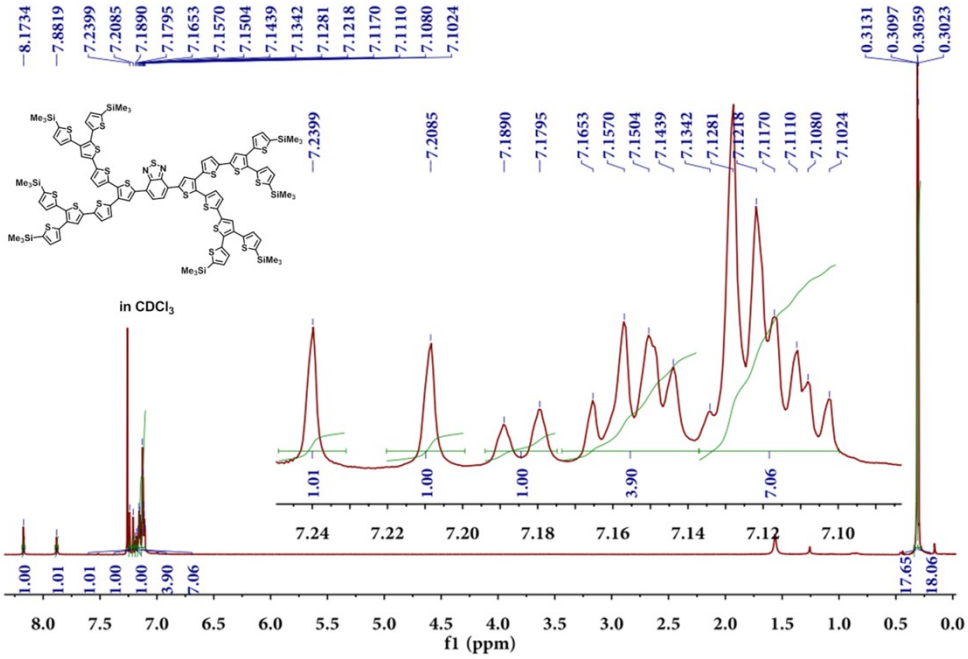

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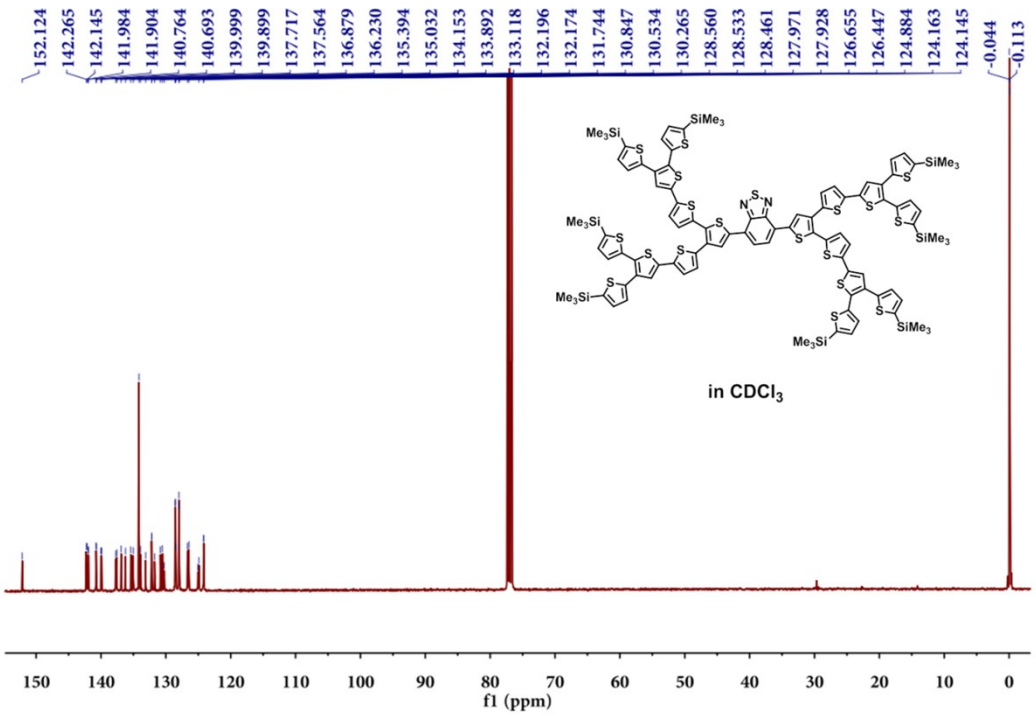

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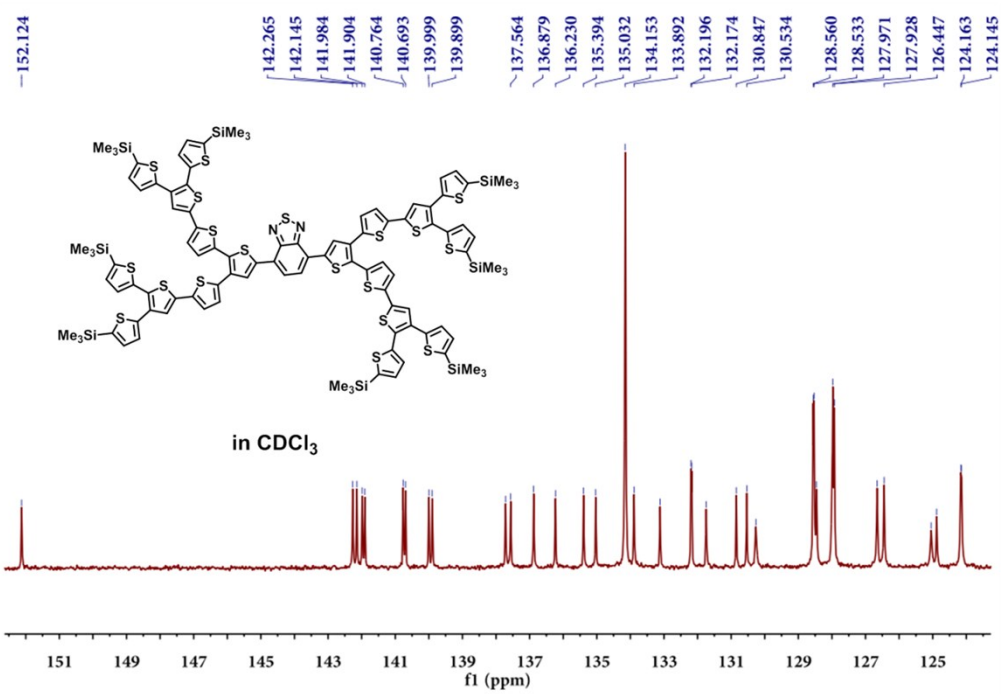

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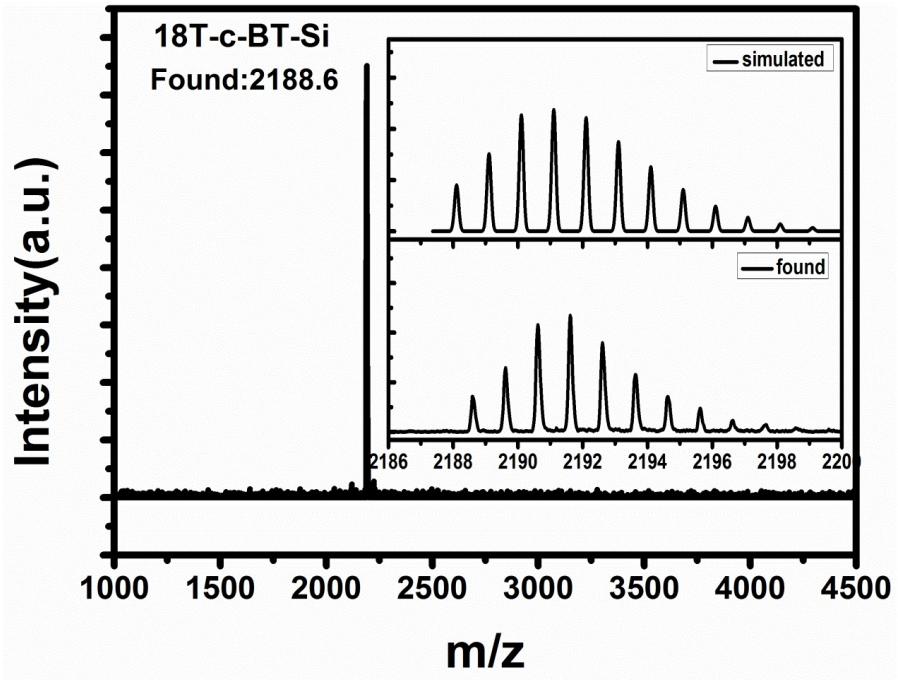

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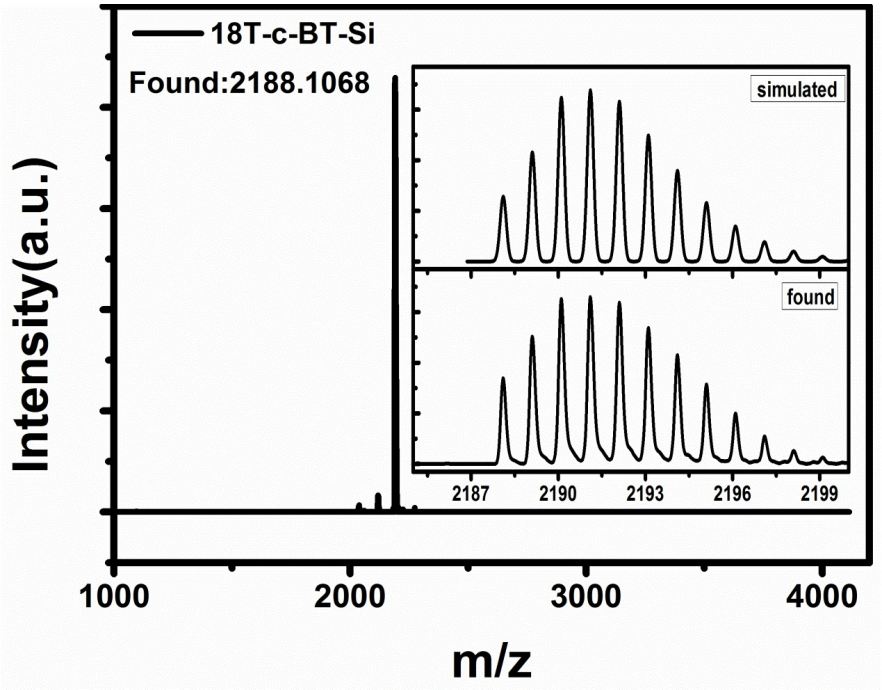

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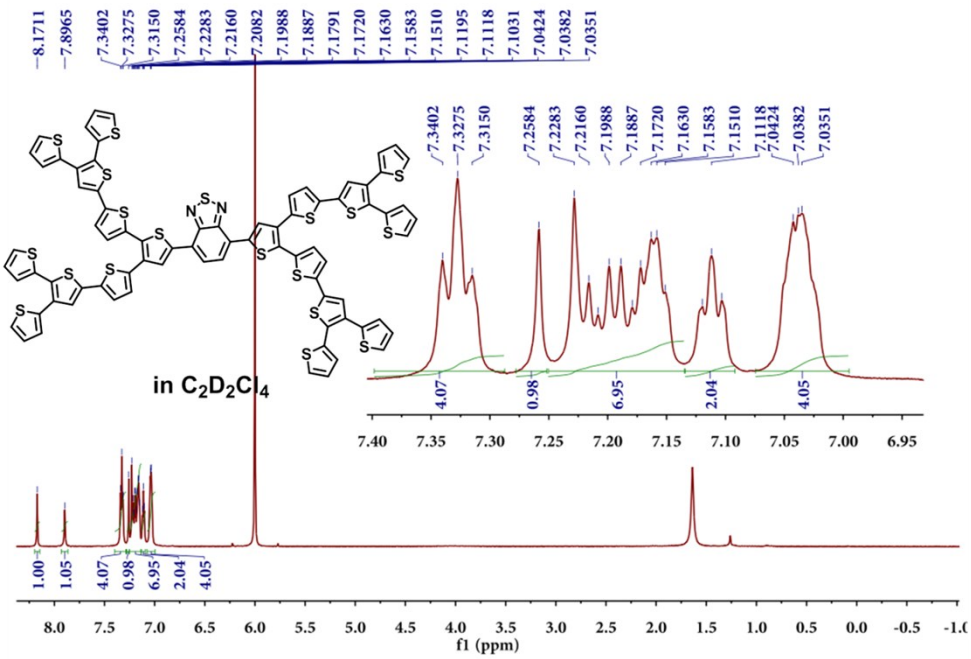

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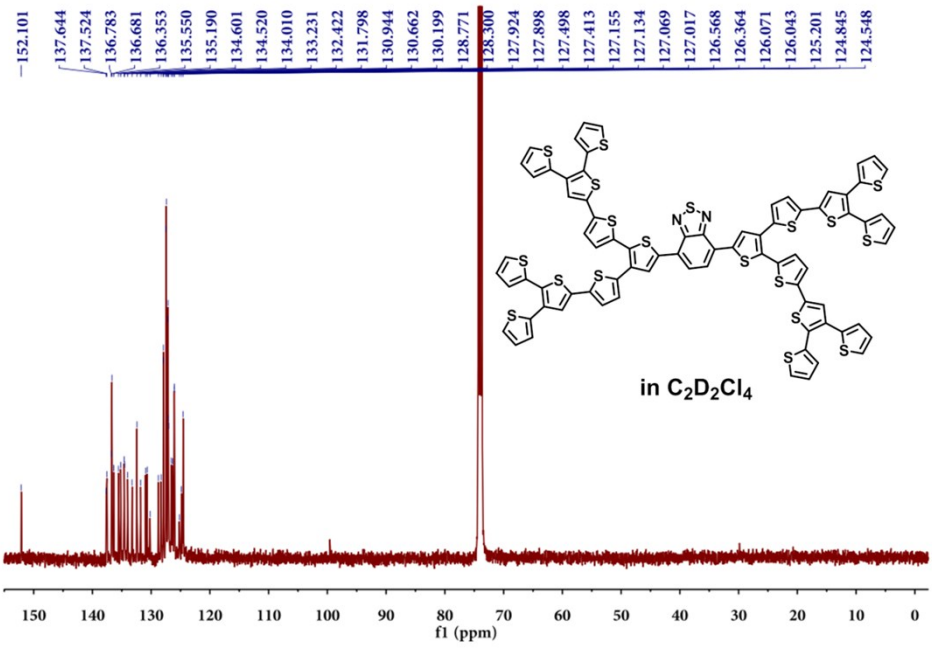

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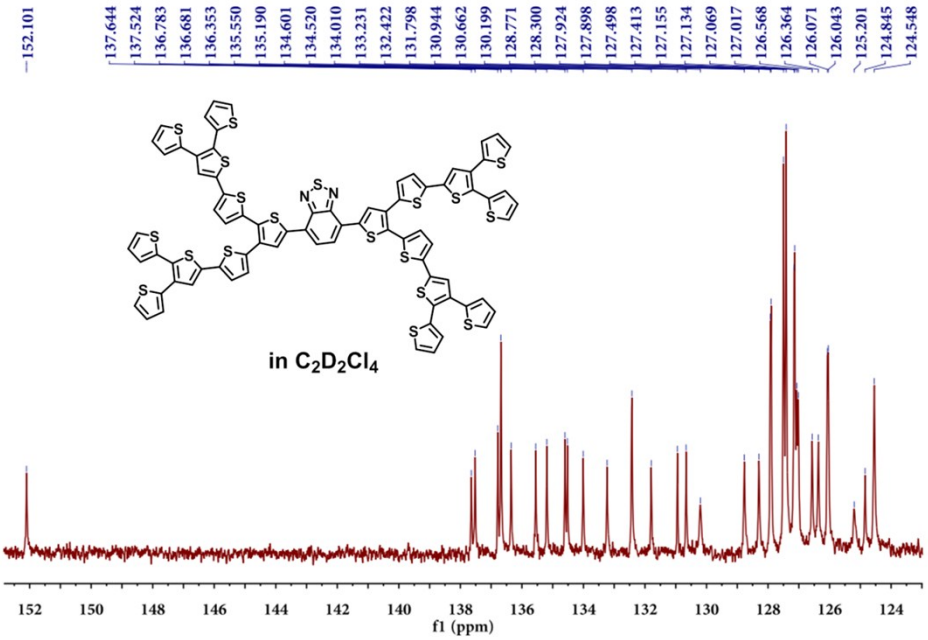

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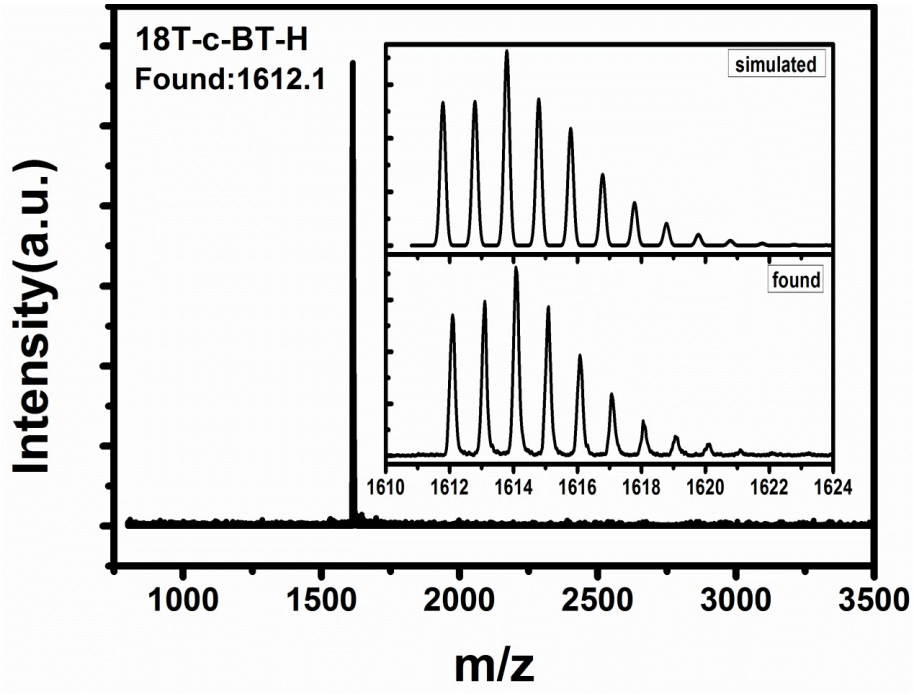
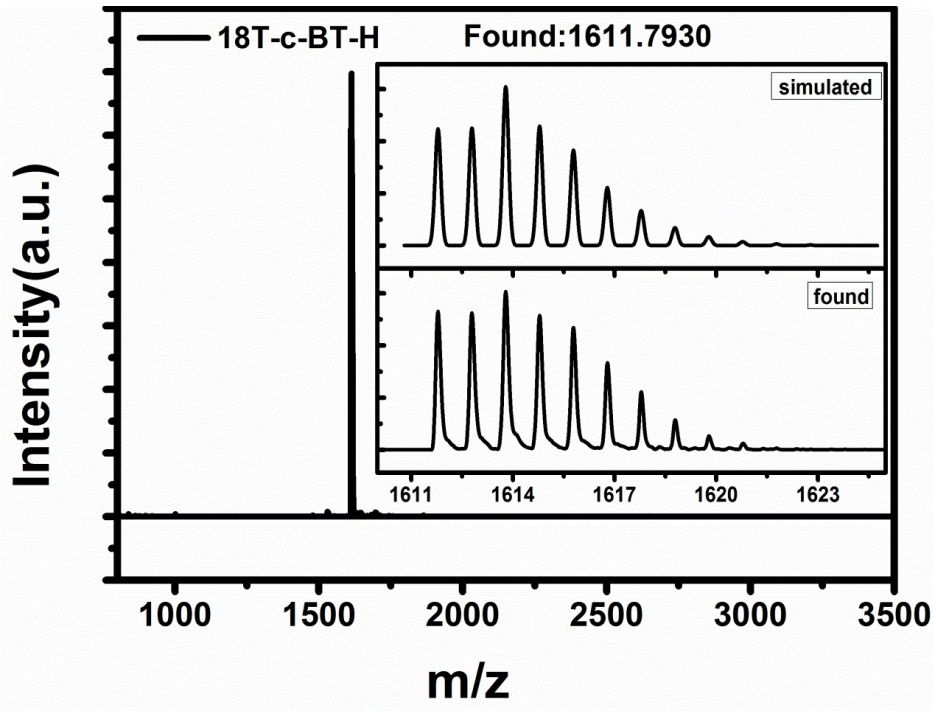


MALDI-TOF MS of **18T-c-BT-H**



HR MS of **18T-c-BT-H**