

Supplementary Materials

Functionalization of graphene by π – π stacking with $C_{60}/C_{70}/Sc_3N@C_{80}$ fullerene derivatives for supercapacitor electrode materials

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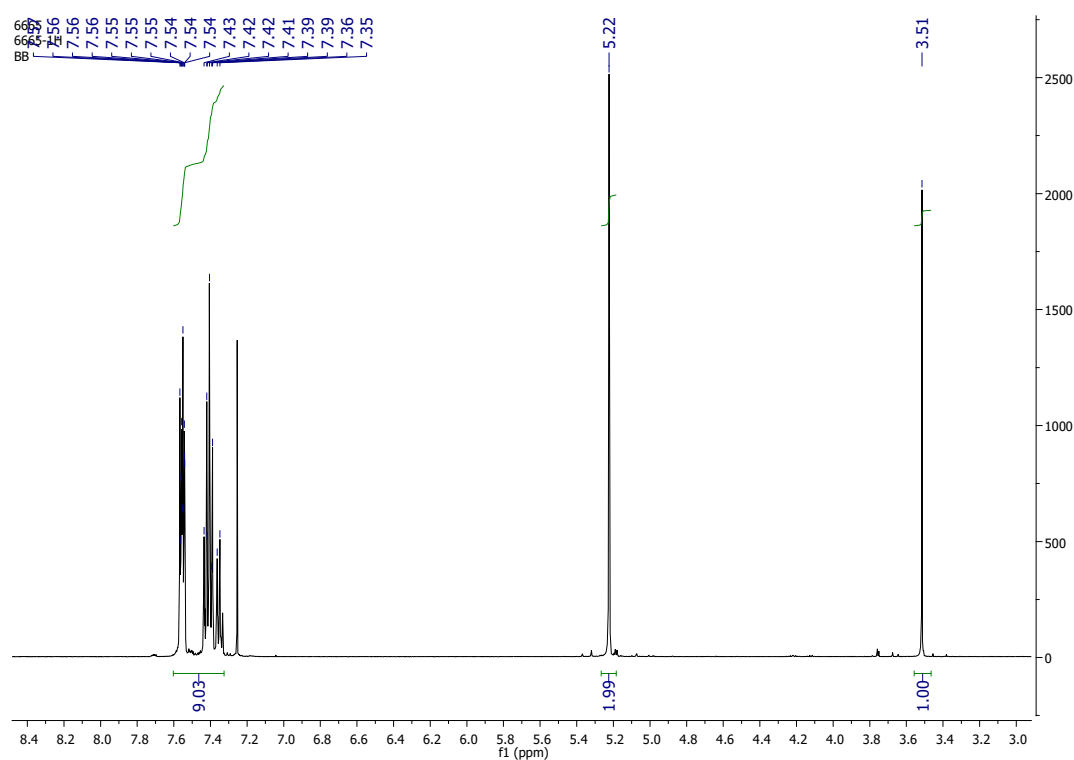


Figure S1. ¹H NMR spectrum of bis([1,1'-biphenyl]-4-ylmethyl) malonate (BB).

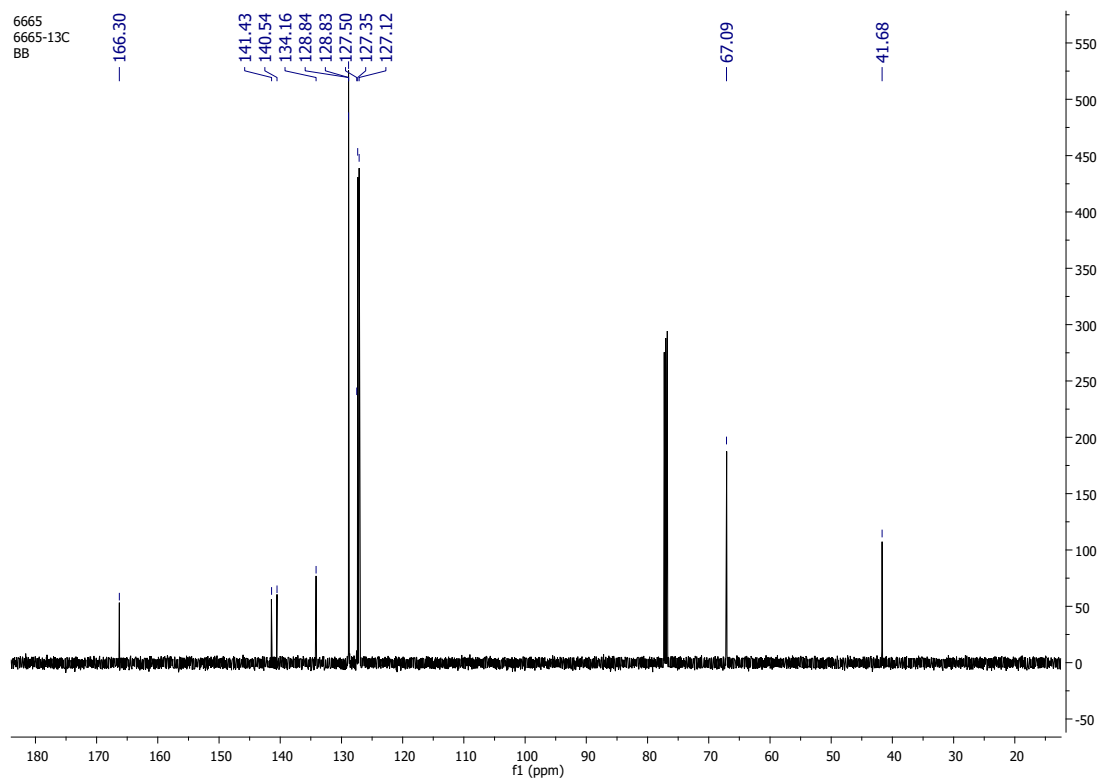


Figure S2. ^{13}C NMR spectrum of bis([1,1'-biphenyl]-4-ylmethyl) malonate (BB).

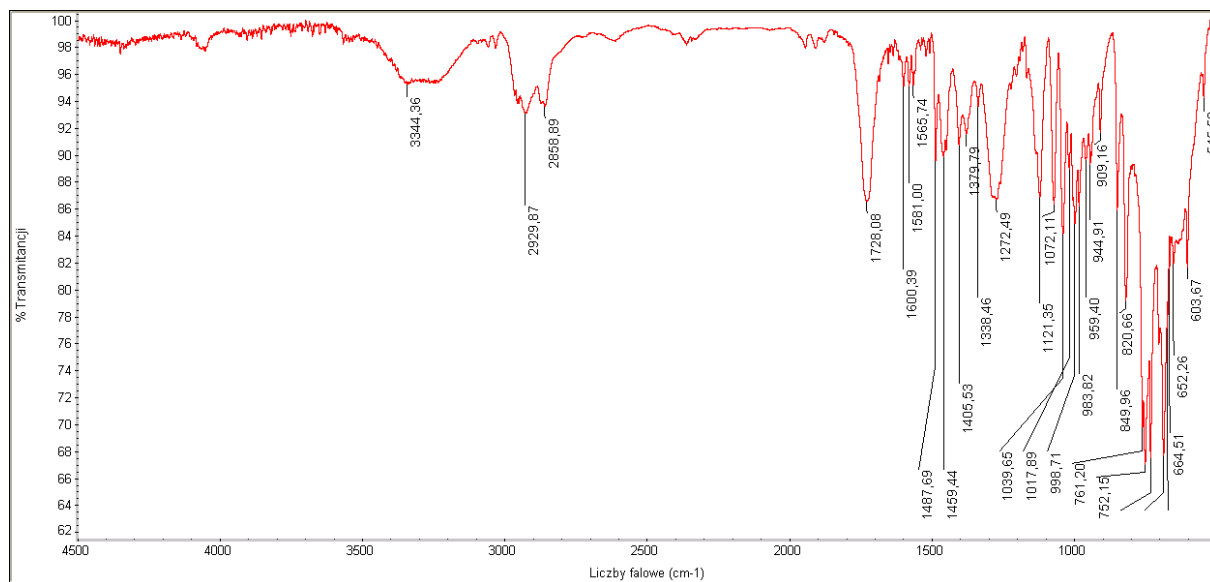


Figure S3. FT-IR spectrum of bis([1,1'-biphenyl]-4-ylmethyl) malonate (BB).

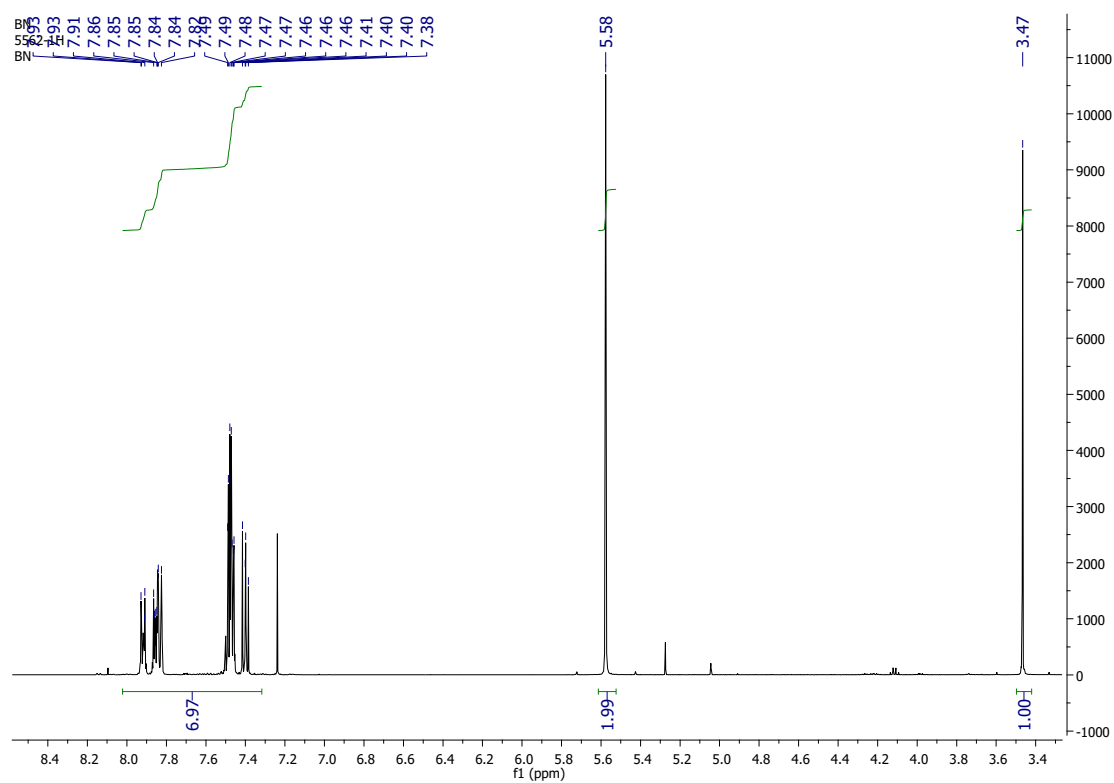


Figure S4. ¹H NMR spectrum of bis(naphthalen-1-ylmethyl) malonate (BN).

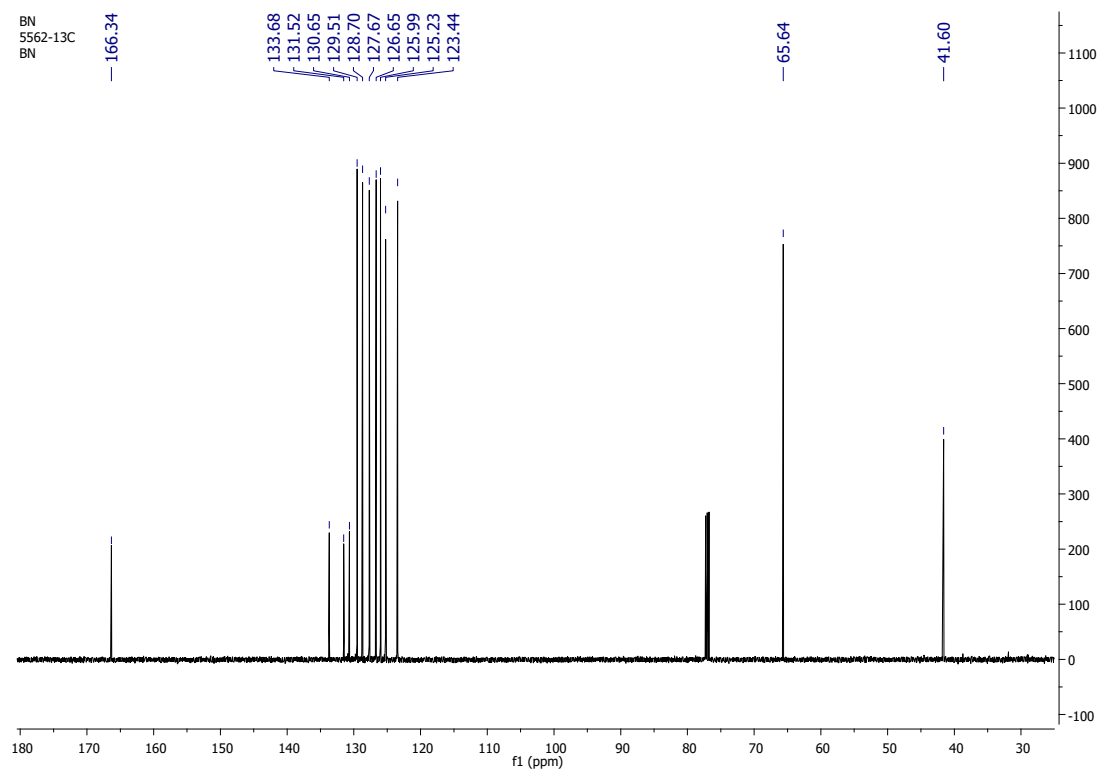


Figure S5. ¹³C NMR spectrum of bis(naphthalen-1-ylmethyl) malonate (BN).

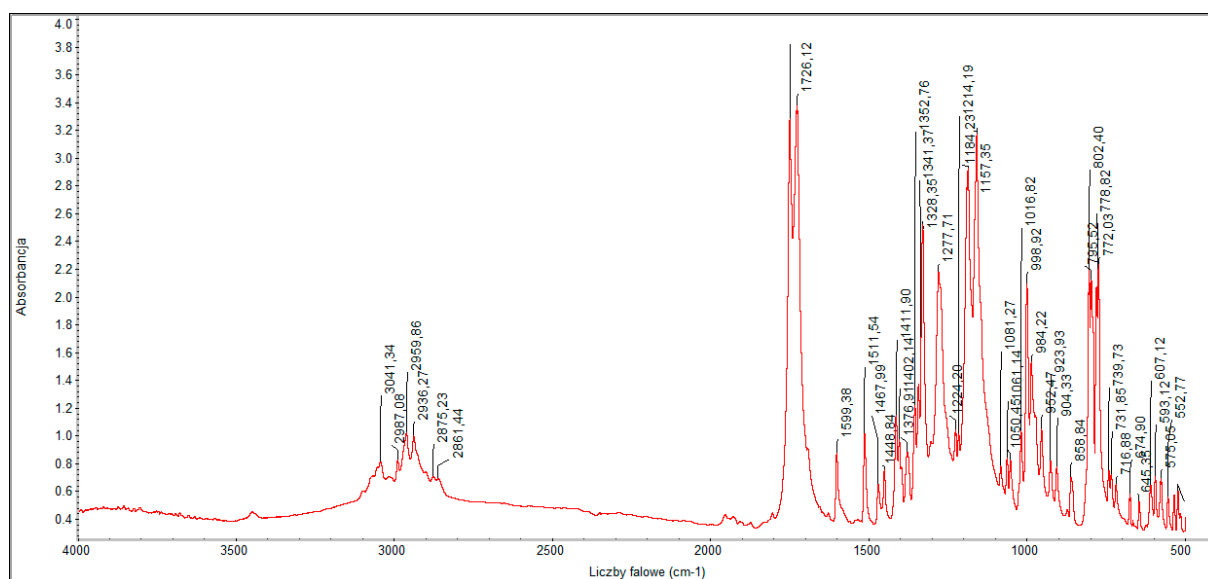


Figure S6. FT-IR spectrum of bis(naphthalen-1-ylmethyl) malonate (BN).

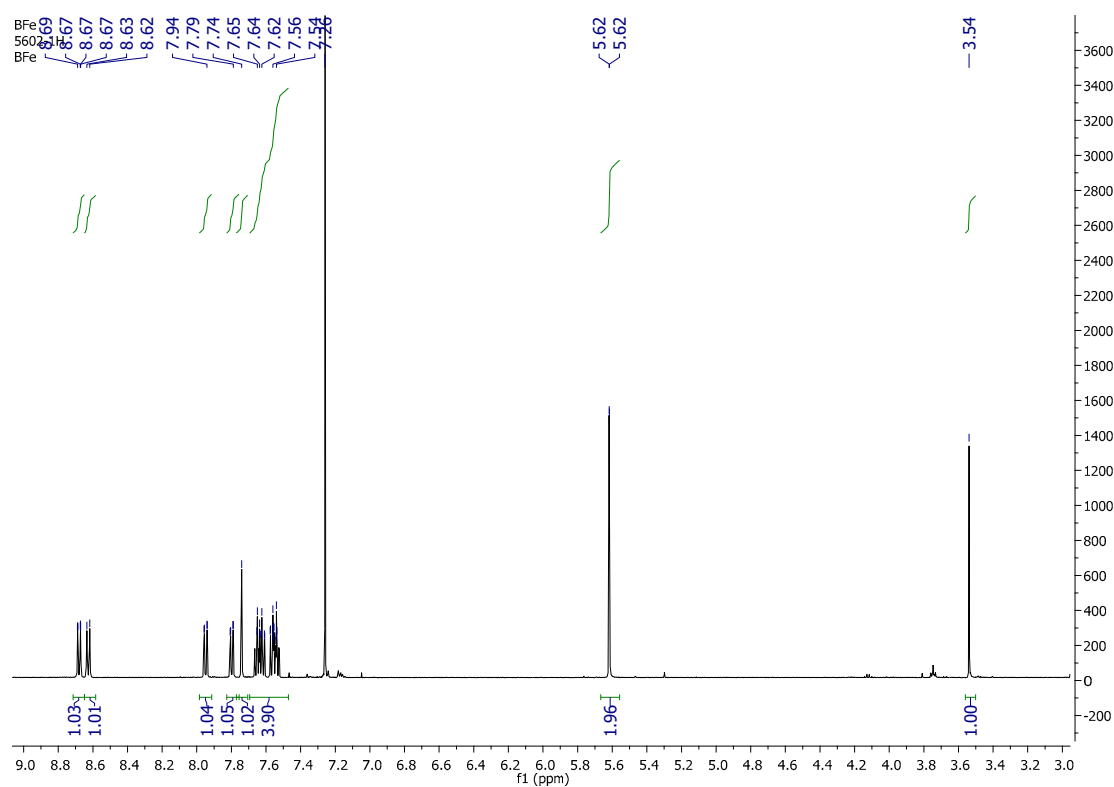


Figure S7. ¹H NMR spectrum of bis(phenanthren-9-ylmethyl) malonate (BF).

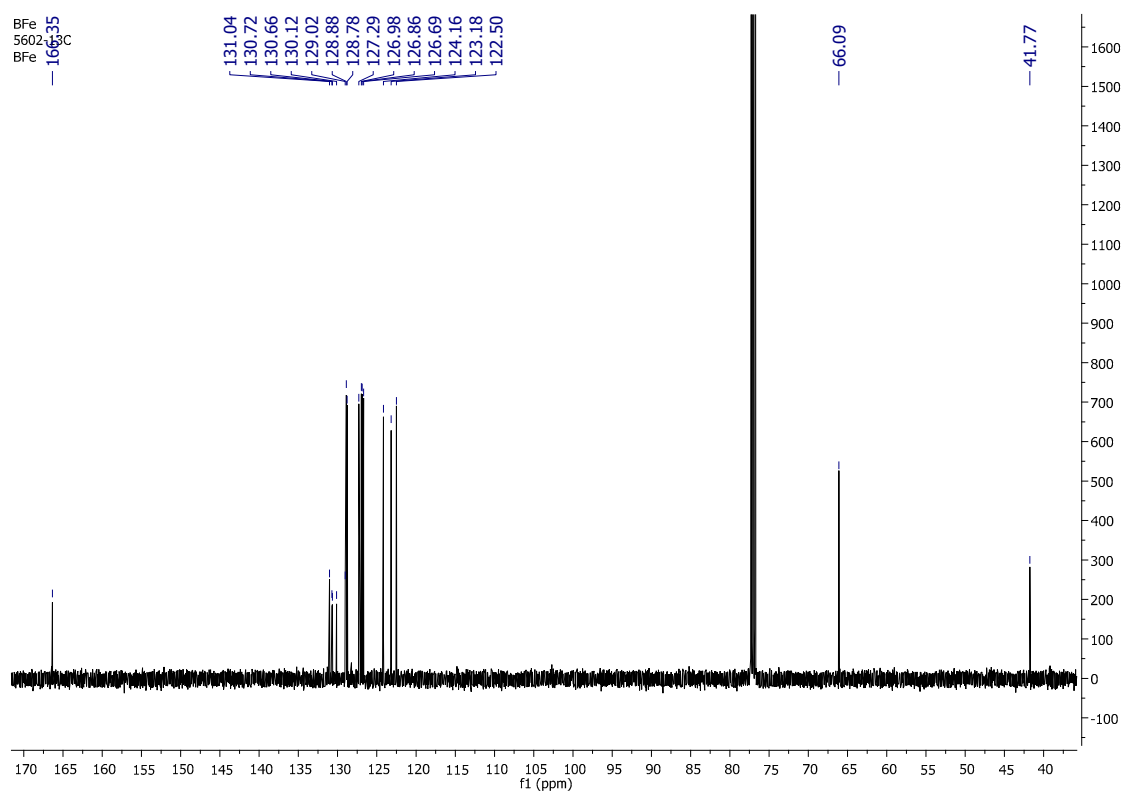


Figure S8. ^{13}C NMR spectrum of bis(phenanthren-9-ylmethyl) malonate (BF).

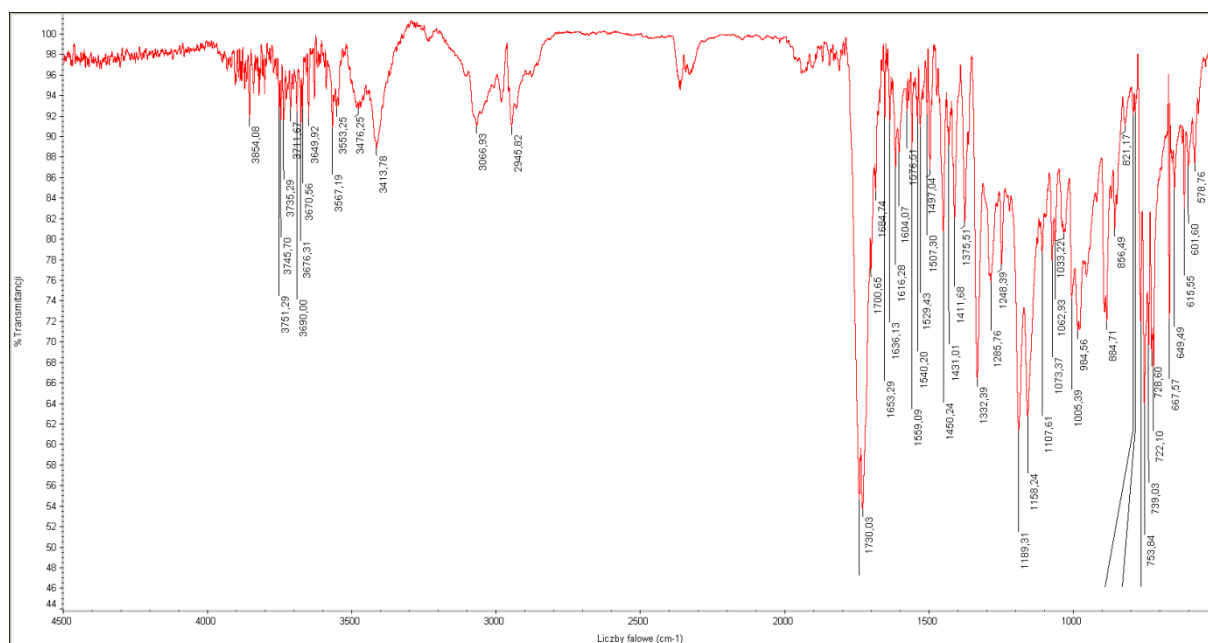


Figure S9. FT-IR spectrum of bis(phenanthren-9-ylmethyl) malonate (BF).

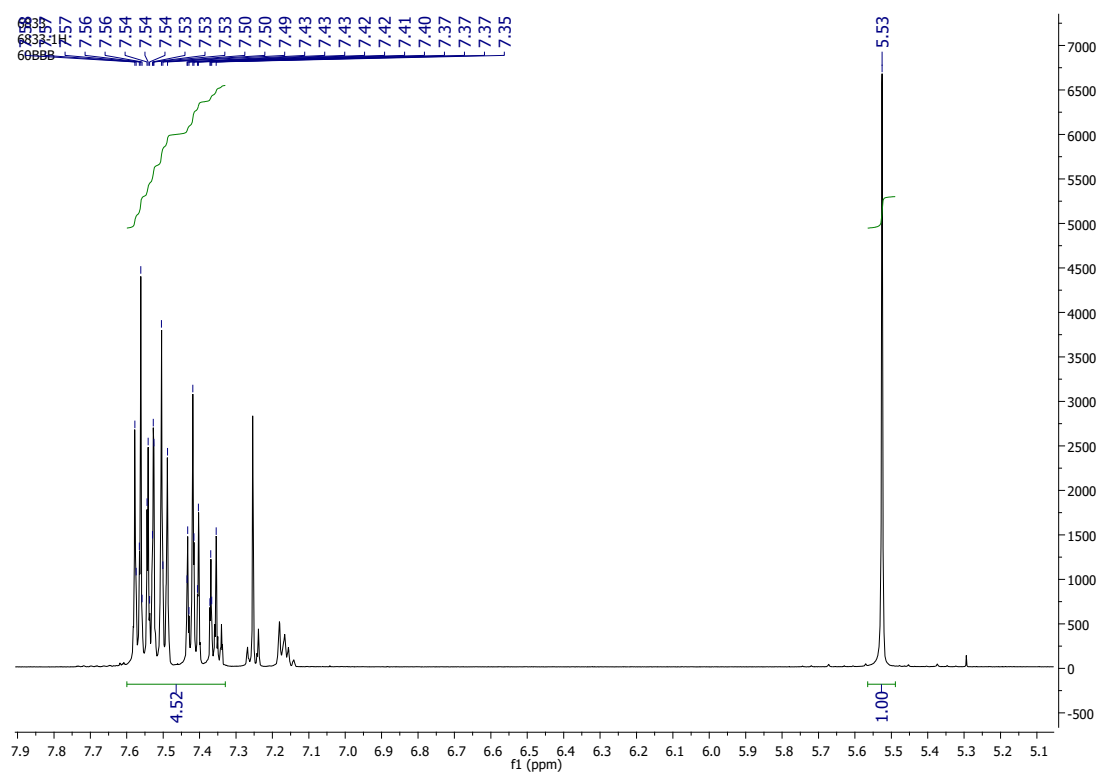


Figure S10. ¹H NMR spectrum of biphenyl functionalized C₆₀ fullerene (BB6).

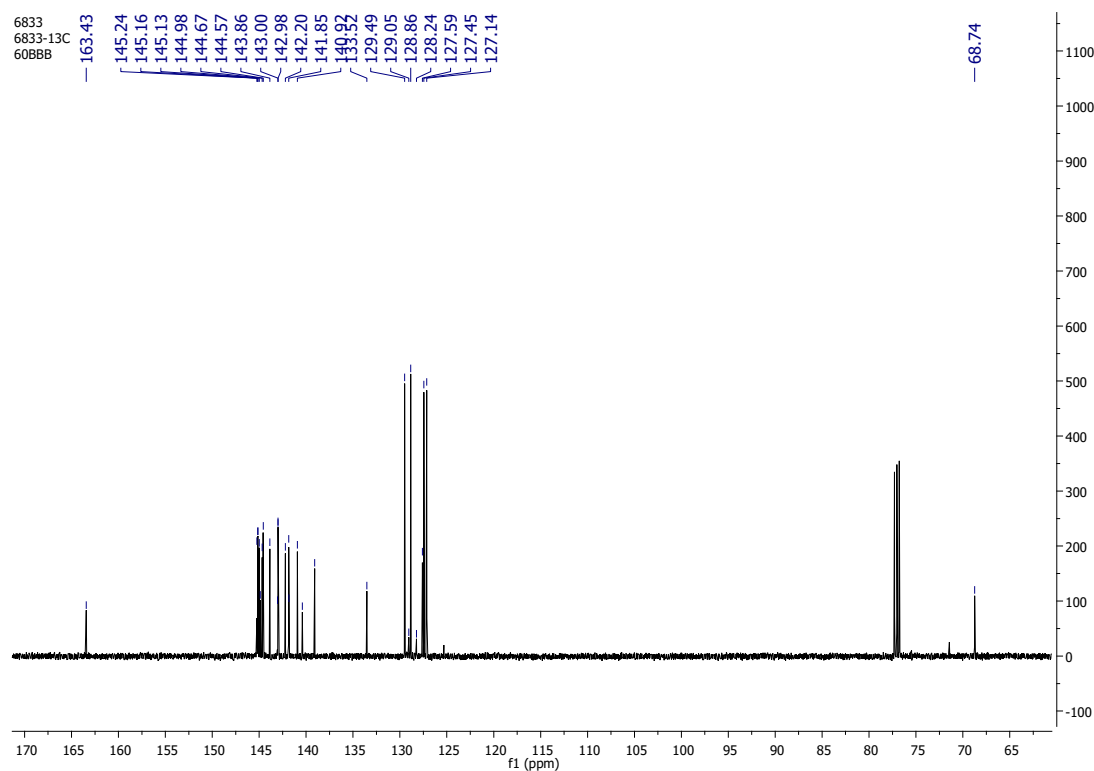


Figure S11. ¹³C NMR spectrum of biphenyl functionalized C₆₀ fullerene (BB6).

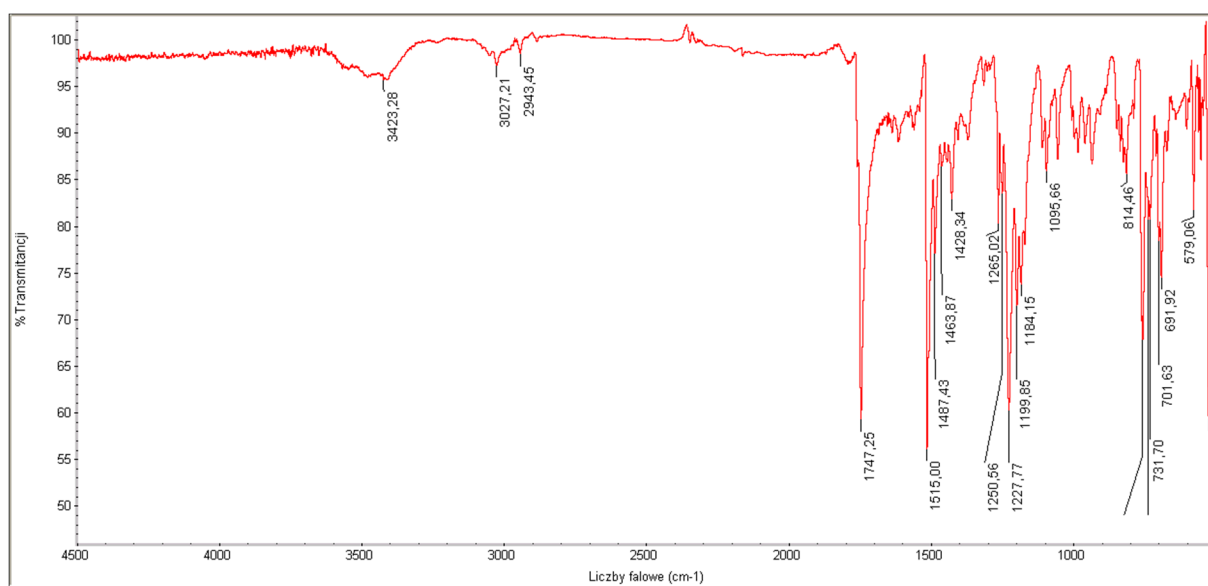


Figure S12. FT-IR spectrum of biphenyl functionalized C₆₀ fullerene (BB6).

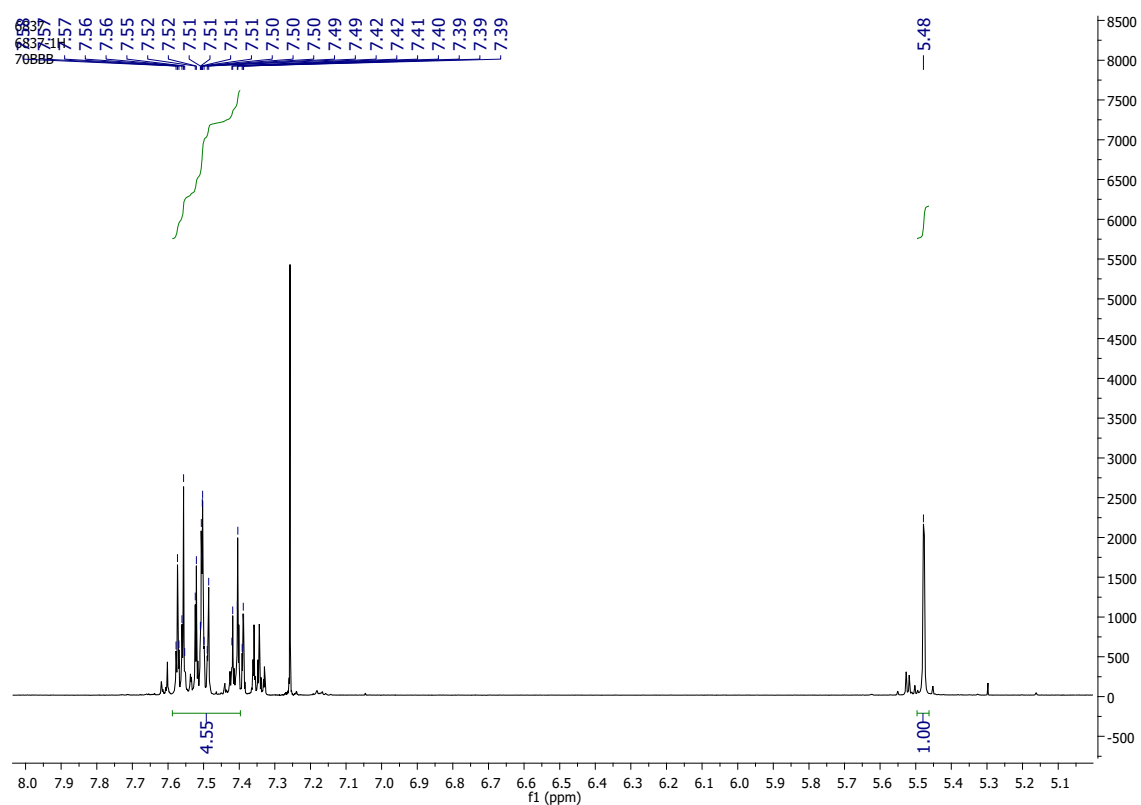


Figure S13. ¹H NMR spectrum of biphenyl functionalized C₆₀ fullerene (BB7).

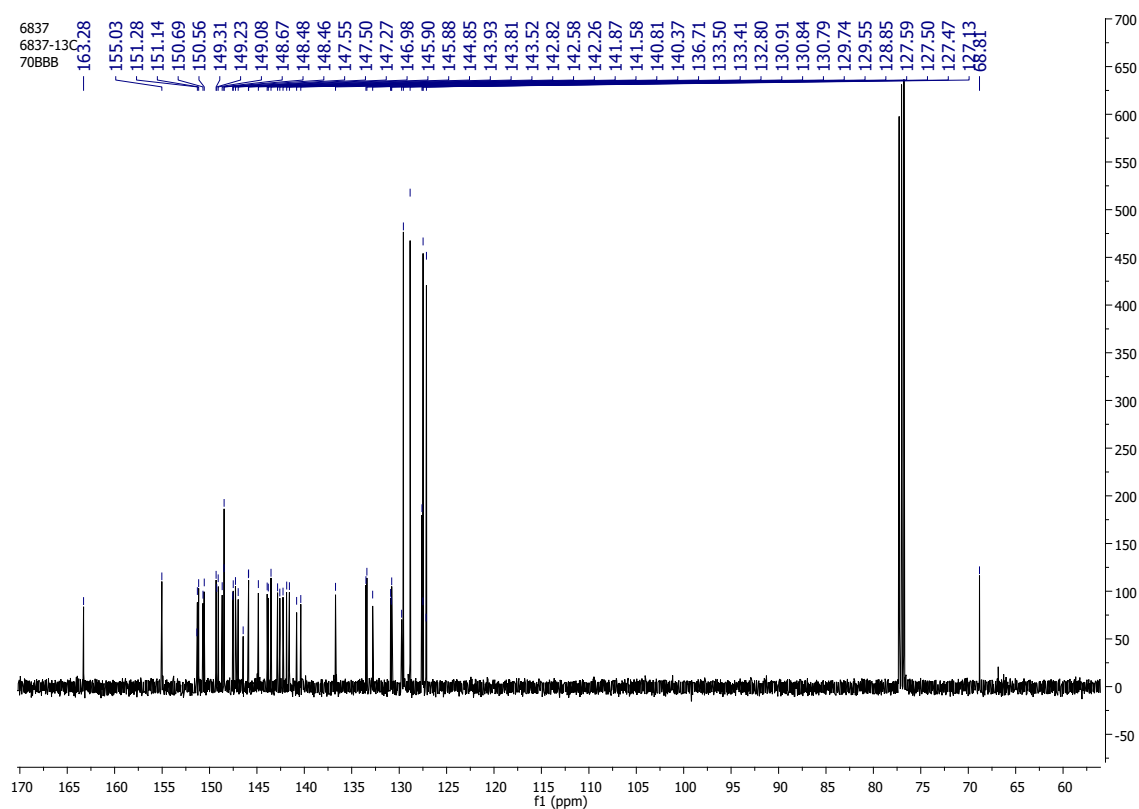


Figure S14. ¹³C NMR spectrum of biphenyl functionalized C₆₀ fullerene (BB7).

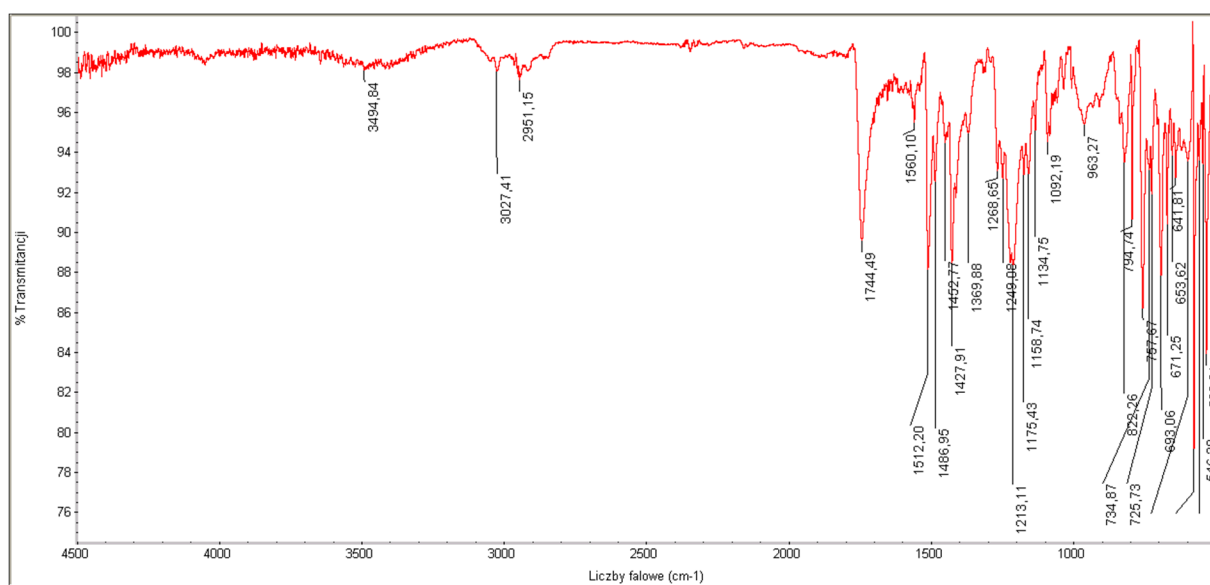


Figure S15. FT-IR spectrum of biphenyl functionalized C₆₀ fullerene (BB7).

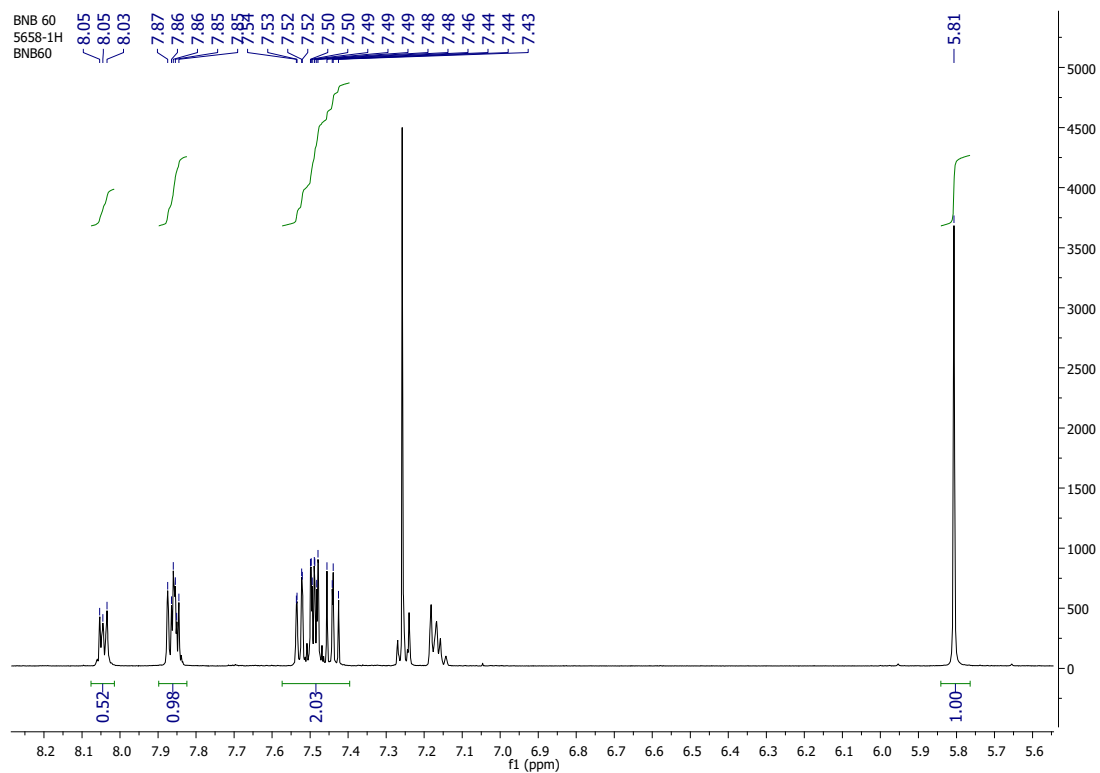


Figure S16. ^1H NMR spectrum of naphthalene functionalized C_{60} fullerene (BN6).

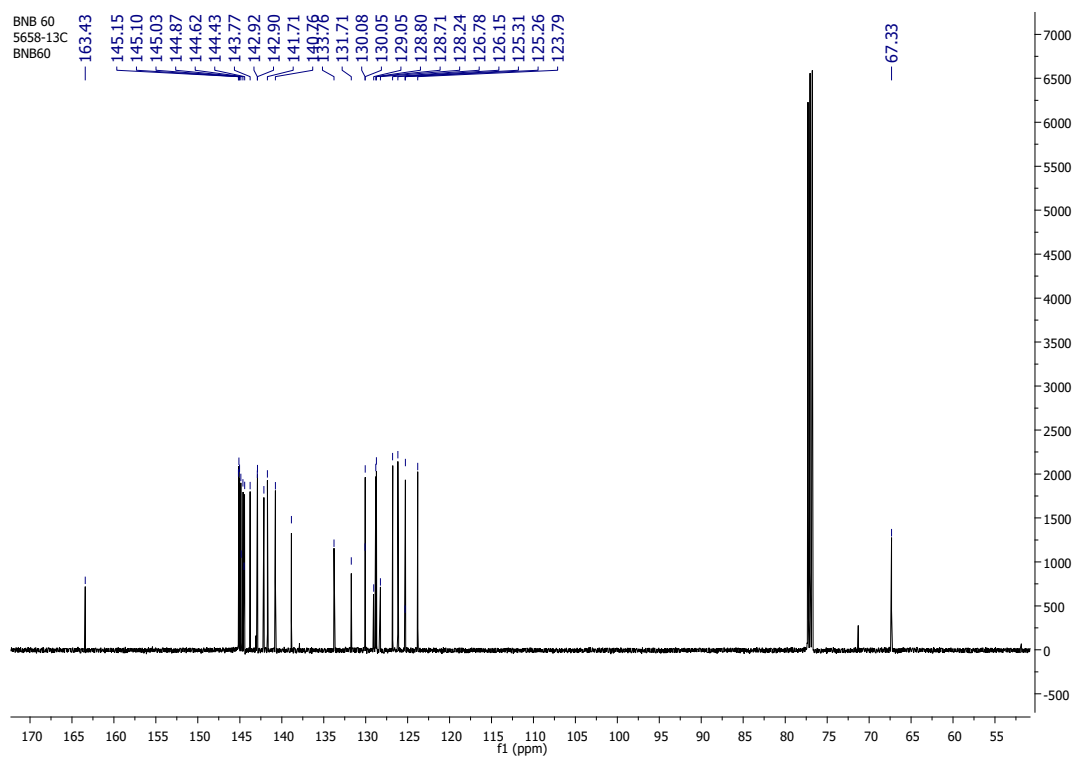


Figure S17. ^{13}C NMR spectrum of naphthalene functionalized C_{60} fullerene (BN6).

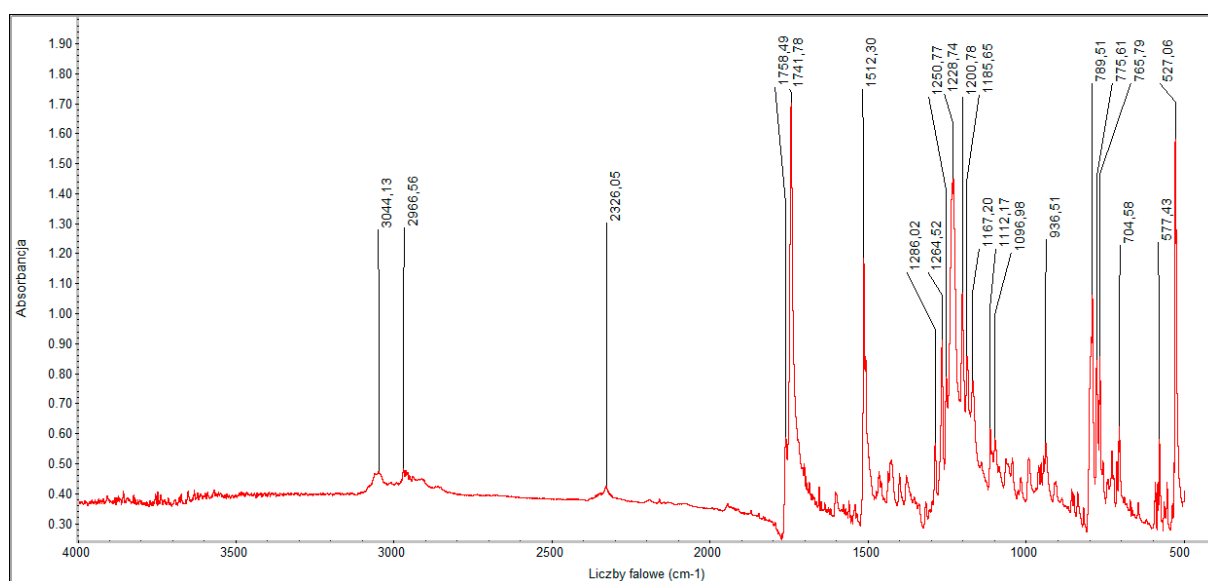


Figure S18. FT-IR spectrum of naphthalene functionalized C₆₀ fullerene (BN6).

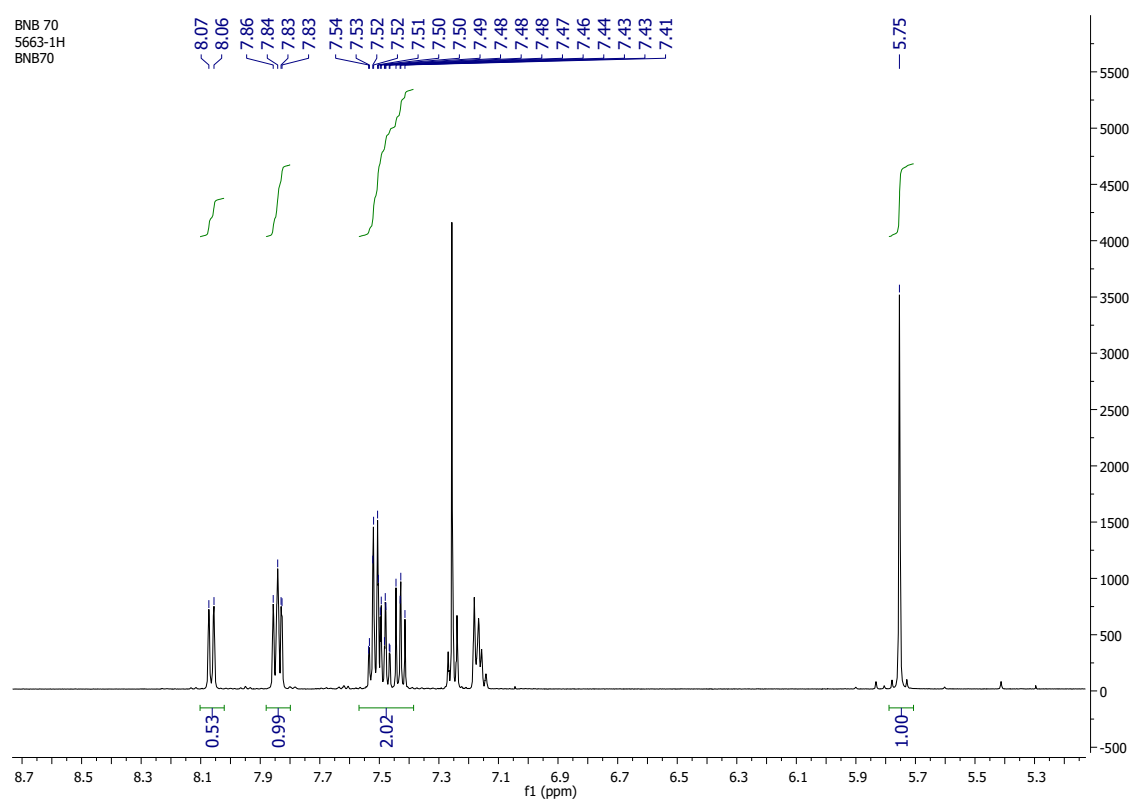


Figure S19. ¹H NMR spectrum of naphthalene functionalized C₆₀ fullerene (BN7).

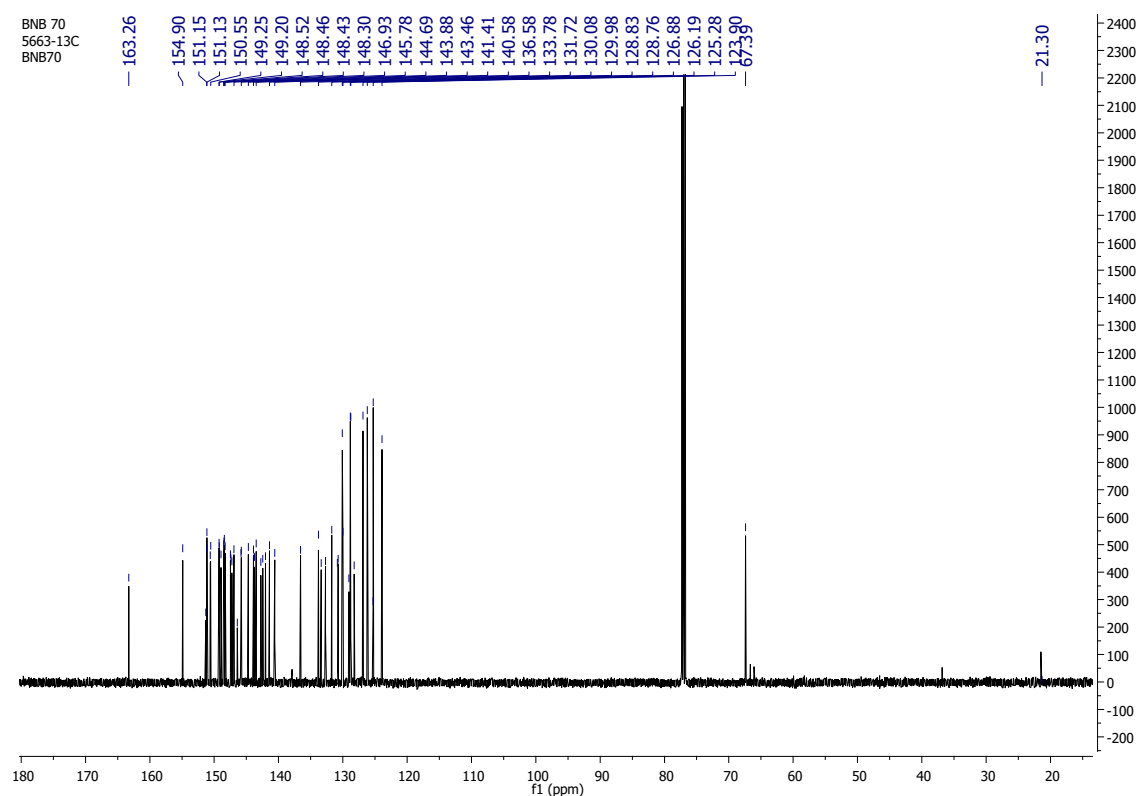


Figure S20. ^{13}C NMR spectrum of naphthalene functionalized C_{60} fullerene (BN7).

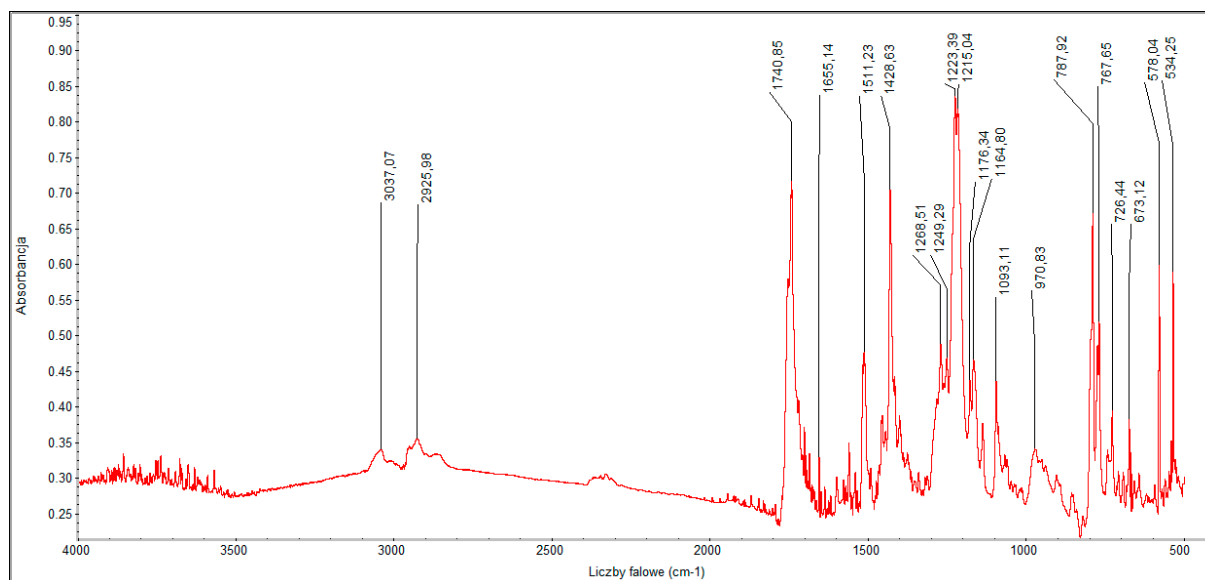


Figure S21. FT-IR spectrum of naphthalene functionalized C_{60} fullerene (BN7).

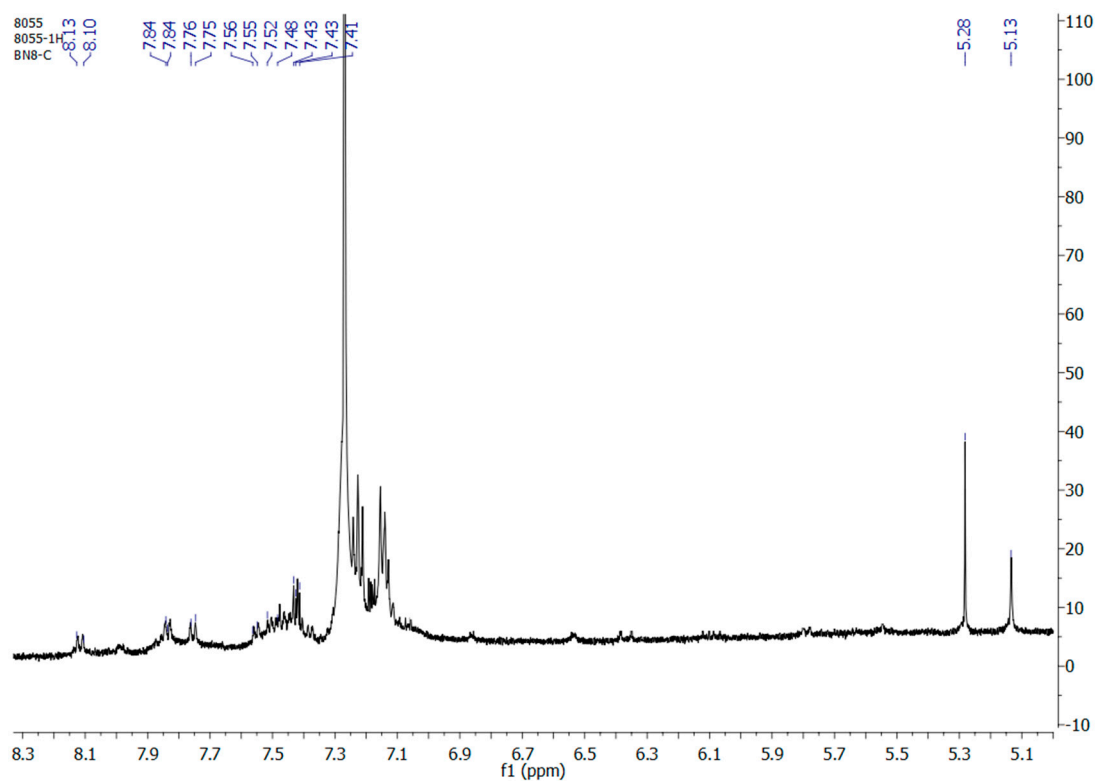


Figure S22. ^1H NMR spectrum of naphthalene functionalized C_{60} fullerene (BN8).

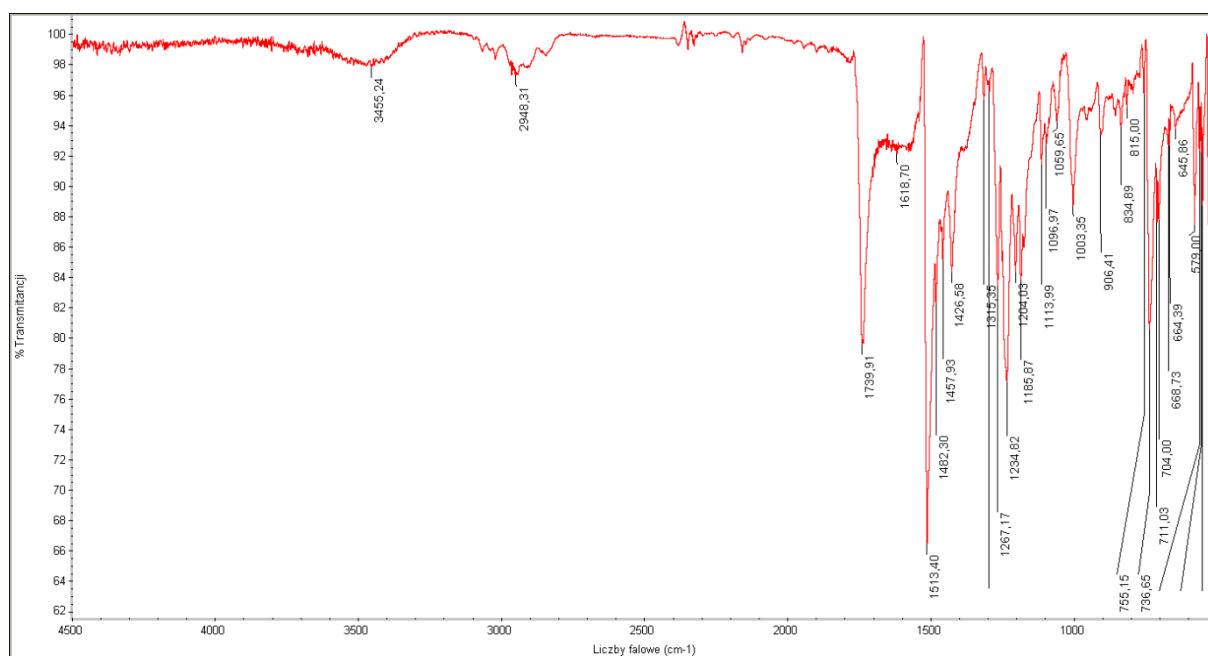


Figure S23. FT-IR spectrum of naphthalene functionalized C_{60} fullerene (BN8).

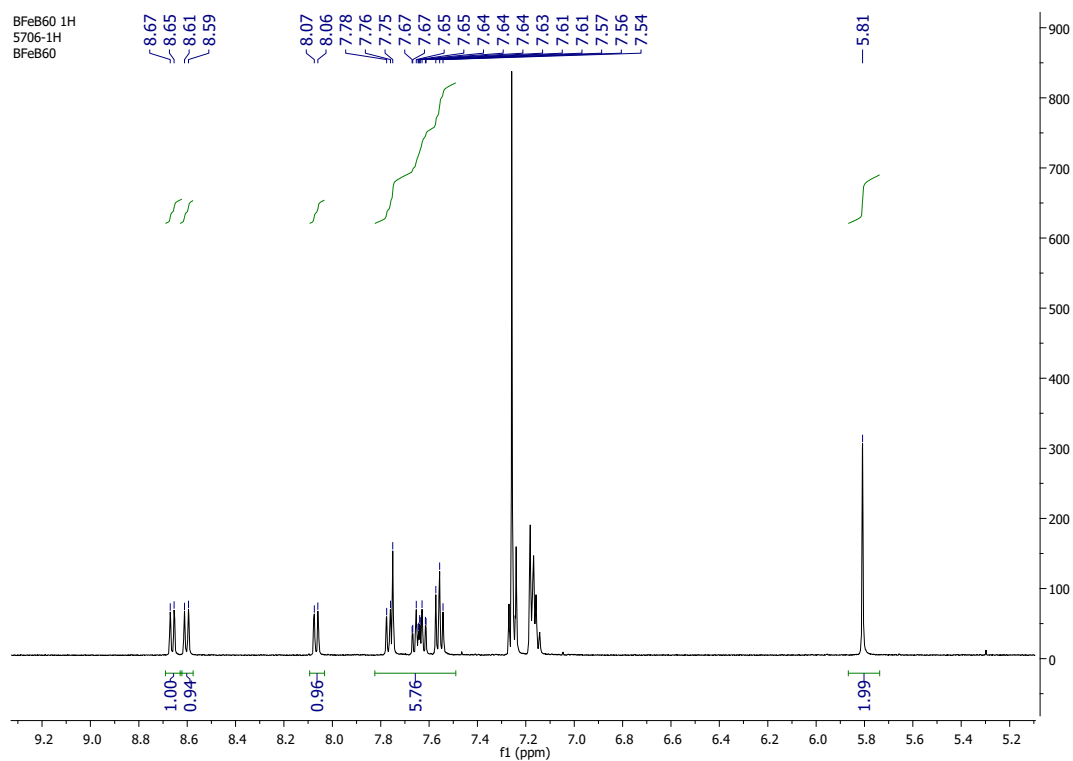


Figure S24. ¹H NMR spectrum of phenanthrene functionalized C₆₀ fullerene (BF6).

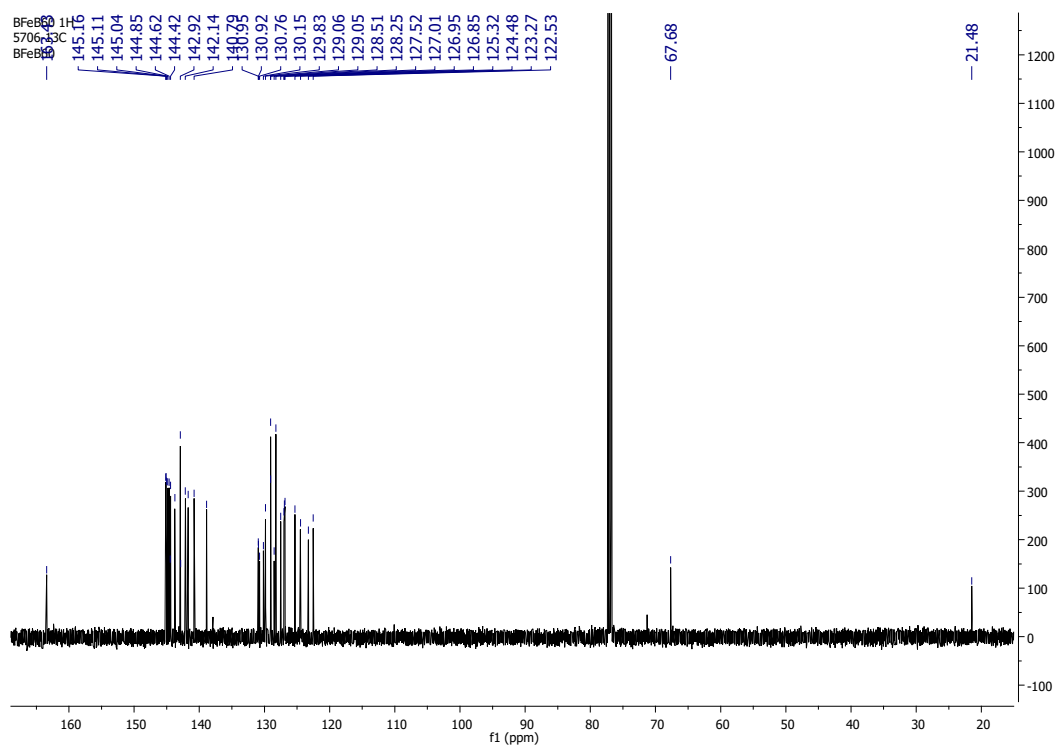


Figure S25. ¹³C NMR spectrum of phenanthrene functionalized C₆₀ fullerene (BF6).

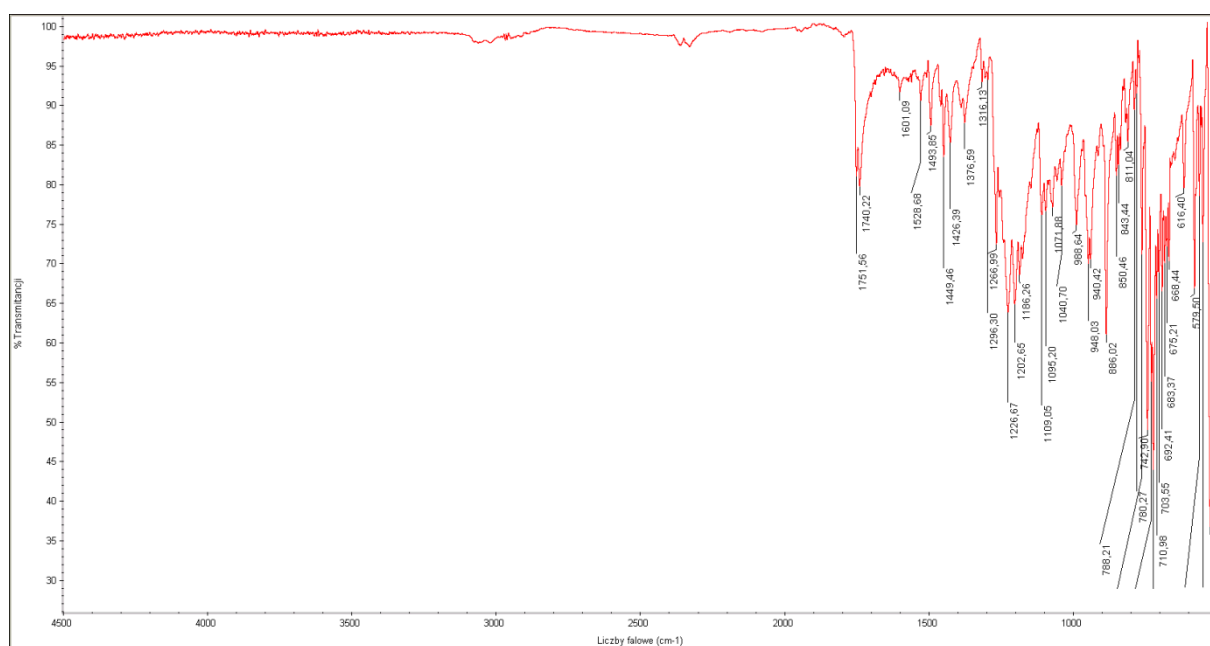


Figure S26. FT-IR spectrum of phenanthrene functionalized C₆₀ fullerene (BF6).

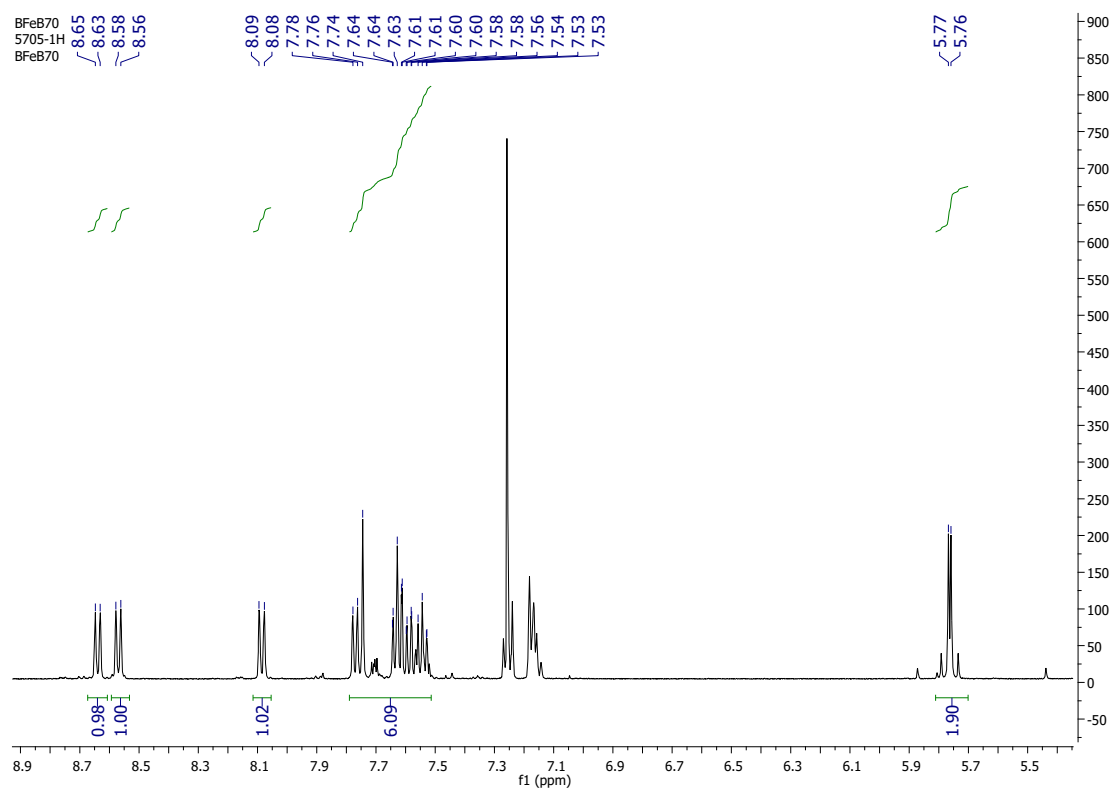


Figure S27. ¹H NMR spectrum of phenanthrene functionalized C₆₀ fullerene (BF7).

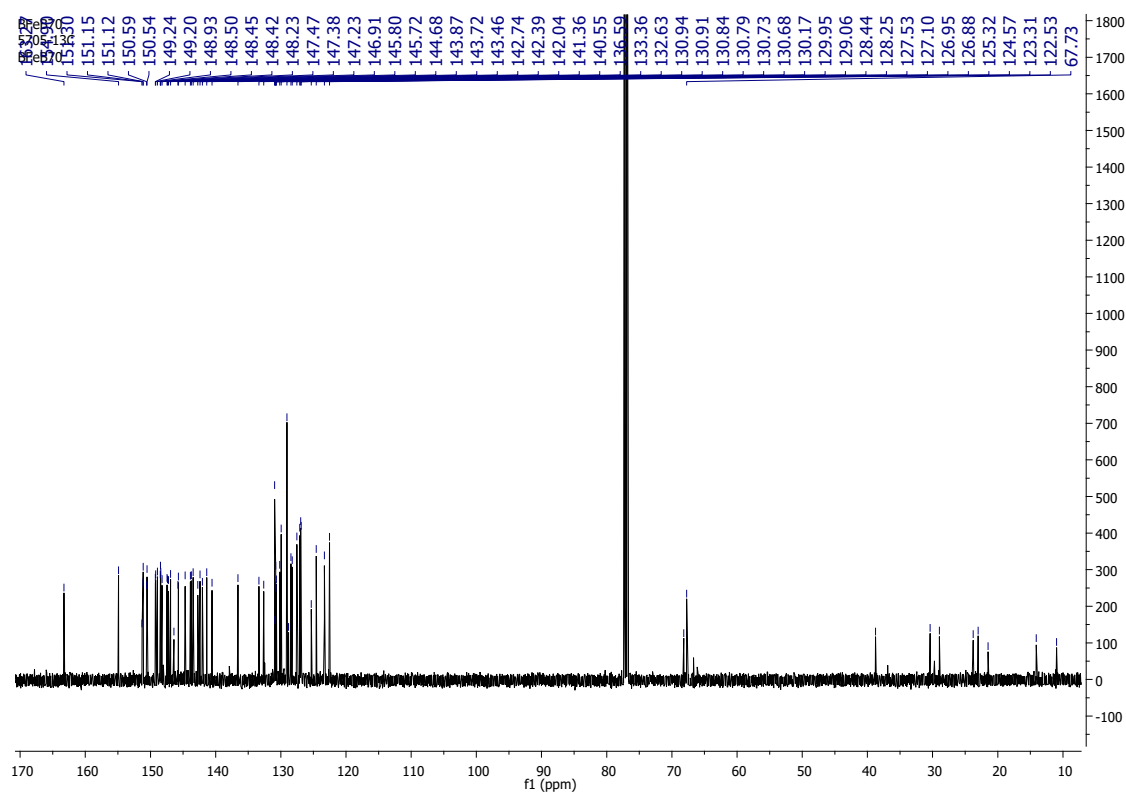


Figure S28. ¹³C NMR spectrum of phenanthrene functionalized C₆₀ fullerene (BF7).

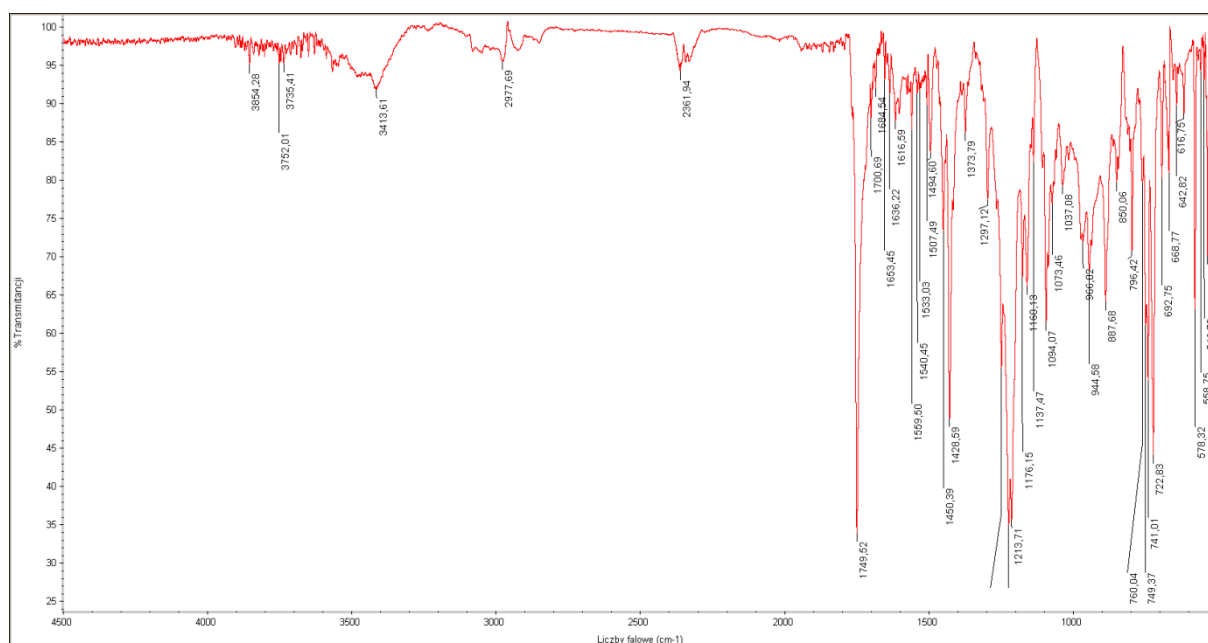


Figure S29. FT-IR spectrum of phenanthrene functionalized C₆₀ fullerene (BF7).

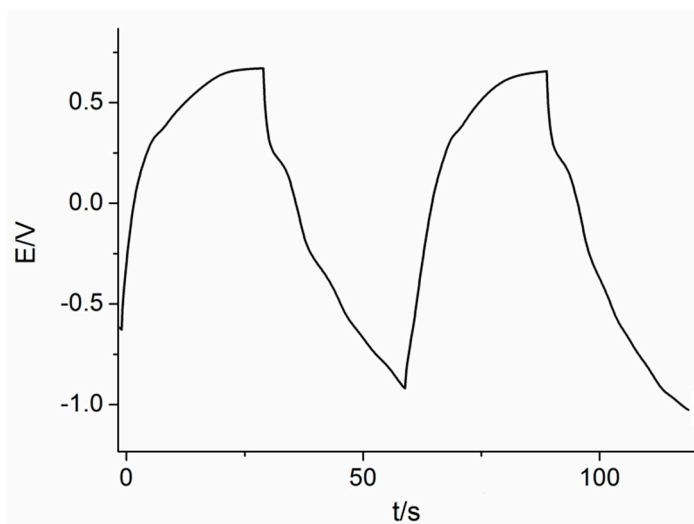


Figure S30. GCD curves registered for graphene functionalized with **BB6**.

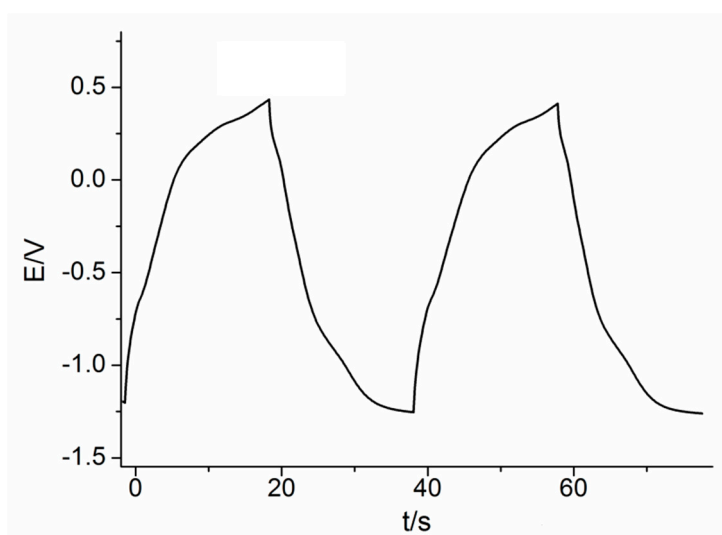


Figure S31. GCD curves registered for graphene functionalized with **BB7**.

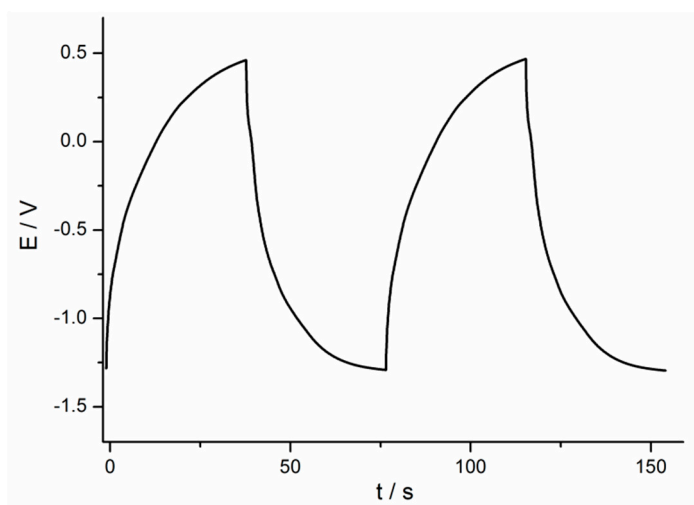


Figure S32. GCD curves registered for graphene functionalized with **BF6**.

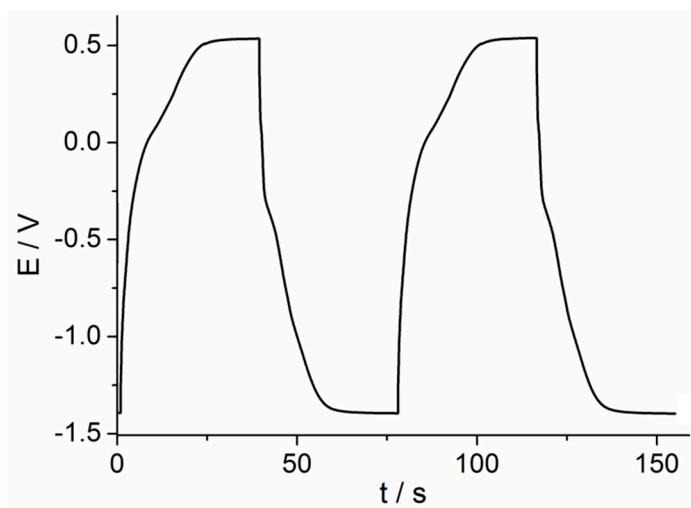


Figure S33. GCD curves registered for graphene functionalized with **BF7**.

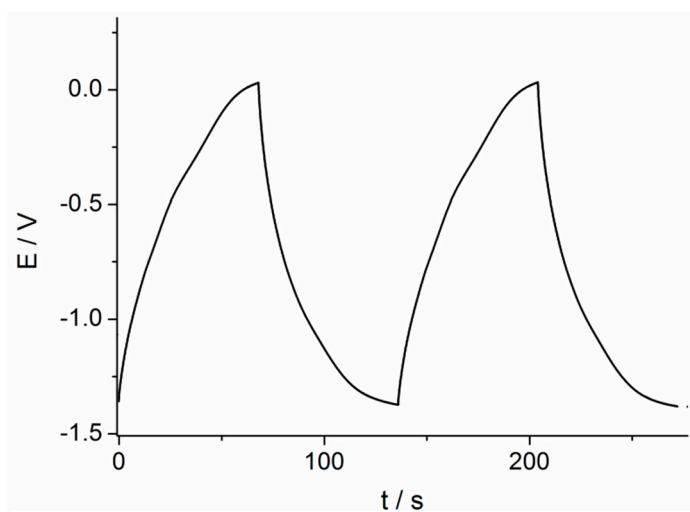


Figure S34. GCD curves registered for graphene functionalized with **BP6**.

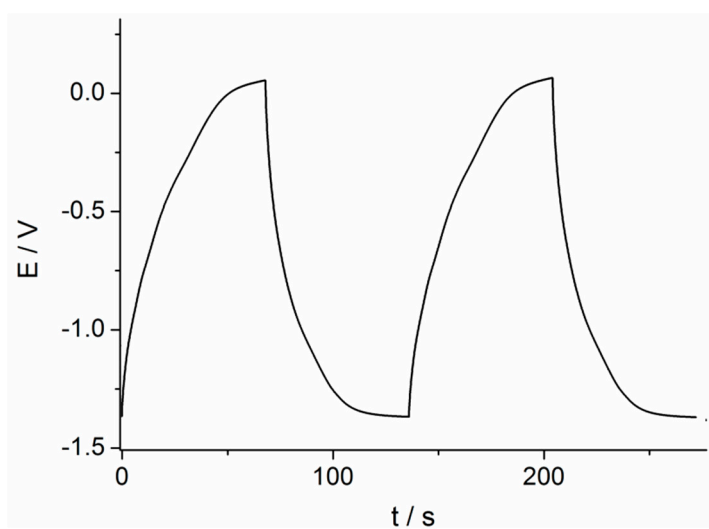


Figure S35. GCD curves registered for graphene functionalized with **BP7**.

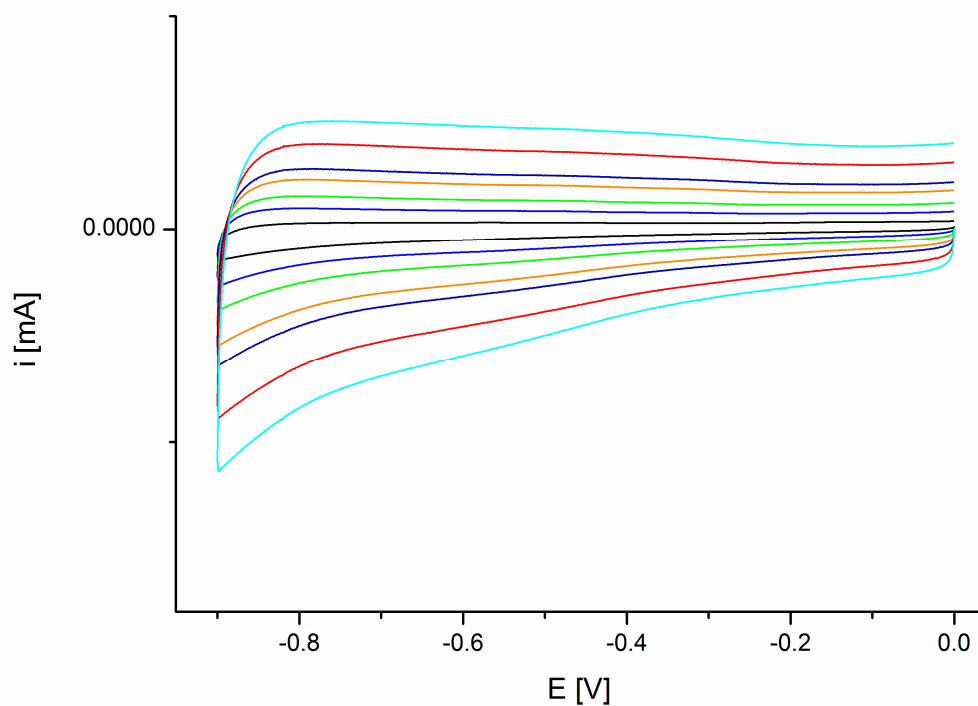


Figure S36. CV curves registered for graphene functionalized with **BB6** at different scan rates of: 20, 50, 100, 150, 200, 300 and 400 mV s^{-1} .

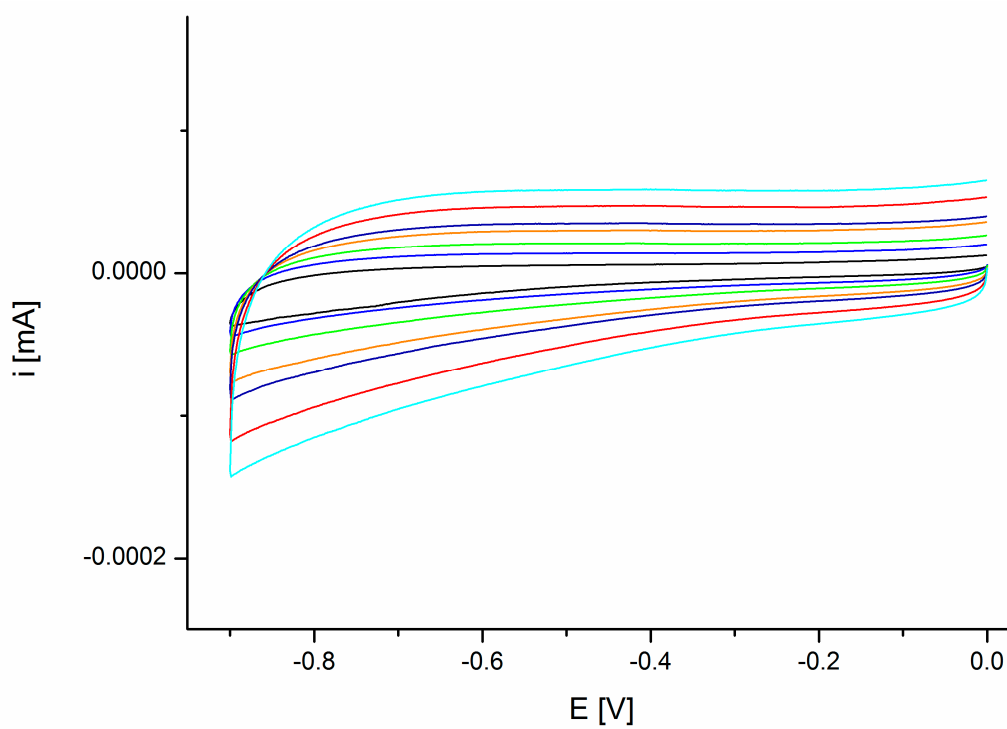


Figure S37. CV curves registered for graphene functionalized with **BB7** at different scan rates of: 20, 50, 100, 150, 200, 300 and 400 mV s^{-1} .

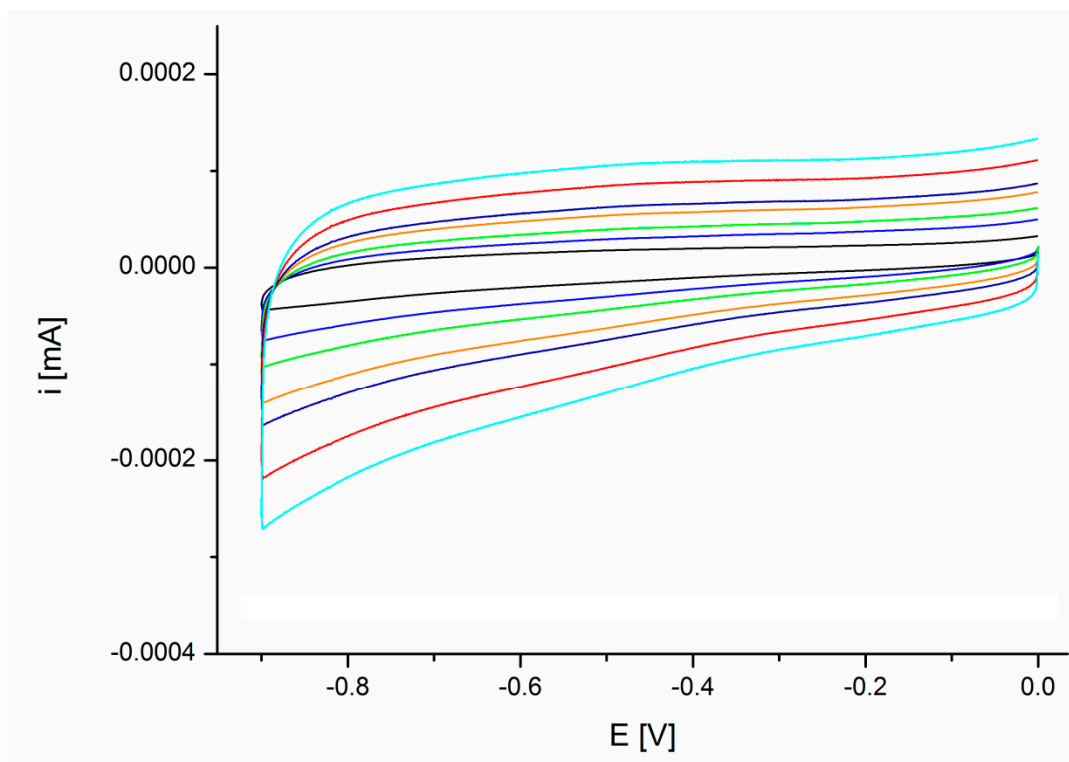


Figure S38. CV curves registered for graphene functionalized with **BF6** at different scan rates of: 20, 50, 100, 150, 200, 300 and 400 mV s^{-1} .

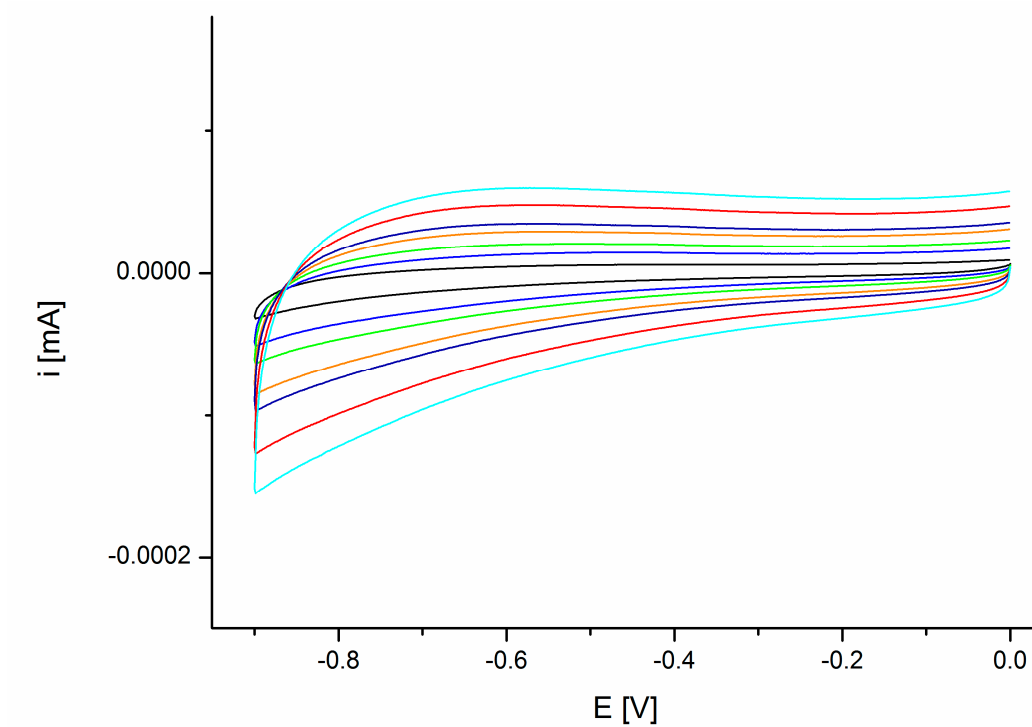


Figure S39. CV curves registered for graphene functionalized with **BF7** at different scan rates of: 20, 50, 100, 150, 200, 300 and 400 mV s^{-1} .

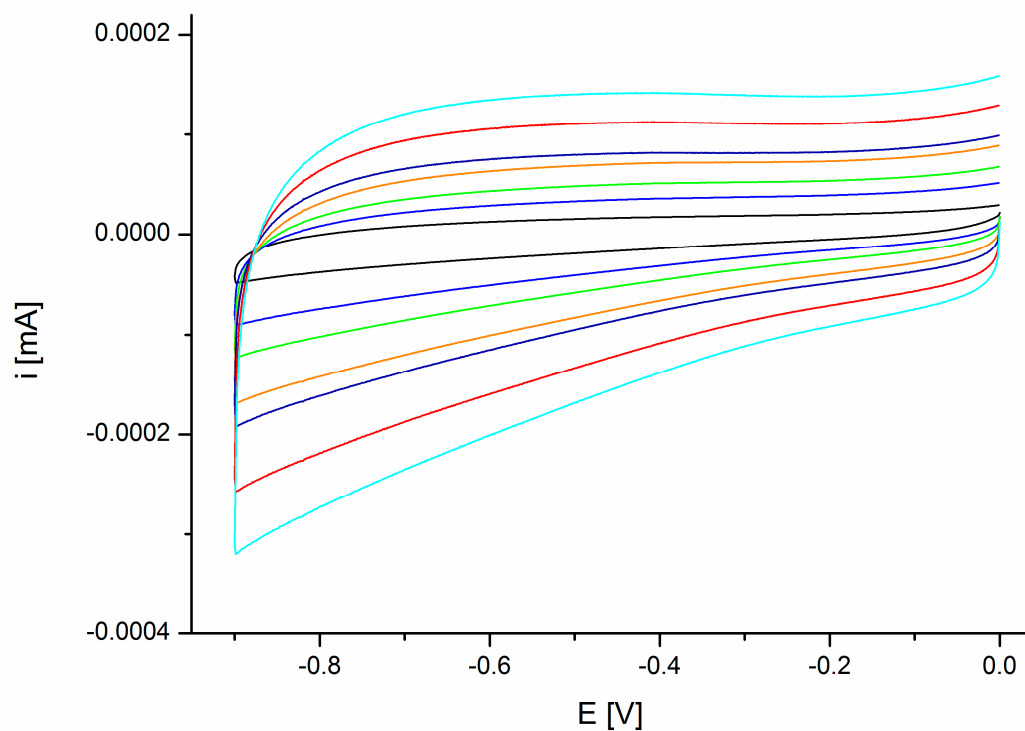


Figure S40. CV curves registered for graphene functionalized with **BP6** at different scan rates of: 20, 50, 100, 150, 200, 300 and 400 mV s^{-1} .

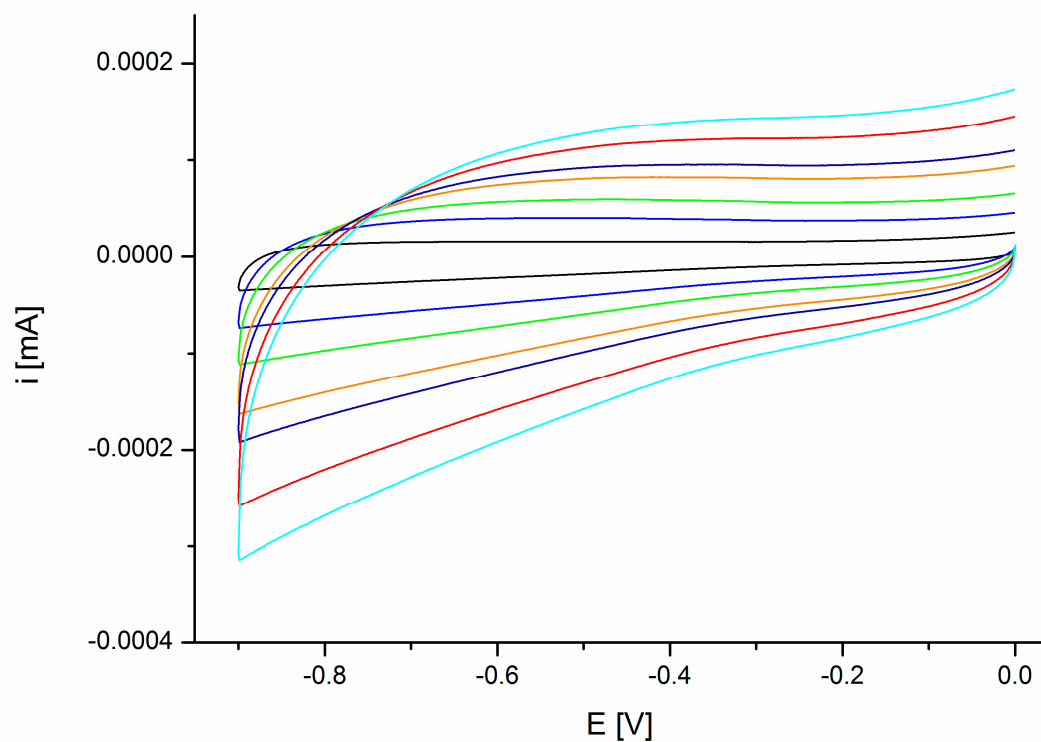


Figure S41. CV curves registered for graphene functionalized with **BP7** at different scan rates of: 20, 50, 100, 150, 200, 300 and 400 mV s^{-1} .