

Electronic Supplementary information (ESI)

## Novel high band gap pendant-borylated carbazole polymers with deep HOMO level through direct $^+N=B^-$ interaction for organic photovoltaics

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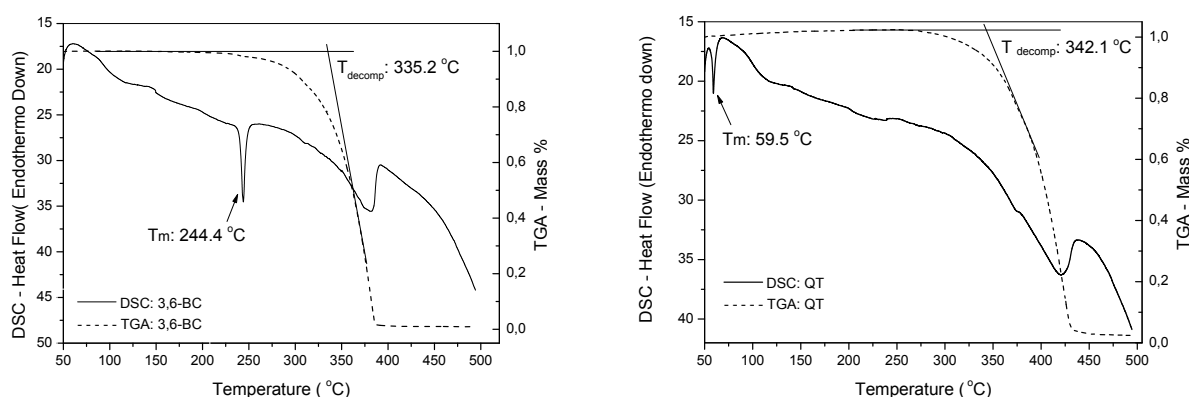
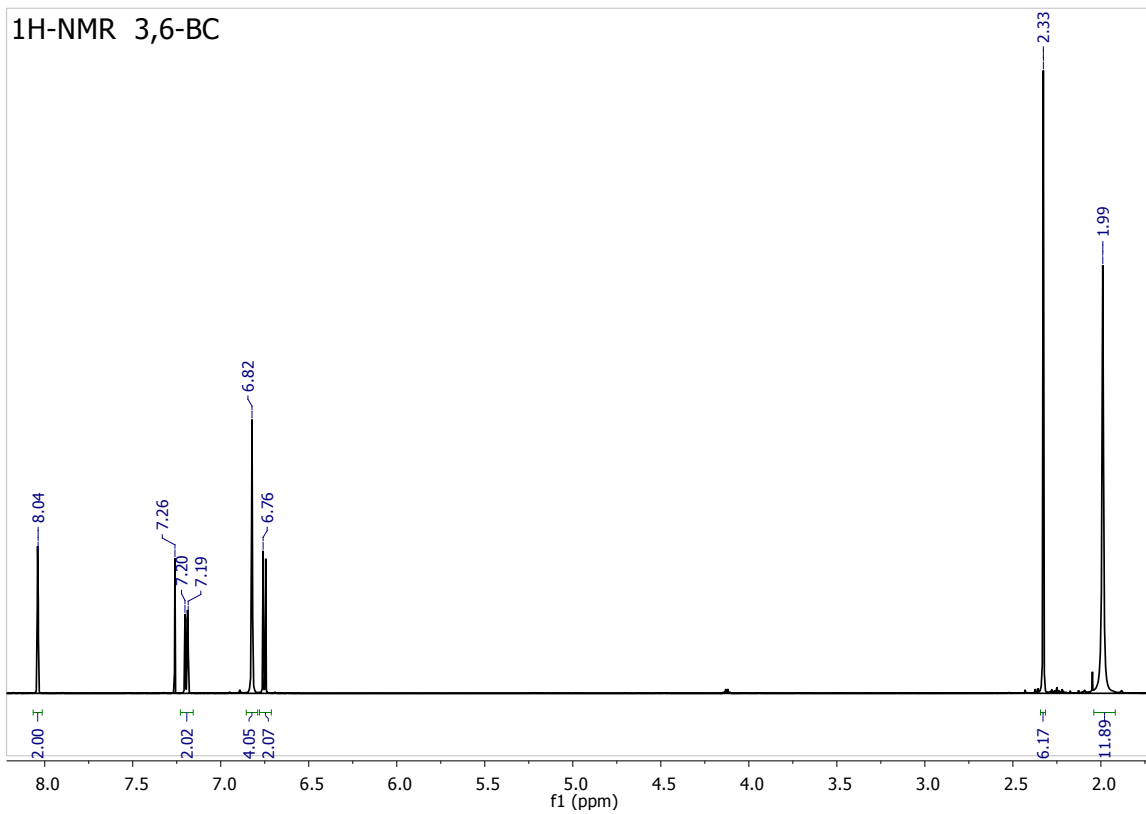
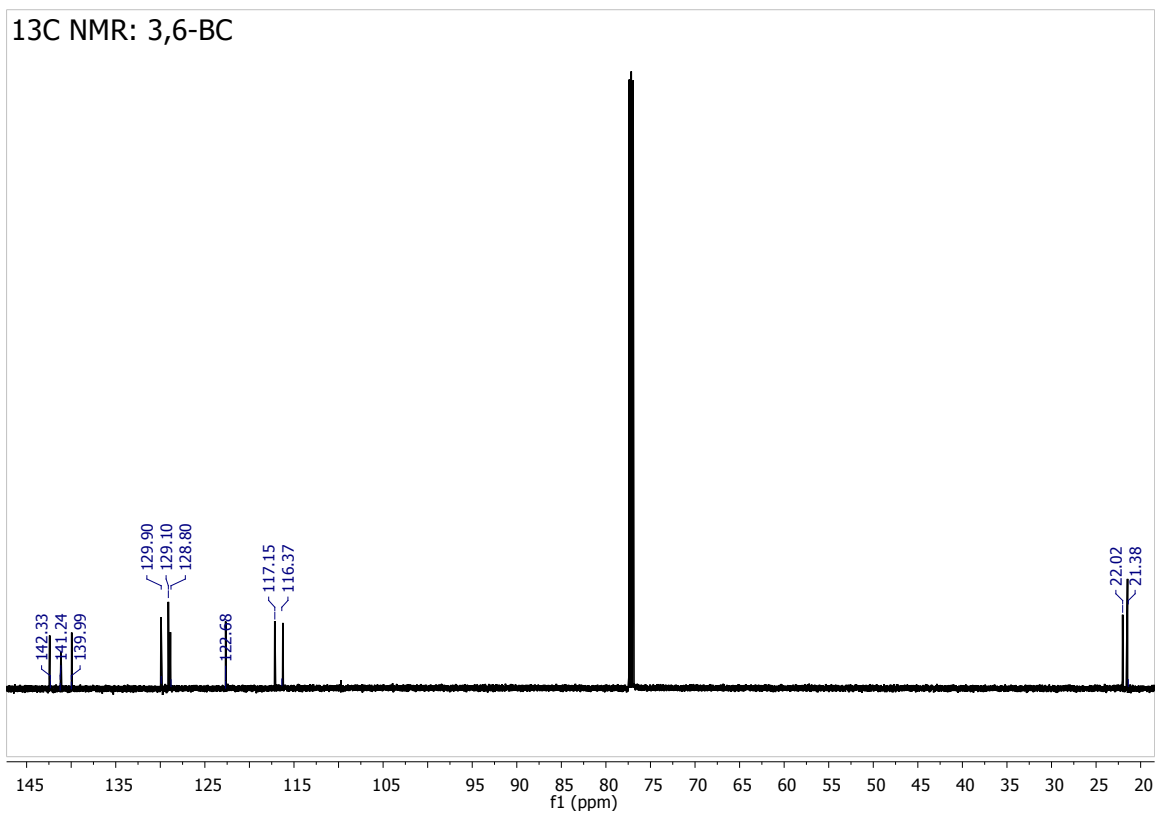


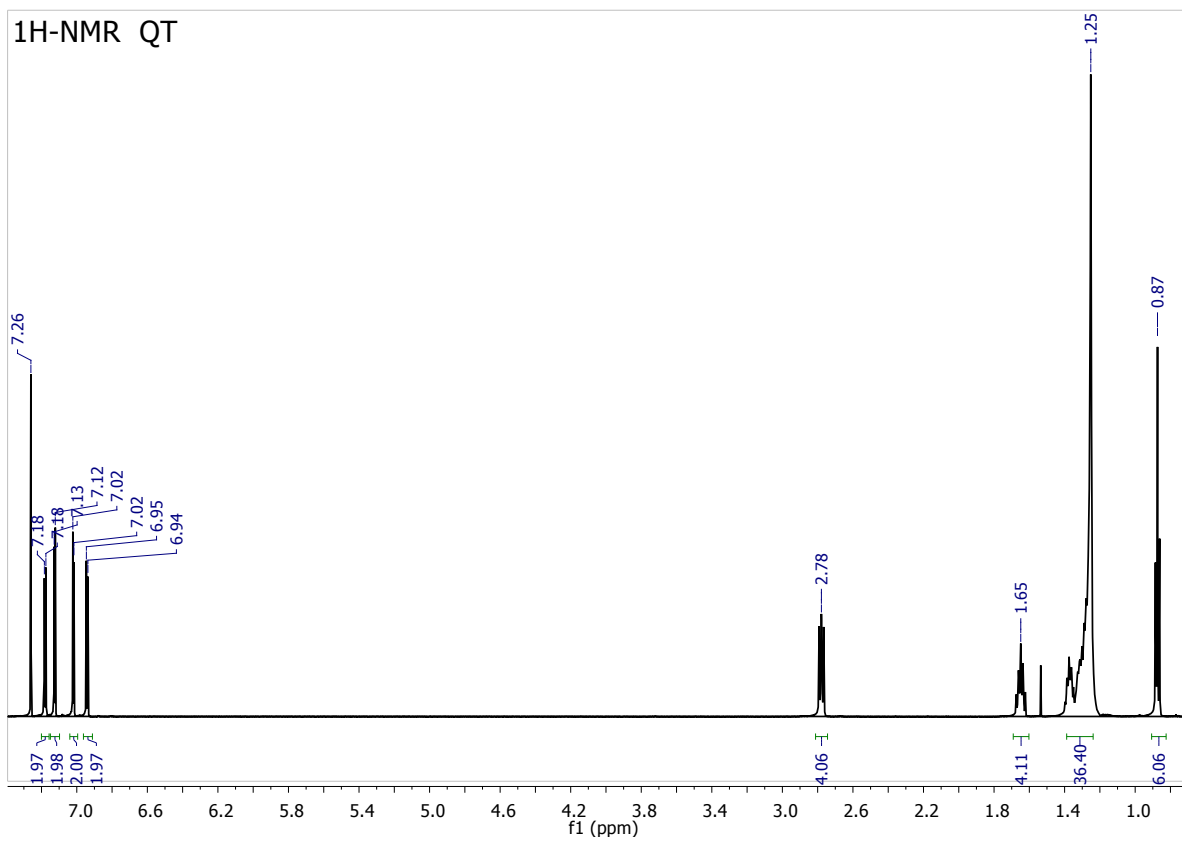
Figure S1. Differential scanning calorimetry (DSC) and thermal gravimetric analysis (TGA) of 3,6-BC (left) and QT (right), scanned with a heating rate  $10\text{ }^\circ\text{C min}^{-1}$  under a nitrogen atmosphere.



(a)

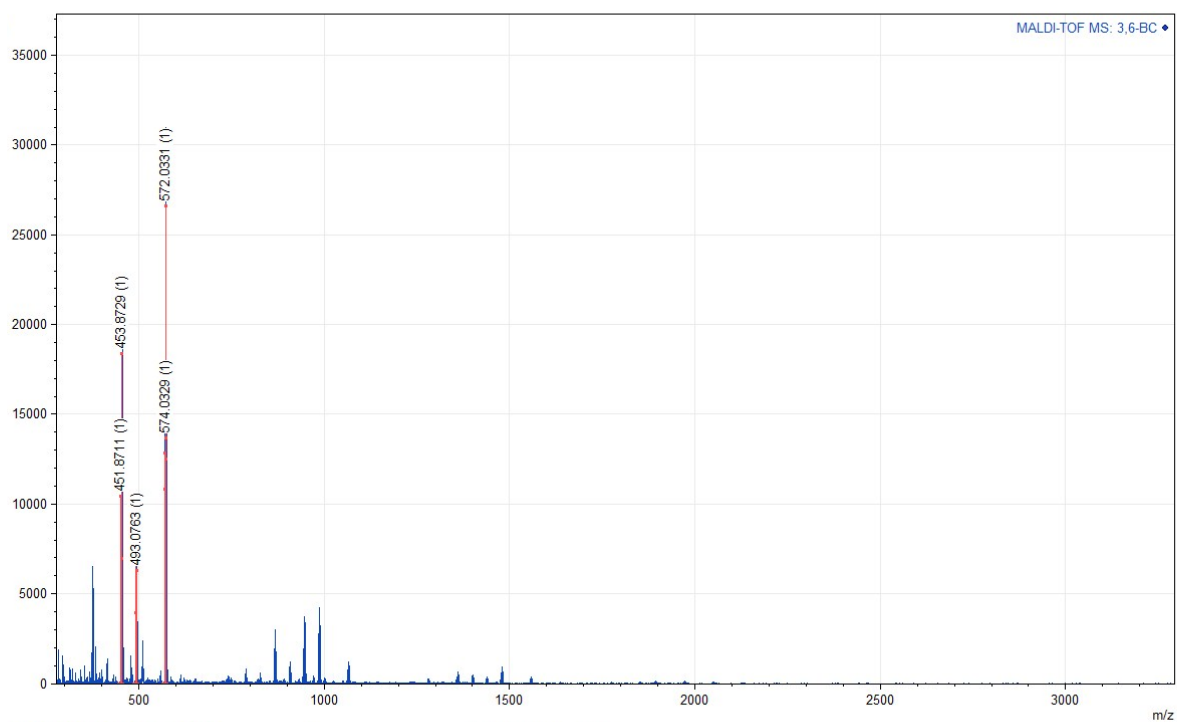


(b)

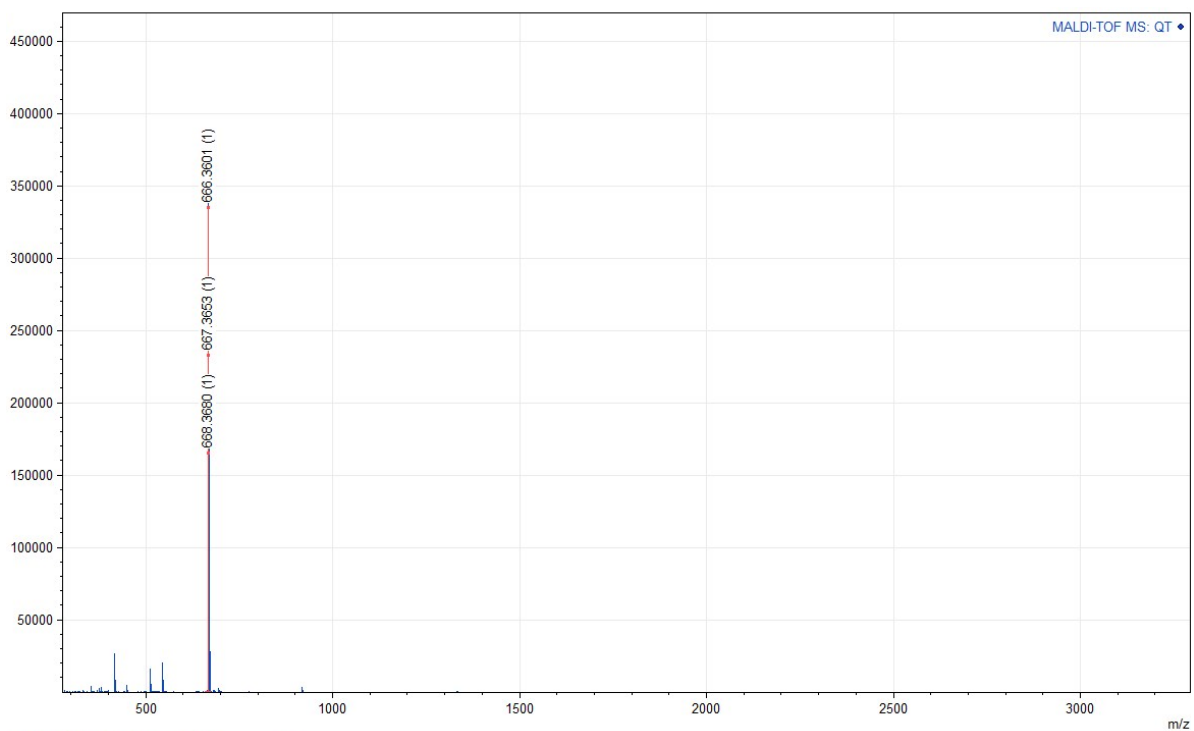


(c)

Figure S2.  $^1\text{H}$ -, and  $^{13}\text{C}$ - NMR spectra of monomers: (a).  $^1\text{H}$  spectrum of 3,6-BC; (b).  $^{13}\text{C}$  spectrum of 3,6-BC; (c)  $^1\text{H}$  spectrum of QT



(a)



(b)

Figure S3. MALDI-TOF MS spectra of 3,6-BC (a) and QT (b)

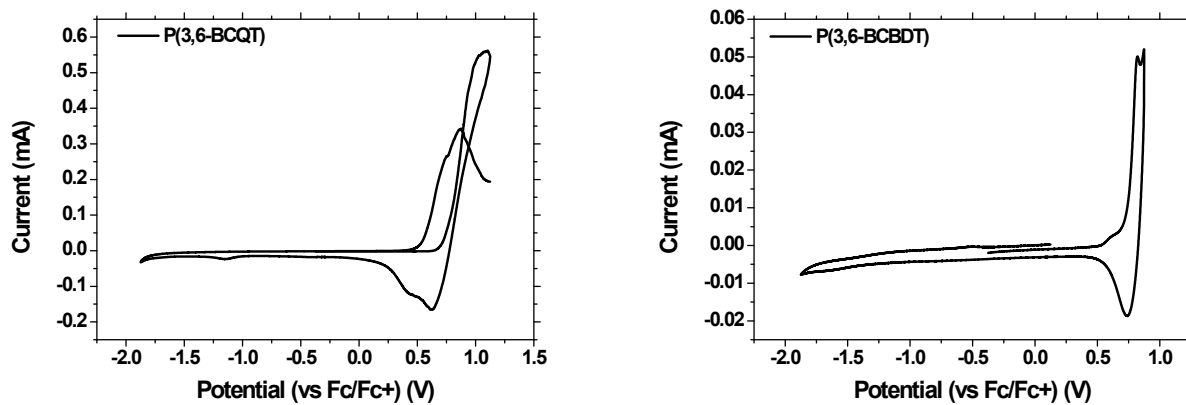


Figure S4: Cyclicvoltammograms of dropcasted films of P(3,6-BCQT) (left) and P(3,6-BCBDT) (right) with TBAPF<sub>6</sub> (0.1M in acetonitrile) at a scan rate of 100 mV s<sup>-1</sup>