

Supporting information

六种酞菁锌配合物:交叉聚合法合成、分离、光谱和电化学性质

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Six Phthalocyaninato Zinc (II) Complexes: Synthesis *via* Cross-condensation of Two Phthalonitriles, Spectroscopy and Electrochemistry

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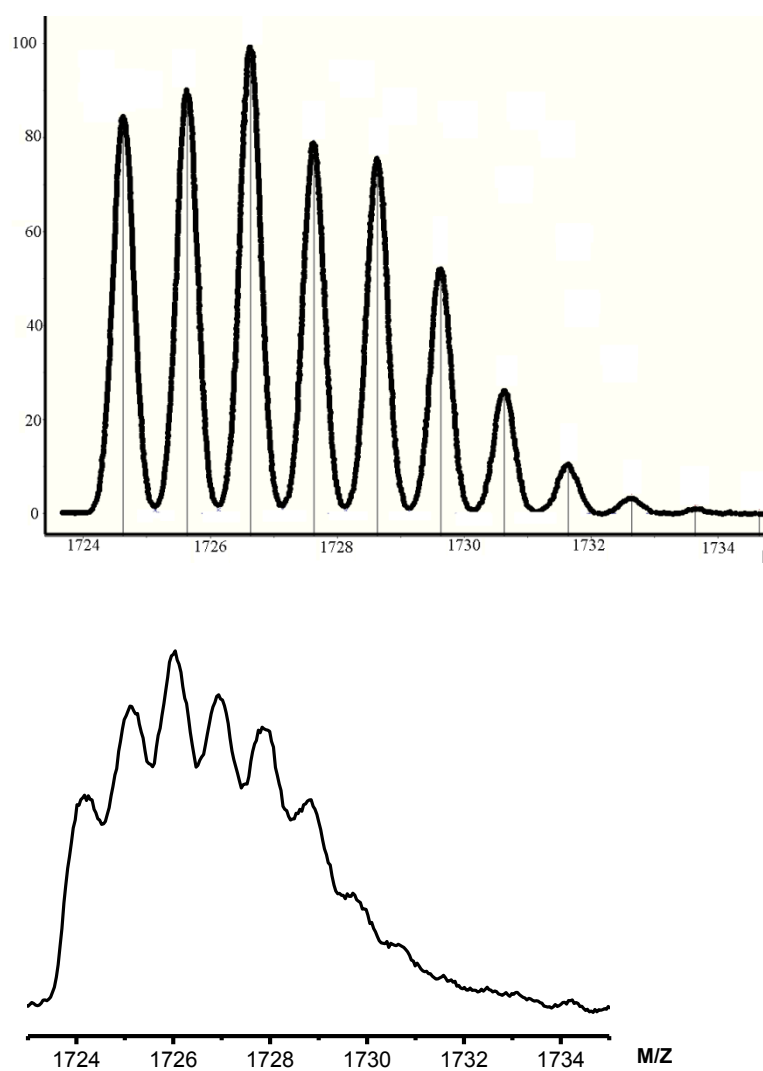
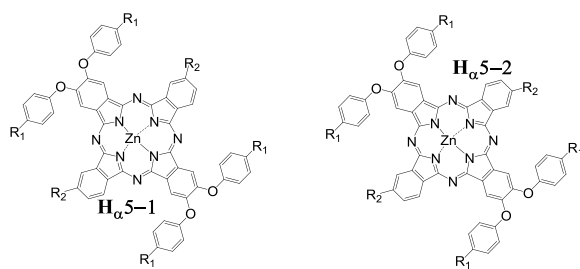
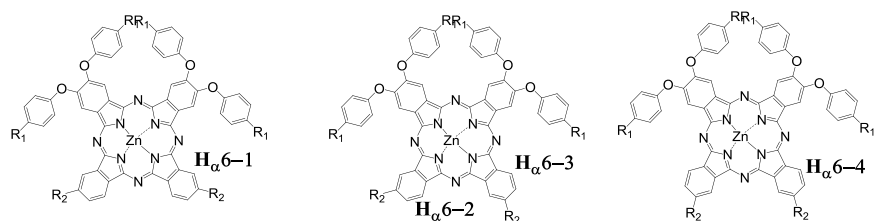


Fig. S1 (A) Experimental and (B) simulated isotopic pattern for the molecular ion of Zn[Pc(BP)₂(TEG)₂]-opp (5) shown in the MALDI-TOF mass spectrum.

Zn[Pc(BP)₂(TEG)₂]-opp (5)



Zn[Pc(BP)₂(TEG)₂]-adj (6)



Zn[Pc(BP)(TEG)₃] (7)

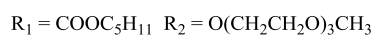
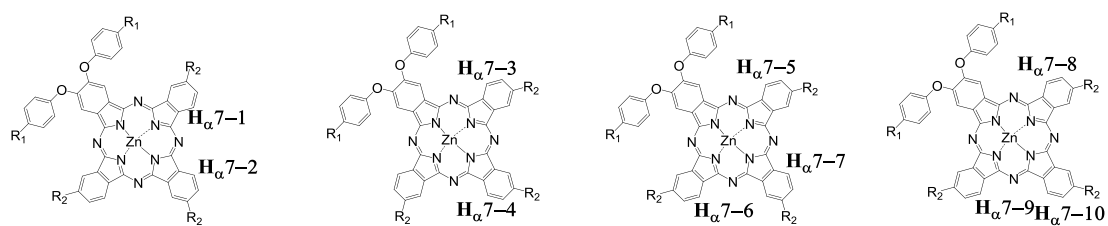


Fig. S2 Possible isomers of compounds Zn[Pc(BP)₂(TEG)₂]-opp (5), Zn[Pc(BP)₂(TEG)₂]-adj (6), and Zn[Pc(BP)(TEG)₃] (7).

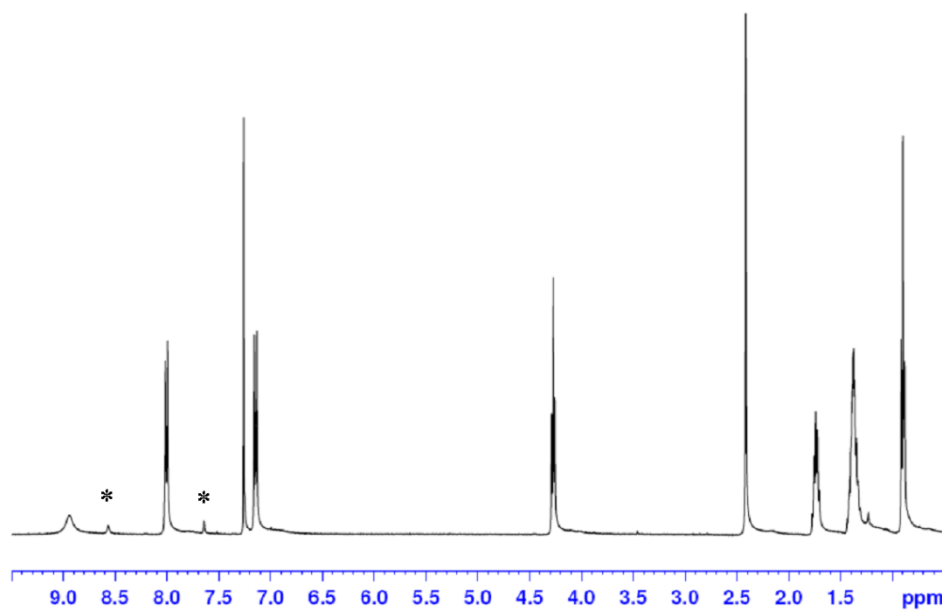


Fig. S3 ^1H NMR spectrum of $\text{Zn}[\text{Pc}(\text{BP})_4]$ (**3**) in CDCl_3 with a drop of pyridine- d_5 . The residual solvent signals are marked with asterisks.

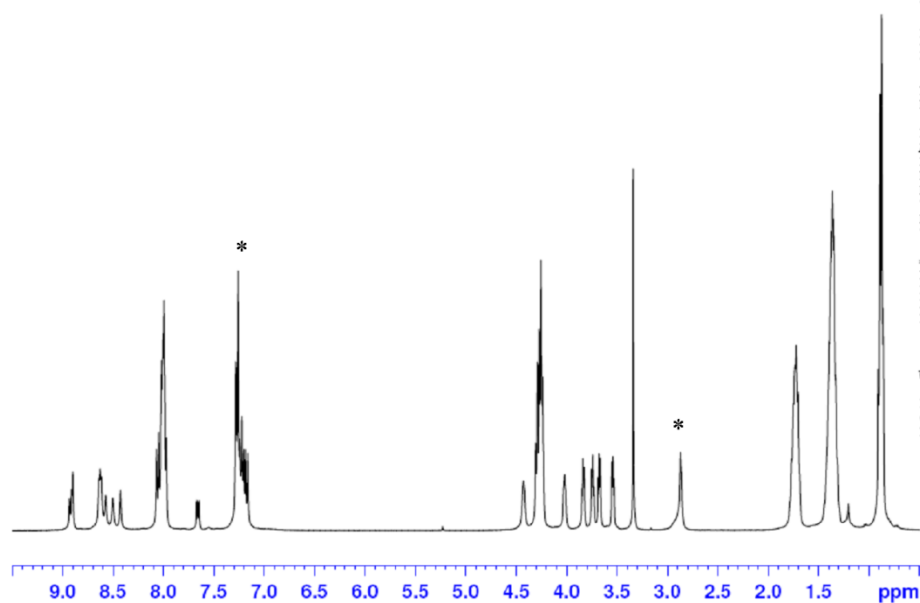


Fig. S4 ^1H NMR spectrum of $\text{Zn}[\text{Pc}(\text{BP})_3(\text{TEG})]$ (**4**) in CDCl_3 with a drop of pyridine- $[\text{d}_5]$. The residual solvent signals are marked with asterisks.

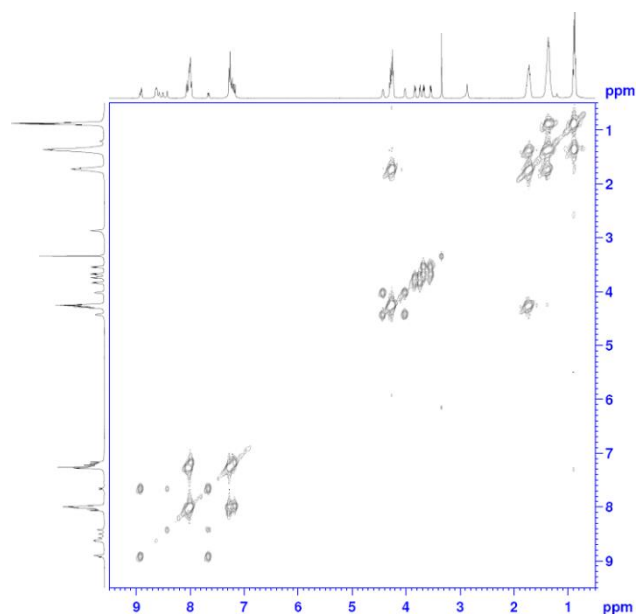


Fig. S5 2D COSY spectrum of $\text{Zn}[\text{Pc}(\text{BP})_3(\text{TEG})]$ (**4**) in CDCl_3 with a drop of pyridine- d_5 .

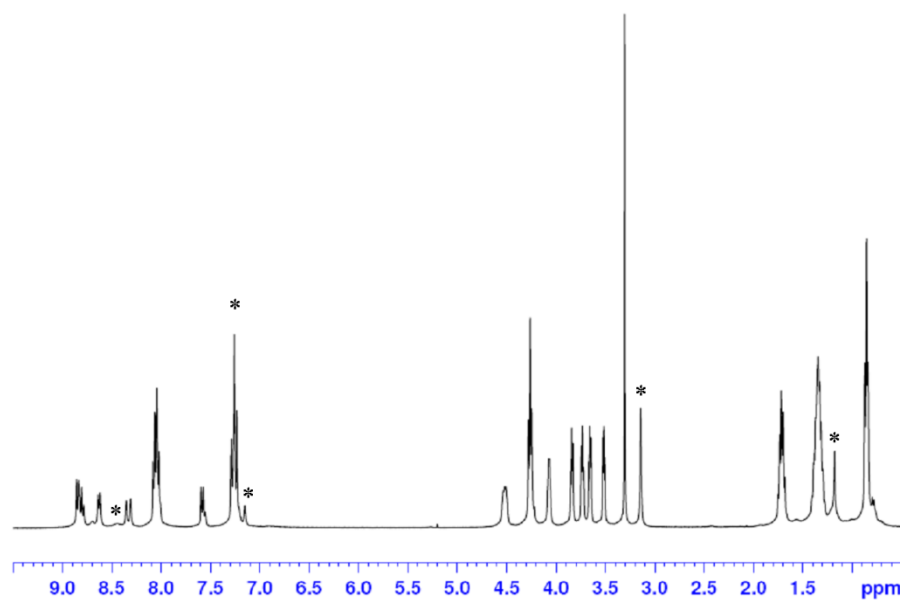


Fig. S6 ^1H NMR spectrum of $\text{Zn}[\text{Pc}(\text{BP})_2(\text{TEG})_2]\text{-opp}$ (**5**) in CDCl_3 with a drop of pyridine- d_5 . The residual solvent signals are marked with asterisks.

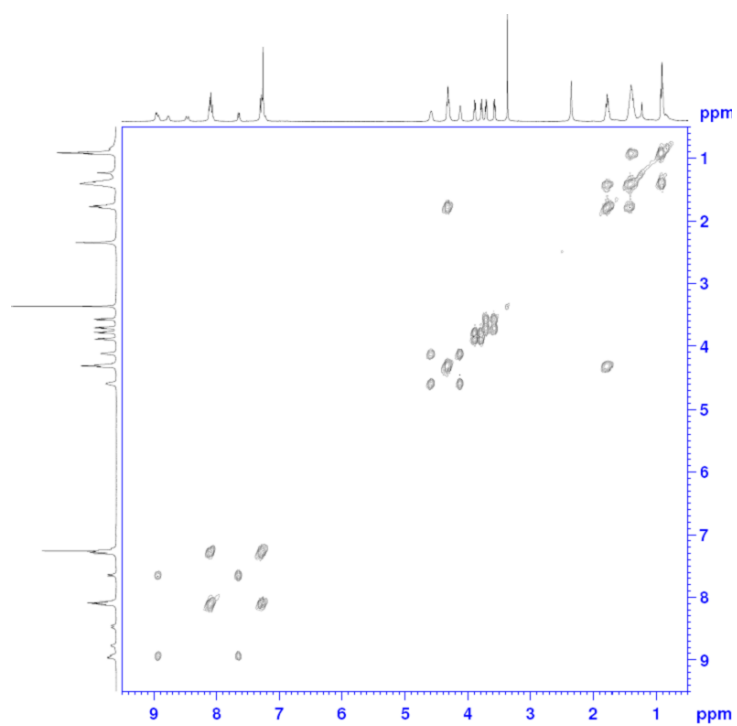


Fig. S7 2D COSY spectrum of Zn[Pc(BP)₂(TEG)₂]-opp (**5**) in CDCl₃ with a drop of pyridine[d₅].

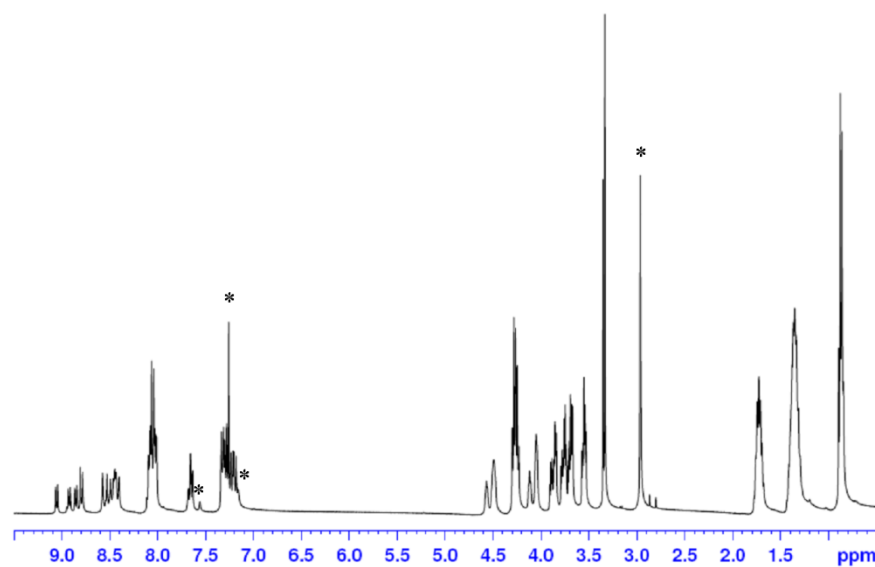


Fig. S8 ^1H NMR spectrum of $\text{Zn}[\text{Pc}(\text{BP})_2(\text{TEG})_2]\text{-adj}$ (**6**) in CDCl_3 with a drop of pyridine- d_5 . The residual solvent signals are marked with asterisks.

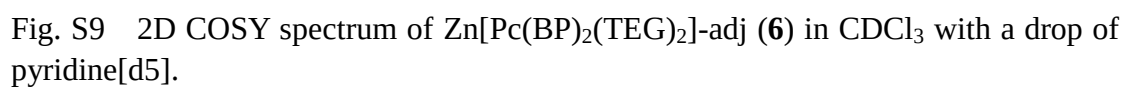


Fig. S9 2D COSY spectrum of Zn[Pc(BP)₂(TEG)₂]-adj (**6**) in CDCl₃ with a drop of pyridine[d5].

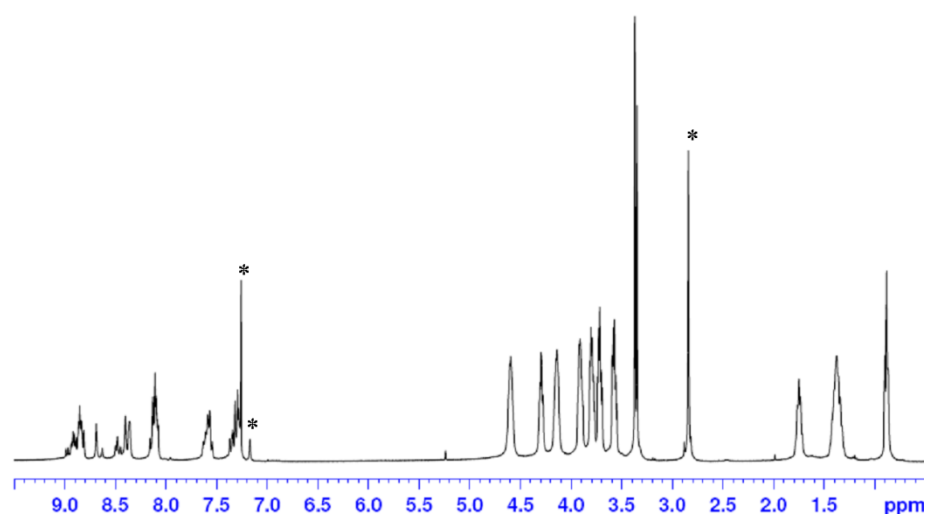


Fig. S10 ^1H NMR spectrum of $\text{Zn}[\text{Pc}(\text{BP})(\text{TEG})_3]$ (7) in CDCl_3 with a drop of pyridine- d_5 . The residual solvent signals are marked with asterisks.

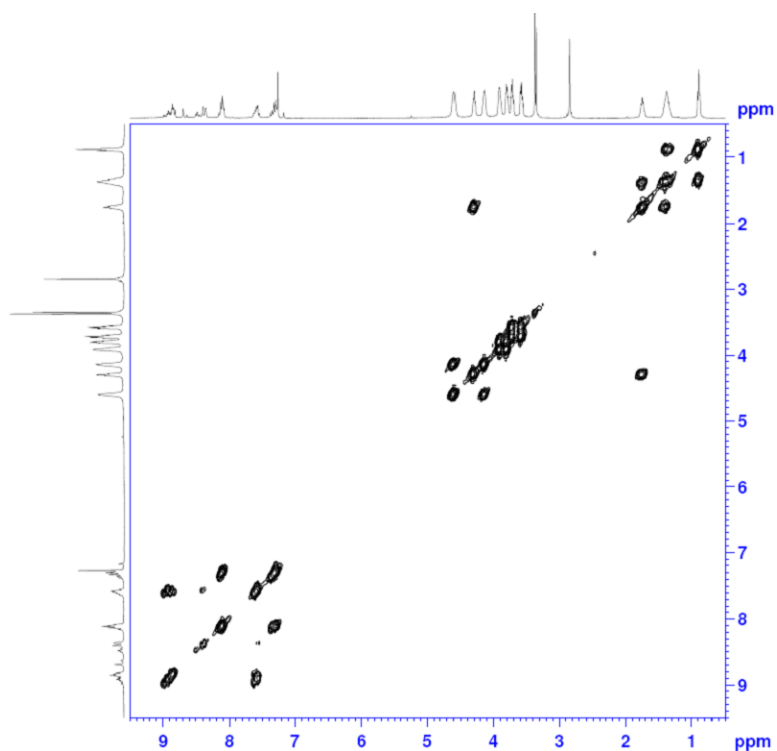


Fig. S11 2D COSY spectrum of Zn[Pc(BP)(TEG)₃] (7) in CDCl₃ with a drop of pyridine[*d*₅].

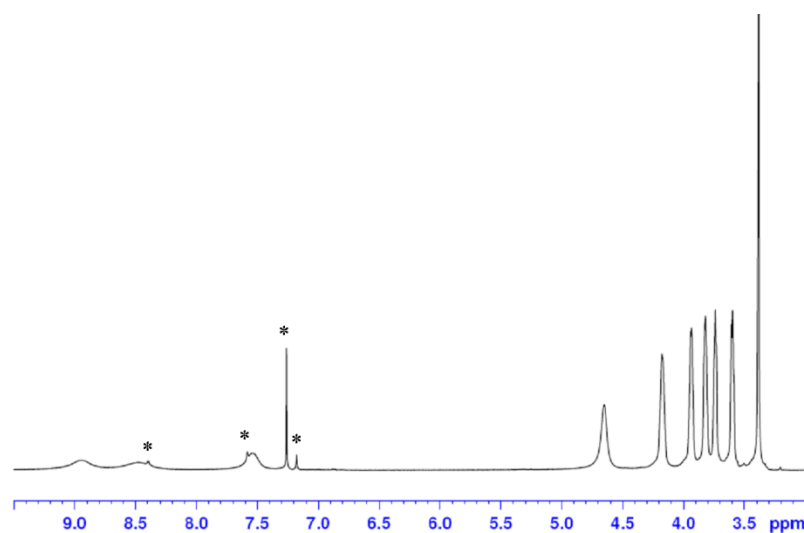


Fig. S12 ^1H NMR spectrum of $\text{Zn}[\text{Pc}(\text{TEG})_4]$ (**8**) in CDCl_3 with a drop of pyridine- $[\text{d}_5]$. The residual solvent signals are marked with asterisks.

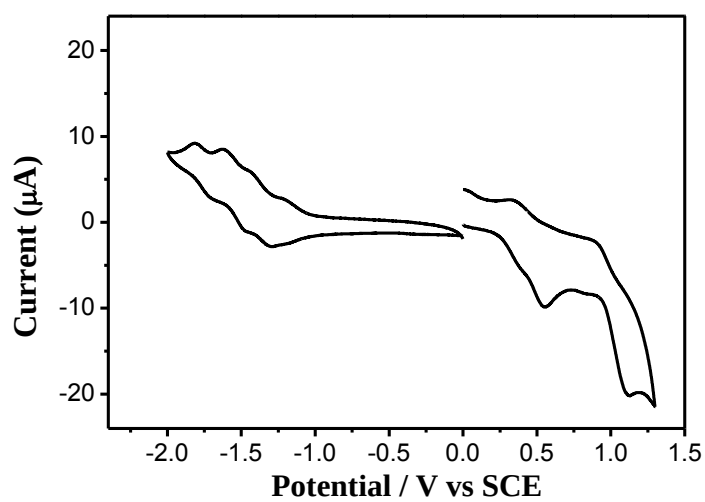


Fig. S13 Cyclic voltammogram of $\text{Zn}[\text{Pc}(\text{BP})_4]$ (**3**) in CH_2Cl_2 containing 0.1 M $[\text{NBu}_4][\text{ClO}_4]$.

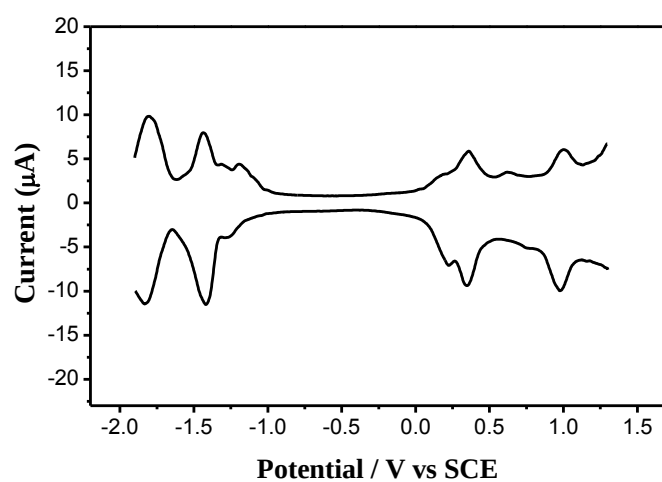


Fig. S14 Differential pulse voltammetry of $\text{Zn}[\text{Pc}(\text{BP})_3(\text{TEG})]$ (**4**) in CH_2Cl_2 containing 0.1 M $[\text{NBu}_4][\text{ClO}_4]$.

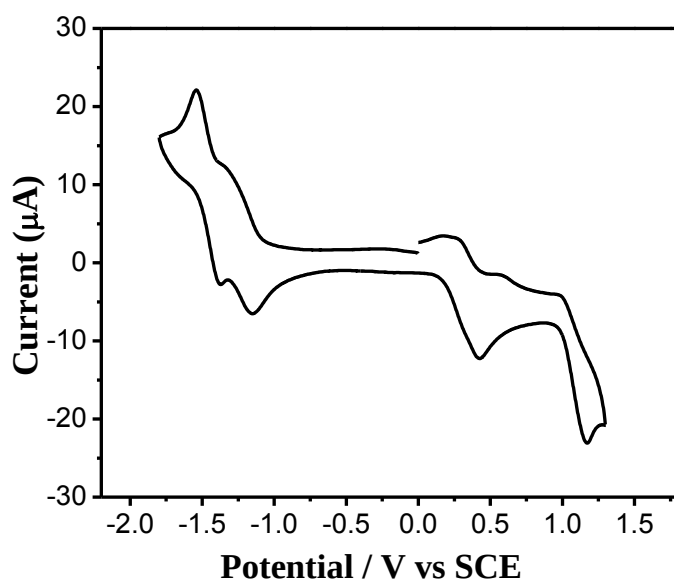


Fig. S15 Cyclic voltammogram of $\text{Zn}[\text{Pc}(\text{BP})_2(\text{TEG})_2]\text{-opp}$ (**5**) in CH_2Cl_2 containing 0.1 M $[\text{NBu}_4][\text{ClO}_4]$.

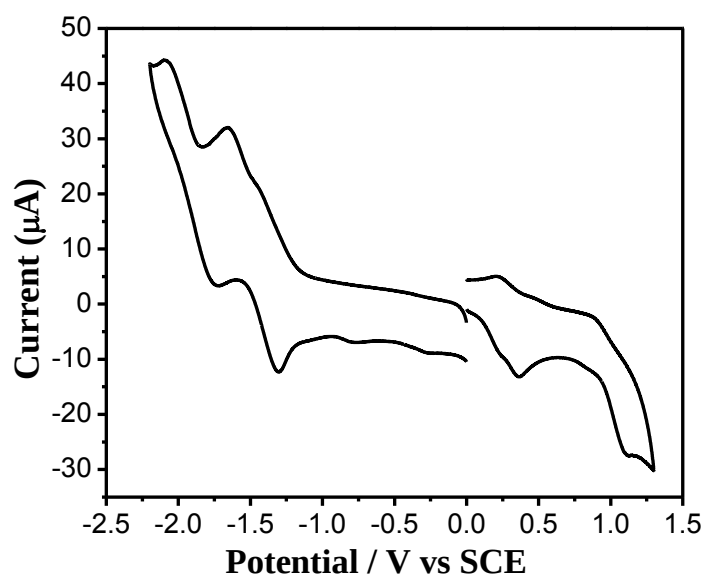


Fig. S16 Cyclic voltammogram of Zn[Pc(BP)₂(TEG)₂]-adj (**6**) in CH₂Cl₂ containing 0.1 M [NBu₄][ClO₄].

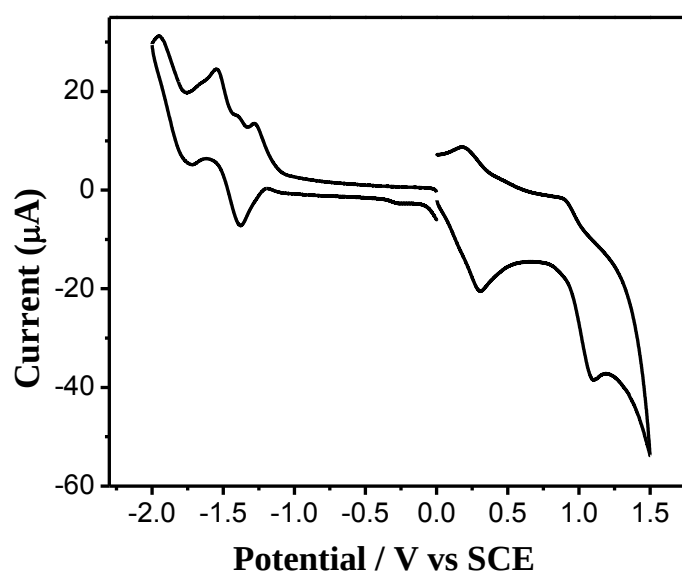


Fig. S17 Cyclic voltammogram of Zn[Pc(BP)₂(TEG)₂]-adj (**7**) in CH₂Cl₂ containing 0.1 M [NBu₄][ClO₄].

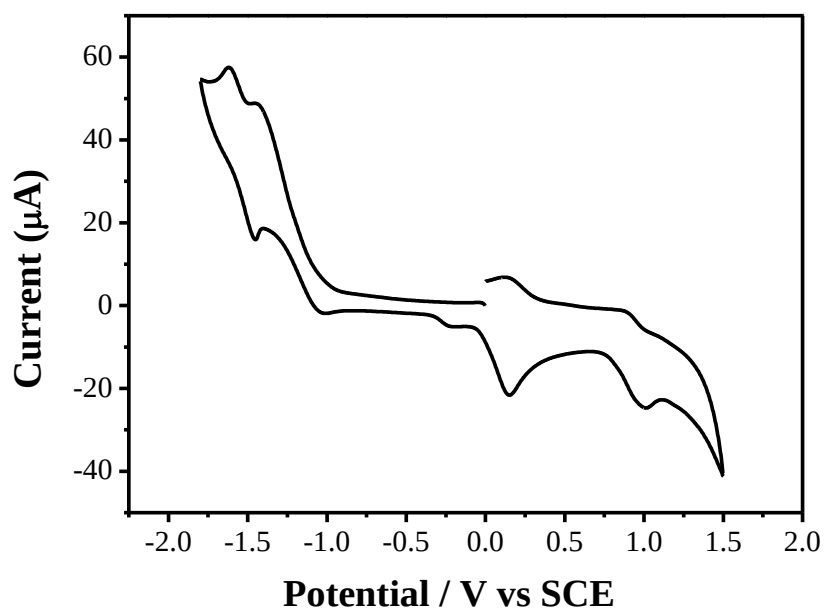


Fig. S18 Cyclic voltammogram of Zn[Pc(TEG)₄] (**8**) in CH₂Cl₂ containing 0.1 M [NBu₄][ClO₄].